

PG No. 3  $C_2$  2 (b-axis setting) [ monoclinic ] (lgs basis)

bra:  $\langle s, \uparrow |, \langle s, \downarrow |$   
ket:  $= |s, \uparrow \rangle, |s, \downarrow \rangle$

Table 1: (s,s) block.

No.	multipole	matrix
1	symmetry	1
	$\mathbb{Q}_0^{(a)}(A)$	$\begin{bmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & \frac{\sqrt{2}}{2} \end{bmatrix}$
2	symmetry	$y$
	$\mathbb{M}_1^{(1,-1;a)}(A)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{2} \\ \frac{\sqrt{2}i}{2} & 0 \end{bmatrix}$
3	symmetry	$x$
	$\mathbb{M}_1^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{2}}{2} \\ \frac{\sqrt{2}}{2} & 0 \end{bmatrix}$
4	symmetry	$z$
	$\mathbb{M}_1^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & -\frac{\sqrt{2}}{2} \end{bmatrix}$

bra:  $\langle s, \uparrow |, \langle s, \downarrow |$   
ket:  $= |p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$

Table 2: (s,p) block.

No.	multipole	matrix
5	symmetry	$y$
	$\mathbb{Q}_1^{(a)}(A)$	$\begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$
6	symmetry	$x$
	$\mathbb{Q}_1^{(a)}(B, 1)$	$\begin{bmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$

*continued ...*

Table 2

No.	multipole	matrix
7	symmetry	$z$ $\mathbb{Q}_1^{(a)}(B, 2)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \end{bmatrix}$
8	symmetry	$y$ $\mathbb{Q}_1^{(1,0;a)}(A)$ $\begin{bmatrix} \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
9	symmetry	$x$ $\mathbb{Q}_1^{(1,0;a)}(B, 1)$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
10	symmetry	$z$ $\mathbb{Q}_1^{(1,0;a)}(B, 2)$ $\begin{bmatrix} 0 & -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
11	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\mathbb{G}_2^{(1,-1;a)}(A, 1)$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{6} & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} \end{bmatrix}$
12	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\mathbb{G}_2^{(1,-1;a)}(A, 2)$ $\begin{bmatrix} 0 & \frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
13	symmetry	$\sqrt{3}xz$ $\mathbb{G}_2^{(1,-1;a)}(A, 3)$ $\begin{bmatrix} \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
14	symmetry	$\sqrt{3}yz$ $\mathbb{G}_2^{(1,-1;a)}(B, 1)$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
15	symmetry	$\sqrt{3}xy$ $\mathbb{G}_2^{(1,-1;a)}(B, 2)$ $\begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
16	symmetry	1

continued ...

Table 2

No.	multipole	matrix
	$\mathbb{G}_0^{(1,1;a)}(A)$	$\begin{bmatrix} 0 & \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \end{bmatrix}$
17	symmetry	$y$ $\mathbb{T}_1^{(a)}(A)$ $\begin{bmatrix} 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$
18	symmetry	$x$ $\mathbb{T}_1^{(a)}(B, 1)$ $\begin{bmatrix} \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
19	symmetry	$z$ $\mathbb{T}_1^{(a)}(B, 2)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \end{bmatrix}$
20	symmetry	$y$ $\mathbb{T}_1^{(1,0;a)}(A)$ $\begin{bmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
21	symmetry	$x$ $\mathbb{T}_1^{(1,0;a)}(B, 1)$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
22	symmetry	$z$ $\mathbb{T}_1^{(1,0;a)}(B, 2)$ $\begin{bmatrix} 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
23	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\mathbb{M}_2^{(1,-1;a)}(A, 1)$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & \frac{\sqrt{6}}{6} & 0 \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{6} \end{bmatrix}$
24	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\mathbb{M}_2^{(1,-1;a)}(A, 2)$ $\begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
25	symmetry	$\sqrt{3}xz$

continued ...

Table 2

No.	multipole	matrix
	$\mathbb{M}_2^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
26	symmetry	$\sqrt{3}yz$
	$\mathbb{M}_2^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
27	symmetry	$\sqrt{3}xy$
	$\mathbb{M}_2^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
28	symmetry	1
	$\mathbb{M}_0^{(1,1;a)}(A)$	$\begin{bmatrix} 0 & \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & \frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} \end{bmatrix}$

bra:  $= \langle s, \uparrow |, \langle s, \downarrow |$ ket:  $= |d_v, \uparrow \rangle, |d_v, \downarrow \rangle, |d_{xy}, \uparrow \rangle, |d_{xy}, \downarrow \rangle, |d_{xz}, \uparrow \rangle, |d_{xz}, \downarrow \rangle, |d_{yz}, \uparrow \rangle, |d_{yz}, \downarrow \rangle, |d_u, \uparrow \rangle, |d_u, \downarrow \rangle$ 

Table 3: (s,d) block.

No.	multipole	matrix
29	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{Q}_2^{(a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \end{bmatrix}$
30	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
	$\mathbb{Q}_2^{(a)}(A, 2)$	$\begin{bmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
31	symmetry	$\sqrt{3}xz$
	$\mathbb{Q}_2^{(a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
32	symmetry	$\sqrt{3}yz$

continued ...

Table 3

No.	multipole	matrix
	$\mathbb{Q}_2^{(a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$
33	symmetry	$\sqrt{3}xy$ $\mathbb{Q}_2^{(a)}(B, 2)$ $\begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
34	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\mathbb{Q}_2^{(1,0;a)}(A, 1)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
35	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\mathbb{Q}_2^{(1,0;a)}(A, 2)$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{bmatrix}$
36	symmetry	$\sqrt{3}xz$ $\mathbb{Q}_2^{(1,0;a)}(A, 3)$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & \frac{\sqrt{2}}{4} \\ \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
37	symmetry	$\sqrt{3}yz$ $\mathbb{Q}_2^{(1,0;a)}(B, 1)$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
38	symmetry	$\sqrt{3}xy$ $\mathbb{Q}_2^{(1,0;a)}(B, 2)$ $\begin{bmatrix} \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 \end{bmatrix}$
39	symmetry	$\sqrt{15}xyz$ $\mathbb{G}_3^{(1,-1;a)}(A, 1)$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$
40	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$ $\mathbb{G}_3^{(1,-1;a)}(A, 2)$ $\begin{bmatrix} 0 & -\frac{3\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{15}}{20} \\ \frac{3\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{15}}{20} & 0 \end{bmatrix}$
41	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 3

No.	multipole	matrix
	$\mathbb{G}_3^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{1}{4} \\ \frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & -\frac{1}{4} & 0 \end{bmatrix}$
42	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{G}_3^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{3\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ \frac{3\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 \end{bmatrix}$
43	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{G}_3^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & \frac{\sqrt{15}i}{10} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{15}i}{10} \end{bmatrix}$
44	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{G}_3^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{3}i}{12} & 0 & \frac{\sqrt{3}}{6} & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{i}{4} \\ -\frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{i}{4} & 0 \end{bmatrix}$
45	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{G}_3^{(1,-1;a)}(B, 4)$	$\begin{bmatrix} \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \end{bmatrix}$
46	symmetry	$y$
	$\mathbb{G}_1^{(1,1;a)}(A)$	$\begin{bmatrix} 0 & -\frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{10}}{20} \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{10}}{20} & 0 \end{bmatrix}$
47	symmetry	$x$
	$\mathbb{G}_1^{(1,1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{30}i}{20} & 0 & \frac{\sqrt{30}}{20} & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} \\ \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 \end{bmatrix}$
48	symmetry	$z$
	$\mathbb{G}_1^{(1,1;a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & \frac{\sqrt{30}}{20} & \frac{\sqrt{10}i}{10} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{10}i}{10} \end{bmatrix}$
49	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{T}_2^{(a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \end{bmatrix}$
50	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 3

No.	multipole	matrix
	$\mathbb{T}_2^{(a)}(A, 2)$	$\begin{bmatrix} \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
51	symmetry	$\sqrt{3}xz$ $\mathbb{T}_2^{(a)}(A, 3)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
52	symmetry	$\sqrt{3}yz$ $\mathbb{T}_2^{(a)}(B, 1)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$
53	symmetry	$\sqrt{3}xy$ $\mathbb{T}_2^{(a)}(B, 2)$ $\begin{bmatrix} 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
54	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\mathbb{T}_2^{(1,0;a)}(A, 1)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
55	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\mathbb{T}_2^{(1,0;a)}(A, 2)$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \end{bmatrix}$
56	symmetry	$\sqrt{3}xz$ $\mathbb{T}_2^{(1,0;a)}(A, 3)$ $\begin{bmatrix} 0 & \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
57	symmetry	$\sqrt{3}yz$ $\mathbb{T}_2^{(1,0;a)}(B, 1)$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
58	symmetry	$\sqrt{3}xy$ $\mathbb{T}_2^{(1,0;a)}(B, 2)$ $\begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{bmatrix}$
59	symmetry	$\sqrt{15}xyz$

continued ...

Table 3

No.	multipole	matrix
	$\mathbb{M}_3^{(1,-1;a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \end{bmatrix}$
60	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(A, 2)$	$\begin{bmatrix} 0 & \frac{3\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ -\frac{3\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{15}i}{20} & 0 \end{bmatrix}$
61	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{i}{4} \\ -\frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{i}{4} & 0 \end{bmatrix}$
62	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{3\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ \frac{3\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 \end{bmatrix}$
63	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{15}}{10} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{15}}{10} \end{bmatrix}$
64	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ -\frac{\sqrt{3}}{12} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{1}{4} & 0 \end{bmatrix}$
65	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(B, 4)$	$\begin{bmatrix} \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$
66	symmetry	$y$
	$\mathbb{M}_1^{(1,1;a)}(A)$	$\begin{bmatrix} 0 & \frac{\sqrt{30}i}{20} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{10}i}{20} \\ -\frac{\sqrt{30}i}{20} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & -\frac{\sqrt{10}i}{20} & 0 \end{bmatrix}$
67	symmetry	$x$
	$\mathbb{M}_1^{(1,1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 \end{bmatrix}$
68	symmetry	$z$

continued ...

Table 3

No.	multipole	matrix
	$\mathbb{M}_1^{(1,1;a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{10}}{10} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{10}}{10} \end{bmatrix}$

bra:  $= \langle s, \uparrow |, \langle s, \downarrow |$ ket:  $= |f_2, \uparrow \rangle, |f_2, \downarrow \rangle, |f_1, \uparrow \rangle, |f_1, \downarrow \rangle, |f_{bz}, \uparrow \rangle, |f_{bz}, \downarrow \rangle, |f_3, \uparrow \rangle, |f_3, \downarrow \rangle, |f_{3x}, \uparrow \rangle, |f_{3x}, \downarrow \rangle, |f_{3y}, \uparrow \rangle, |f_{3y}, \downarrow \rangle, |f_{az}, \uparrow \rangle, |f_{az}, \downarrow \rangle$ 

Table 4: (s,f) block.

No.	multipole	matrix
69	symmetry	$\sqrt{15}xyz$
	$\mathbb{Q}_3^{(a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
70	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{Q}_3^{(a)}(A, 2)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{10}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 \end{bmatrix}$
71	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{Q}_3^{(a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{8} & 0 & 0 \end{bmatrix}$
72	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{Q}_3^{(a)}(B, 1)$	$\begin{bmatrix} \frac{\sqrt{10}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
73	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{Q}_3^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \end{bmatrix}$
74	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{Q}_3^{(a)}(B, 3)$	$\begin{bmatrix} -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
75	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{Q}_3^{(a)}(B, 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
76	symmetry	$\sqrt{15}xyz$
	$\mathbb{Q}_3^{(1,0;a)}(A, 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{2}}{8} & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{24} & 0 & 0 \\ -\frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 \end{bmatrix}$
77	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A, 2)$	$\begin{bmatrix} -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} \\ 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
78	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A, 3)$	$\begin{bmatrix} -\frac{3\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} \\ 0 & \frac{3\sqrt{2}i}{16} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 \end{bmatrix}$
79	symmetry	$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & \frac{\sqrt{3}}{8} & 0 & 0 & 0 \end{bmatrix}$
80	symmetry	$-\frac{z(3x^2 + 3y^2 - 2z^2)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$
81	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & \frac{3\sqrt{2}i}{16} & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & -\frac{3\sqrt{2}i}{16} & -\frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} & \frac{\sqrt{5}}{8} & 0 & 0 \end{bmatrix}$
82	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(B, 4)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 \\ \frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 \end{bmatrix}$
83	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
	$\mathbb{G}_4^{(1,-1;a)}(A, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{30}i}{24} & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{2}}{8} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$
84	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{G}_4^{(1,-1;a)}(A, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{42}i}{24} & 0 & \frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{70}}{56} & \frac{\sqrt{105}i}{42} & 0 \\ -\frac{\sqrt{42}i}{24} & 0 & -\frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{42} \end{bmatrix}$
85	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
	$\mathbb{G}_4^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{14}}{56} & -\frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{56} & 0 & \frac{\sqrt{210}}{56} & 0 & 0 \\ \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & -\frac{\sqrt{210}i}{56} & 0 & -\frac{\sqrt{210}}{56} & 0 & 0 & 0 \end{bmatrix}$
86	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(A, 4)$	$\begin{bmatrix} -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 \end{bmatrix}$
87	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(A, 5)$	$\begin{bmatrix} -\frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & \frac{\sqrt{21}}{14} & -\frac{\sqrt{210}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} \\ 0 & \frac{\sqrt{14}i}{16} & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & \frac{\sqrt{210}i}{112} & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 \end{bmatrix}$
88	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & \frac{\sqrt{5}}{8} & 0 & 0 \end{bmatrix}$
89	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
90	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{14}i}{16} & 0 & 0 & \frac{3\sqrt{21}}{56} & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{16} & -\frac{3\sqrt{21}}{56} & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{112} & \frac{\sqrt{35}}{56} & 0 \end{bmatrix}$
91	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(B, 4)$	$\begin{bmatrix} 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 \\ -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{14} & -\frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 \end{bmatrix}$
92	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{G}_2^{(1,1;a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & \frac{\sqrt{14}}{14} & \frac{\sqrt{21}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & -\frac{\sqrt{21}i}{14} \end{bmatrix}$
93	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{G}_2^{(1,1;a)}(A, 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{70}i}{28} & 0 & \frac{\sqrt{70}}{28} & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & \frac{\sqrt{42}}{84} & 0 & 0 \\ \frac{\sqrt{70}i}{28} & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 \end{bmatrix}$
94	symmetry	$\sqrt{3}xz$
	$\mathbb{G}_2^{(1,1;a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & \frac{\sqrt{105}}{42} & \frac{\sqrt{42}i}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & -\frac{\sqrt{42}i}{21} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 \end{bmatrix}$
95	symmetry	$\sqrt{3}yz$
	$\mathbb{G}_2^{(1,1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{21} & \frac{\sqrt{7}}{14} & 0 \end{bmatrix}$
96	symmetry	$\sqrt{3}xy$
	$\mathbb{G}_2^{(1,1;a)}(B, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{70}}{28} & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 \\ \frac{\sqrt{70}}{28} & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & \frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 \end{bmatrix}$
97	symmetry	$\sqrt{15}xyz$
	$\mathbb{T}_3^{(a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
98	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{T}_3^{(a)}(A, 2)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{10}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 \end{bmatrix}$
99	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{T}_3^{(a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{8} & 0 & 0 \end{bmatrix}$
100	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{T}_3^{(a)}(B, 1)$	$\begin{bmatrix} \frac{\sqrt{10}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
101	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{T}_3^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \end{bmatrix}$
102	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{T}_3^{(a)}(B, 3)$	$\begin{bmatrix} -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
103	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
104	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & -\frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{2}i}{8} & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 \\ -\frac{\sqrt{2}}{8} & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 \end{bmatrix}$
105	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} \\ 0 & \frac{\sqrt{30}}{16} & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & \frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
106	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & \frac{\sqrt{3}i}{6} & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{30}}{48} & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 \end{bmatrix}$
107	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{16} & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 \end{bmatrix}$
108	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
109	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & -\frac{3\sqrt{2}}{16} & \frac{\sqrt{3}i}{24} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{48} & -\frac{\sqrt{5}i}{8} & 0 & 0 \end{bmatrix}$
110	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{24} & 0 & 0 \\ -\frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & \frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 \end{bmatrix}$
111	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{M}_4^{(1,-1;a)}(A, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{2}i}{8} & \frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{30}}{24} & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{6} \end{bmatrix}$
112	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
	$\mathbb{M}_4^{(1,-1;a)}(A, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{42}}{24} & 0 & -\frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{70}i}{56} & \frac{\sqrt{105}}{42} & 0 \\ -\frac{\sqrt{42}}{24} & 0 & \frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{42} \end{bmatrix}$
113	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
	$\mathbb{M}_4^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{56} & 0 & -\frac{\sqrt{210}i}{56} & 0 & 0 \\ \frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & -\frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 \end{bmatrix}$
114	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(A, 4)$	$\begin{bmatrix} -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & \frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} \\ 0 & \frac{\sqrt{2}}{16} & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & \frac{\sqrt{5}}{8} & 0 \end{bmatrix}$
115	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(A, 5)$	$\begin{bmatrix} -\frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & -\frac{\sqrt{21}i}{14} & -\frac{\sqrt{210}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & \frac{\sqrt{14}}{16} & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & \frac{\sqrt{210}}{112} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 \end{bmatrix}$
116	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & \frac{\sqrt{2}}{16} & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{16} & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 \end{bmatrix}$
117	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
118	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{14}}{16} & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 & 0 & \frac{\sqrt{35}i}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{16} & \frac{3\sqrt{21}i}{56} & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{112} & -\frac{\sqrt{35}i}{56} & 0 & 0 \end{bmatrix}$
119	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(B, 4)$	$\begin{bmatrix} 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{56} & 0 & \frac{\sqrt{210}}{56} & 0 & 0 \\ \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & \frac{\sqrt{210}i}{56} & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 & 0 \end{bmatrix}$
120	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{M}_2^{(1,1;a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & -\frac{\sqrt{14}i}{14} & \frac{\sqrt{21}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & -\frac{\sqrt{21}}{14} \end{bmatrix}$
121	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
	$\mathbb{M}_2^{(1,1;a)}(A, 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{70}}{28} & 0 & -\frac{\sqrt{70}i}{28} & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 \\ \frac{\sqrt{70}}{28} & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 \end{bmatrix}$
122	symmetry	$\sqrt{3}xz$
	$\mathbb{M}_2^{(1,1;a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & -\frac{\sqrt{105}i}{42} & \frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{42}}{21} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 \end{bmatrix}$
123	symmetry	$\sqrt{3}yz$
	$\mathbb{M}_2^{(1,1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & \frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & -\frac{\sqrt{42}}{21} & -\frac{\sqrt{7}i}{14} & 0 & 0 \end{bmatrix}$
124	symmetry	$\sqrt{3}xy$
	$\mathbb{M}_2^{(1,1;a)}(B, 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{70}i}{28} & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 \\ -\frac{\sqrt{70}i}{28} & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & -\frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 \end{bmatrix}$

bra: =  $\langle p_x, \uparrow |, \langle p_x, \downarrow |, \langle p_y, \uparrow |, \langle p_y, \downarrow |, \langle p_z, \uparrow |, \langle p_z, \downarrow |$ ket: =  $|p_x, \uparrow \rangle, |p_x, \downarrow \rangle, |p_y, \uparrow \rangle, |p_y, \downarrow \rangle, |p_z, \uparrow \rangle, |p_z, \downarrow \rangle$ 

Table 5: (p,p) block.

No.	multipole	matrix
125	symmetry	$1$
	$\mathbb{Q}_0^{(a)}(A)$	$\begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \end{bmatrix}$

continued ...

Table 5

No.	multipole	matrix
126	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} \end{bmatrix}$
127	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
128	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
129	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$
130	symmetry	$\sqrt{3}xy$

continued ...

Table 5

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
131	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & \frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{bmatrix}$
132	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
133	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{bmatrix}$
134	symmetry	$\sqrt{3}yz$

continued ...

Table 5

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$
135	symmetry	$\sqrt{3}xy$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
136	symmetry	1
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$
137	symmetry	$y$
		$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{bmatrix}$
138	symmetry	$x$

continued ...

Table 5

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$
139	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
140	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
141	symmetry	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 \\ -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ 0 & -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \end{bmatrix}$
142	symmetry	$\begin{bmatrix} \sqrt{3}(x-y)(x+y) \\ 2 \end{bmatrix}$

continued ...

Table 5

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ -\frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{6} & 0 \end{bmatrix}$
143	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & \frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \\ 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 \end{bmatrix}$
144	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{bmatrix}$
145	symmetry	$y$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
146	symmetry	$x$

continued ...

Table 5

No.	multipole	matrix
	$\mathbb{M}_1^{(a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$
147	symmetry	$\begin{bmatrix} z \\ 0 & 0 & -\frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{2} & 0 & 0 \\ \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
148	symmetry	$\begin{bmatrix} y \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 \end{bmatrix}$
149	symmetry	$\begin{bmatrix} x \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \end{bmatrix}$
150	symmetry	$\begin{bmatrix} z \\ \end{bmatrix}$

continued ...

Table 5

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \end{bmatrix}$
151	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \end{bmatrix}$
152	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{5} & -\frac{\sqrt{5}}{10} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$
153	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$
154	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 5

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{5}}{5} & 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{5}}{10} & 0 \\ \frac{\sqrt{5}}{5} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \end{bmatrix}$
155	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
		$\begin{bmatrix} -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{5} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{5} \end{bmatrix}$
156	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \end{bmatrix}$
157	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$
158	symmetry	$y$

continued ...

Table 5

No.	multipole	matrix
	$\mathbb{M}_1^{(1,1;a)}(A)$	$\begin{bmatrix} 0 & \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \\ -\frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{15} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{15} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{30}i}{30} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & -\frac{\sqrt{30}i}{30} & 0 \end{bmatrix}$
159	symmetry	$x$ $\begin{bmatrix} 0 & \frac{\sqrt{30}}{15} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{15} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 \\ \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & 0 \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{30} \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}}{30} & 0 \end{bmatrix}$
160	symmetry	$z$ $\begin{bmatrix} -\frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & \frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & -\frac{\sqrt{30}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{30} & \frac{\sqrt{30}i}{20} & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{15} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{15} \end{bmatrix}$

bra: =  $\langle p_x, \uparrow |, \langle p_x, \downarrow |, \langle p_y, \uparrow |, \langle p_y, \downarrow |, \langle p_z, \uparrow |, \langle p_z, \downarrow |$ ket: =  $|d_v, \uparrow \rangle, |d_v, \downarrow \rangle, |d_{xy}, \uparrow \rangle, |d_{xy}, \downarrow \rangle, |d_{xz}, \uparrow \rangle, |d_{xz}, \downarrow \rangle, |d_{yz}, \uparrow \rangle, |d_{yz}, \downarrow \rangle, |d_u, \uparrow \rangle, |d_u, \downarrow \rangle$ 

Table 6: (p,d) block.

No.	multipole	matrix
161	symmetry	$y$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \end{bmatrix}$
162	symmetry	$\begin{bmatrix} x \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} \\ 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
163	symmetry	$\begin{bmatrix} z \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} \end{bmatrix}$
164	symmetry	$\begin{bmatrix} \sqrt{15}xyz \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
165	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{Q}_3^{(a)}(A, 2)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & -\frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \end{bmatrix}$
166	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{Q}_3^{(a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 \\ 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \end{bmatrix}$
167	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{Q}_3^{(a)}(B, 1)$	$\begin{bmatrix} \frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & \frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
168	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{Q}_3^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{10} \end{bmatrix}$
169	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

*continued ...*

Table 6

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 \\ 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
170	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
171	symmetry	$\sqrt{15}xyz$
		$\begin{bmatrix} 0 & \frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ \frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{12} & \frac{\sqrt{6}}{12} & 0 \\ -\frac{\sqrt{2}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 \end{bmatrix}$
172	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
		$\begin{bmatrix} -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{30}}{20} & -\frac{\sqrt{10}i}{20} & 0 \\ 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{10}i}{20} \\ 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{30} & 0 & -\frac{\sqrt{30}}{20} & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 \end{bmatrix}$
173	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & \frac{\sqrt{2}}{6} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & -\frac{\sqrt{2}}{6} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{6} & 0 & -\frac{\sqrt{2}}{12} & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{6} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
174	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & \frac{\sqrt{30}}{60} & \frac{\sqrt{10}i}{20} & 0 \\ 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{10}i}{20} \\ 0 & \frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 \end{bmatrix}$
175	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & -\frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{10}}{20} \\ \frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & \frac{\sqrt{10}}{20} & 0 \\ 0 & -\frac{\sqrt{30}i}{60} & 0 & -\frac{\sqrt{30}}{60} & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} \\ -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 \end{bmatrix}$
176	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & -\frac{\sqrt{2}}{6} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 \\ \frac{\sqrt{2}}{6} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 \end{bmatrix}$
177	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ \frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{12} & \frac{\sqrt{6}}{12} & 0 \\ 0 & \frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ \frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{6} & -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 \end{bmatrix}$
178	symmetry	$\begin{bmatrix} y \\ \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} \\ 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} \end{bmatrix}$
179	symmetry	$\begin{bmatrix} x \\ 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & \frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & -\frac{\sqrt{5}}{10} & 0 \end{bmatrix}$
180	symmetry	$\begin{bmatrix} z \\ 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \end{bmatrix}$
181	symmetry	$\sqrt{15}xyz$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{Q}_3^{(1,0;a)}(A, 1)$	$\begin{bmatrix} 0 & -\frac{i}{12} & 0 & -\frac{1}{6} & \frac{i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} \\ -\frac{i}{12} & 0 & \frac{1}{6} & 0 & 0 & -\frac{i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & -\frac{1}{12} & 0 & \frac{i}{6} & 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{\sqrt{3}}{12} \\ \frac{1}{12} & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{6} & -\frac{\sqrt{3}}{12} & 0 \\ \frac{i}{6} & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 \\ 0 & -\frac{i}{6} & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & 0 \end{bmatrix}$
182	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$ $\begin{bmatrix} -\frac{7\sqrt{15}i}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 \\ 0 & \frac{7\sqrt{15}i}{120} & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{40} \\ 0 & 0 & \frac{\sqrt{15}i}{15} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{40} \\ \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & \frac{3\sqrt{5}i}{40} & 0 \end{bmatrix}$
183	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} -\frac{5i}{24} & 0 & 0 & 0 & 0 & \frac{i}{12} & 0 & -\frac{1}{6} & \frac{\sqrt{3}i}{24} & 0 \\ 0 & \frac{5i}{24} & 0 & 0 & \frac{i}{12} & 0 & \frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}i}{24} \\ 0 & 0 & \frac{i}{6} & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{6} & \frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & 0 \\ 0 & -\frac{i}{24} & 0 & -\frac{1}{6} & \frac{i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} \\ -\frac{i}{24} & 0 & \frac{1}{6} & 0 & 0 & -\frac{i}{12} & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
184	symmetry	$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{15} & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 \\ -\frac{7\sqrt{15}i}{120} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{60} & \frac{\sqrt{5}i}{40} & 0 \\ 0 & \frac{7\sqrt{15}i}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & -\frac{\sqrt{5}i}{40} \\ 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & -\frac{3\sqrt{5}}{40} \\ -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{60} & \frac{3\sqrt{5}}{40} & 0 \end{bmatrix}$
185	symmetry	$-\frac{z(3x^2 + 3y^2 - 2z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{15}}{60} & 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ -\frac{\sqrt{15}}{60} & 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 \\ 0 & \frac{\sqrt{15}i}{60} & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} \\ \frac{\sqrt{15}i}{60} & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & \frac{\sqrt{15}i}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & \frac{\sqrt{15}i}{15} & 0 & 0 & 0 \end{bmatrix}$
186	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{6} & -\frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & 0 \\ \frac{5i}{24} & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & \frac{1}{12} & \frac{\sqrt{3}i}{24} & 0 \\ 0 & -\frac{5i}{24} & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{12} & 0 & 0 & -\frac{\sqrt{3}i}{24} \\ 0 & \frac{1}{24} & 0 & -\frac{i}{6} & 0 & 0 & \frac{i}{12} & 0 & 0 & -\frac{\sqrt{3}}{8} \\ -\frac{1}{24} & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & -\frac{i}{12} & \frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
187	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & -\frac{1}{6} & 0 & \frac{i}{12} & 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{\sqrt{3}}{12} \\ \frac{1}{6} & 0 & \frac{i}{12} & 0 & 0 & 0 & 0 & \frac{i}{6} & -\frac{\sqrt{3}}{12} & 0 \\ 0 & \frac{i}{6} & 0 & \frac{1}{12} & -\frac{i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} \\ \frac{i}{6} & 0 & -\frac{1}{12} & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{6} & -\frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & 0 \end{bmatrix}$
188	symmetry	$y$
		$\begin{bmatrix} \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{10} & \frac{\sqrt{15}i}{20} & 0 \\ 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
189	symmetry	$x$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{20} & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 \\ \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 \end{bmatrix}$
190	symmetry	$\begin{bmatrix} 0 & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{15}}{20} \\ -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{15}}{20} & 0 \\ 0 & \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 \end{bmatrix}$
191	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
192	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
193	symmetry	$\sqrt{3}xz$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 \end{bmatrix}$
194	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
195	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
196	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} \\ -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 \\ 0 & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{15}}{60} \\ -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & -\frac{\sqrt{15}}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & \frac{\sqrt{15}i}{15} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{15}i}{15} \end{bmatrix}$
197	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_2^{(1,-1;a)}(A, 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 \end{bmatrix}$
198	symmetry	$\sqrt{3}xz$
	$\mathbb{G}_2^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} \\ 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{5}i}{10} \end{bmatrix}$
199	symmetry	$\sqrt{3}yz$
	$\mathbb{G}_2^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{5}i}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & -\frac{\sqrt{5}}{10} & 0 \end{bmatrix}$
200	symmetry	$\sqrt{3}xy$
	$\mathbb{G}_2^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \end{bmatrix}$
201	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_4^{(1,-1;a)}(A, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{30} & -\frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & \frac{\sqrt{15}i}{30} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & -\frac{\sqrt{5}}{20} \\ \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{30} & \frac{\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & -\frac{\sqrt{15}}{30} & \frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{5}i}{10} \end{bmatrix}$
202	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
	$\mathbb{G}_4^{(1,-1;a)}(A, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{21} & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} \\ -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 \\ 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{7}}{28} \\ -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & \frac{\sqrt{7}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & \frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{7}i}{14} \end{bmatrix}$
203	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
	$\mathbb{G}_4^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} \\ \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 \\ 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{21}}{28} \\ -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{21}}{28} & 0 \\ -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 \end{bmatrix}$
204	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(A, 4)$	$\begin{bmatrix} -\frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 \\ 0 & \frac{i}{8} & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{8} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} \\ -\frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
205	symmetry	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_4^{(1,-1;a)}(A, 5)$	$\begin{bmatrix} -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{14} & -\frac{\sqrt{21}i}{56} & 0 \\ 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{21}i}{56} \\ 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{14} & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{56} \\ -\frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{21}i}{56} & 0 \end{bmatrix}$
206	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & -\frac{\sqrt{3}i}{8} & 0 \\ 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & \frac{\sqrt{3}i}{8} \\ 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & -\frac{\sqrt{3}}{8} \\ \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & \frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
207	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & \frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{4} & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
208	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 \\ \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{28} & -\frac{\sqrt{21}i}{56} & 0 \\ 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{21}i}{56} \\ 0 & \frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{21}}{56} \\ -\frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & \frac{\sqrt{21}}{56} & 0 & 0 \end{bmatrix}$
209	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_4^{(1,-1;a)}(B, 4)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{21}}{28} \\ 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{21}}{28} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} \\ 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 \\ 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 \end{bmatrix}$
210	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{G}_2^{(1,0;a)}(A, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{3}i}{12} & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ \frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & -\frac{\sqrt{3}}{12} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} \\ \frac{\sqrt{3}}{12} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 \end{bmatrix}$
211	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
	$\mathbb{G}_2^{(1,0;a)}(A, 2)$	$\begin{bmatrix} 0 & \frac{i}{12} & 0 & -\frac{1}{12} & -\frac{i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} \\ \frac{i}{12} & 0 & \frac{1}{12} & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ 0 & \frac{1}{12} & 0 & \frac{i}{12} & 0 & 0 & \frac{i}{6} & 0 & 0 & -\frac{\sqrt{3}}{12} \\ -\frac{1}{12} & 0 & \frac{i}{12} & 0 & 0 & 0 & 0 & -\frac{i}{6} & \frac{\sqrt{3}}{12} & 0 \\ \frac{i}{3} & 0 & 0 & 0 & 0 & -\frac{i}{12} & 0 & \frac{1}{12} & 0 & 0 \\ 0 & -\frac{i}{3} & 0 & 0 & -\frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & 0 \end{bmatrix}$
212	symmetry	$\sqrt{3}xz$
	$\mathbb{G}_2^{(1,0;a)}(A, 3)$	$\begin{bmatrix} -\frac{i}{12} & 0 & 0 & 0 & 0 & \frac{i}{12} & 0 & -\frac{1}{6} & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & \frac{i}{12} & 0 & 0 & \frac{i}{12} & 0 & \frac{1}{6} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & 0 & -\frac{i}{12} & 0 & 0 & \frac{1}{3} & 0 & -\frac{i}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{12} & -\frac{1}{3} & 0 & -\frac{i}{12} & 0 & 0 & 0 \\ 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & \frac{i}{12} & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 & -\frac{i}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
213	symmetry	$\sqrt{3}yz$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_2^{(1,0;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{i}{12} & 0 & 0 & -\frac{1}{12} & 0 & \frac{i}{3} & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{12} & \frac{1}{12} & 0 & \frac{i}{3} & 0 & 0 & 0 \\ \frac{i}{12} & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & \frac{1}{12} & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & -\frac{i}{12} & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{12} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & \frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & \frac{i}{12} & 0 & 0 & 0 \\ -\frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & -\frac{i}{12} & 0 & 0 \end{bmatrix}$
214	symmetry	$\sqrt{3}xy$
	$\mathbb{G}_2^{(1,0;a)}(B, 2)$	$\begin{bmatrix} 0 & \frac{1}{12} & 0 & \frac{i}{12} & 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{\sqrt{3}}{12} \\ -\frac{1}{12} & 0 & \frac{i}{12} & 0 & 0 & 0 & 0 & \frac{i}{6} & -\frac{\sqrt{3}}{12} & 0 \\ 0 & -\frac{i}{12} & 0 & \frac{1}{12} & -\frac{i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} \\ -\frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ 0 & 0 & \frac{i}{3} & 0 & 0 & -\frac{1}{12} & 0 & -\frac{i}{12} & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{3} & \frac{1}{12} & 0 & -\frac{i}{12} & 0 & 0 & 0 \end{bmatrix}$
215	symmetry	1
	$\mathbb{G}_0^{(1,1;a)}(A)$	$\begin{bmatrix} 0 & \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} \\ \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 \\ 0 & -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{60} \\ \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & \frac{\sqrt{30}}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & \frac{\sqrt{30}i}{30} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{30}i}{30} \end{bmatrix}$
216	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{G}_2^{(1,1;a)}(A, 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{105}i}{210} & 0 & -\frac{\sqrt{105}}{210} & -\frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} \\ -\frac{\sqrt{105}i}{210} & 0 & \frac{\sqrt{105}}{210} & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} \\ 0 & \frac{\sqrt{105}}{210} & 0 & -\frac{\sqrt{105}i}{210} & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & \frac{\sqrt{35}}{35} \\ -\frac{\sqrt{105}}{210} & 0 & -\frac{\sqrt{105}i}{210} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & -\frac{\sqrt{35}}{35} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{105}i}{105} & 0 & \frac{2\sqrt{105}}{105} & \frac{3\sqrt{35}i}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{105}i}{105} & 0 & -\frac{2\sqrt{105}}{105} & 0 & -\frac{3\sqrt{35}i}{70} \end{bmatrix}$
217	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{4\sqrt{35}i}{105} & 0 & \frac{\sqrt{35}}{30} & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{210} \\ \frac{4\sqrt{35}i}{105} & 0 & -\frac{\sqrt{35}}{30} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{105}i}{210} & 0 \\ 0 & \frac{4\sqrt{35}}{105} & 0 & -\frac{\sqrt{35}i}{30} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{105}}{210} \\ -\frac{4\sqrt{35}}{105} & 0 & -\frac{\sqrt{35}i}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & -\frac{\sqrt{105}}{210} & 0 \\ \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{105} & 0 & \frac{\sqrt{35}}{105} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{35}i}{105} & 0 & -\frac{\sqrt{35}}{105} & 0 & 0 & 0 \end{bmatrix}$
218	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} -\frac{\sqrt{35}i}{105} & 0 & 0 & 0 & 0 & \frac{4\sqrt{35}i}{105} & 0 & \frac{\sqrt{35}}{42} & \frac{2\sqrt{105}i}{105} & 0 \\ 0 & \frac{\sqrt{35}i}{105} & 0 & 0 & \frac{4\sqrt{35}i}{105} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{2\sqrt{105}i}{105} \\ 0 & 0 & -\frac{\sqrt{35}i}{105} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{105} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{105} & -\frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{105} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & \frac{4\sqrt{35}i}{105} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} \\ \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{4\sqrt{35}i}{105} & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 \end{bmatrix}$
219	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{35}i}{105} & 0 & 0 & -\frac{\sqrt{35}}{105} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{105} & \frac{\sqrt{35}}{105} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 \\ \frac{\sqrt{35}i}{105} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & \frac{4\sqrt{35}}{105} & \frac{2\sqrt{105}i}{105} & 0 \\ 0 & -\frac{\sqrt{35}i}{105} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{4\sqrt{35}}{105} & 0 & 0 & -\frac{2\sqrt{105}i}{105} \\ 0 & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{4\sqrt{35}i}{105} & 0 & 0 & -\frac{\sqrt{105}}{70} \\ \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{35}i}{105} & \frac{\sqrt{105}}{70} & 0 \end{bmatrix}$
220	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & -\frac{\sqrt{35}}{30} & 0 & \frac{4\sqrt{35}i}{105} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{105}}{210} \\ \frac{\sqrt{35}}{30} & 0 & \frac{4\sqrt{35}i}{105} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{105}}{210} & 0 \\ 0 & \frac{\sqrt{35}i}{30} & 0 & \frac{4\sqrt{35}}{105} & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{210} \\ \frac{\sqrt{35}i}{30} & 0 & -\frac{4\sqrt{35}}{105} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{105}i}{210} & 0 \\ 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{35}}{105} & 0 & -\frac{\sqrt{35}i}{105} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{35}}{105} & 0 & -\frac{\sqrt{35}i}{105} & 0 & 0 & 0 \end{bmatrix}$
221	symmetry	$y$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{T}_1^{(a)}(A)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 \end{bmatrix}$
222	symmetry	$x$ $\begin{bmatrix} \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 \\ 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} \\ 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
223	symmetry	$z$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{10} \end{bmatrix}$
224	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
225	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & -\frac{3\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$
226	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$
227	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
		$\begin{bmatrix} \frac{3\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & \frac{3\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 \end{bmatrix}$
228	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} \end{bmatrix}$
229	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 \\ 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
230	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
231	symmetry	$\sqrt{15}xyz$
		$\begin{bmatrix} 0 & -\frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} \\ -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & \frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{6}i}{12} & 0 \\ \frac{\sqrt{2}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 \end{bmatrix}$
232	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
		$\begin{bmatrix} \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{30}i}{20} & \frac{\sqrt{10}}{20} & 0 \\ 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{10}}{20} \\ 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{30} & 0 & -\frac{\sqrt{30}i}{20} & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 \end{bmatrix}$
233	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & -\frac{\sqrt{6}}{12} & 0 \\ 0 & \frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{12} & -\frac{\sqrt{2}i}{6} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{6} & 0 & -\frac{\sqrt{2}i}{12} & \frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{6} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
234	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{60} & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{60} & -\frac{\sqrt{10}}{20} & 0 \\ 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{10}}{20} \\ 0 & \frac{\sqrt{30}i}{30} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{30} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 \end{bmatrix}$
235	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & -\frac{\sqrt{30}i}{60} & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{10}i}{20} \\ \frac{\sqrt{30}i}{60} & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & \frac{\sqrt{10}i}{20} & 0 \\ 0 & \frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{30}i}{60} & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} \\ \frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{30}}{60} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 \end{bmatrix}$
236	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{12} & -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & 0 \\ \frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & -\frac{\sqrt{6}}{12} & 0 \\ 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & -\frac{\sqrt{2}i}{6} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{6} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 \end{bmatrix}$
237	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ \frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & -\frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & \frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{6} & -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 \end{bmatrix}$
238	symmetry	$\begin{bmatrix} \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \end{bmatrix}$
239	symmetry	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{20} & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & \frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & \frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$
240	symmetry	$\begin{bmatrix} 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 \end{bmatrix}$
241	symmetry	$\begin{bmatrix} & & & & & \sqrt{15}xyz & & & & \end{bmatrix}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{1}{12} & 0 & \frac{i}{6} & \frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ -\frac{1}{12} & 0 & -\frac{i}{6} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 \\ 0 & \frac{i}{12} & 0 & \frac{1}{6} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}i}{12} \\ -\frac{i}{12} & 0 & \frac{1}{6} & 0 & 0 & 0 & 0 & \frac{1}{6} & \frac{\sqrt{3}i}{12} & 0 \\ \frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 \\ 0 & -\frac{1}{6} & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & 0 \end{bmatrix}$
242	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
		$\begin{bmatrix} -\frac{7\sqrt{15}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 \\ 0 & \frac{7\sqrt{15}}{120} & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{40} \\ 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} \\ \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 \end{bmatrix}$
243	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
		$\begin{bmatrix} -\frac{5}{24} & 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & \frac{i}{6} & \frac{\sqrt{3}}{24} & 0 \\ 0 & \frac{5}{24} & 0 & 0 & \frac{1}{12} & 0 & -\frac{i}{6} & 0 & 0 & -\frac{\sqrt{3}}{24} \\ 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{6} & -\frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 & 0 \\ 0 & -\frac{1}{24} & 0 & \frac{i}{6} & \frac{1}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} \\ -\frac{1}{24} & 0 & -\frac{i}{6} & 0 & 0 & -\frac{1}{12} & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
244	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{15} & \frac{\sqrt{15}i}{15} & 0 & 0 & 0 & 0 & 0 \\ -\frac{7\sqrt{15}}{120} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & \frac{\sqrt{5}}{40} & 0 \\ 0 & \frac{7\sqrt{15}}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & -\frac{\sqrt{5}}{40} \\ 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & \frac{3\sqrt{5}i}{40} \\ \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{60} & -\frac{3\sqrt{5}i}{40} & 0 & 0 \end{bmatrix}$
245	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{\sqrt{15}i}{60} & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} \\ \frac{\sqrt{15}i}{60} & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & \frac{\sqrt{15}}{60} & 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} \\ \frac{\sqrt{15}}{60} & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{15} & 0 & \frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 \end{bmatrix}$
246	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & \frac{1}{6} & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{6} & \frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & 0 \\ \frac{5}{24} & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{12} & \frac{\sqrt{3}}{24} & 0 \\ 0 & -\frac{5}{24} & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{12} & 0 & 0 & -\frac{\sqrt{3}}{24} \\ 0 & -\frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & \frac{1}{12} & 0 & 0 & \frac{\sqrt{3}i}{8} \\ \frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{1}{12} & -\frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
247	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & \frac{i}{6} & 0 & \frac{1}{12} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}i}{12} \\ -\frac{i}{6} & 0 & \frac{1}{12} & 0 & 0 & 0 & 0 & \frac{1}{6} & \frac{\sqrt{3}i}{12} & 0 \\ 0 & \frac{1}{6} & 0 & -\frac{i}{12} & -\frac{1}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} \\ \frac{1}{6} & 0 & \frac{i}{12} & 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{\sqrt{3}}{12} & 0 \\ 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{6} & \frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 & 0 \end{bmatrix}$
248	symmetry	$y$
		$\begin{bmatrix} -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{15}}{20} & 0 \\ 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{15}}{20} \\ 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
249	symmetry	$x$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{20} & \frac{\sqrt{15}}{20} & 0 \\ 0 & \frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{15}}{20} \\ 0 & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 \end{bmatrix}$
250	symmetry	$\begin{bmatrix} 0 & \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{20} & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 \end{bmatrix}$
251	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
252	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
253	symmetry	$\begin{bmatrix} \sqrt{3}(x-y)(x+y) \\ \sqrt{3}xz \end{bmatrix}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 \end{bmatrix}$
254	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
255	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
256	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} \\ -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}}{60} & 0 \\ 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{15}}{60} \\ \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & \frac{\sqrt{15}i}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{20} & \frac{\sqrt{15}}{15} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{15}}{15} \end{bmatrix}$
257	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

*continued ...*

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 \end{bmatrix}$
258	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 \end{bmatrix}$
259	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & -\frac{\sqrt{5}}{20} & 0 \\ 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{5}}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & \frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$
260	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} \\ \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 \end{bmatrix}$
261	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{30} & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & \frac{\sqrt{5}i}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & \frac{\sqrt{15}i}{30} & \frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & -\frac{\sqrt{5}}{10} \end{bmatrix}$
262	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
		$\begin{bmatrix} 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{21} & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} \\ -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{7}i}{28} \\ \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & -\frac{\sqrt{7}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & \frac{\sqrt{21}i}{42} & \frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{7}}{14} \end{bmatrix}$
263	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
		$\begin{bmatrix} 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} \\ \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 \\ 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{21}i}{28} \\ \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & \frac{\sqrt{21}i}{28} & 0 \\ -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 \end{bmatrix}$
264	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
		$\begin{bmatrix} -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & \frac{\sqrt{3}}{8} & 0 \\ 0 & \frac{1}{8} & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{1}{8} & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} \\ -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & \frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
265	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{M}_4^{(1,-1;a)}(A, 5)$	$\begin{bmatrix} -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{21}}{56} & 0 \\ 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{21}}{56} \\ 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{7}}{56} & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{56} \\ -\frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{21}}{56} & 0 \end{bmatrix}$
266	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & -\frac{\sqrt{3}}{8} & 0 \\ 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & \frac{\sqrt{3}}{8} \\ 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & \frac{\sqrt{3}i}{8} \\ -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & -\frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
267	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & -\frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{4} & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
268	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{28} & -\frac{\sqrt{21}}{56} & 0 \\ 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{21}}{56} \\ 0 & -\frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{21}i}{56} \\ \frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & -\frac{\sqrt{21}i}{56} & 0 \end{bmatrix}$
269	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{21}i}{28} \\ 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & \frac{\sqrt{21}i}{28} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} \\ 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{21}}{28} & 0 \\ 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \end{bmatrix}$
270	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & -\frac{\sqrt{3}}{12} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ -\frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 \\ 0 & -\frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ \frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 \end{bmatrix}$
271	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & -\frac{1}{12} & 0 & -\frac{i}{12} & \frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ -\frac{1}{12} & 0 & \frac{i}{12} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 \\ 0 & \frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}i}{12} \\ -\frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & 0 & 0 & \frac{1}{6} & \frac{\sqrt{3}i}{12} & 0 \\ -\frac{1}{3} & 0 & 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & \frac{i}{12} & 0 \\ 0 & \frac{1}{3} & 0 & 0 & \frac{1}{12} & 0 & -\frac{i}{12} & 0 & 0 & 0 \end{bmatrix}$
272	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} \frac{1}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{12} & 0 & -\frac{i}{6} & \frac{\sqrt{3}}{12} & 0 \\ 0 & -\frac{1}{12} & 0 & 0 & -\frac{1}{12} & 0 & \frac{i}{6} & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & 0 & \frac{1}{12} & 0 & 0 & 0 & \frac{i}{3} & 0 & \frac{1}{12} & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{12} & -\frac{i}{3} & 0 & \frac{1}{12} & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{6} & 0 & -\frac{i}{6} & -\frac{1}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & 0 & \frac{1}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
273	symmetry	$\sqrt{3}yz$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & \frac{1}{12} & 0 & 0 & -\frac{i}{12} & 0 & -\frac{1}{3} & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{12} & \frac{i}{12} & 0 & -\frac{1}{3} & 0 & 0 & 0 \\ -\frac{1}{12} & 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & \frac{i}{12} & \frac{\sqrt{3}}{12} & 0 \\ 0 & \frac{1}{12} & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{12} & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & \frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 & -\frac{1}{12} & 0 & 0 & 0 \\ -\frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & 0 \end{bmatrix}$
274	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & \frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ -\frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & 0 & 0 & -\frac{1}{6} & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & \frac{1}{12} & 0 & \frac{i}{12} & \frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ \frac{1}{12} & 0 & -\frac{i}{12} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 \\ 0 & 0 & -\frac{1}{3} & 0 & 0 & -\frac{i}{12} & 0 & \frac{1}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{3} & \frac{i}{12} & 0 & \frac{1}{12} & 0 & 0 & 0 \end{bmatrix}$
275	symmetry	$1$ $\begin{bmatrix} 0 & \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} \\ \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} \\ 0 & \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{30}i}{60} \\ -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & -\frac{\sqrt{30}i}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & \frac{\sqrt{30}}{30} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{30}}{30} \end{bmatrix}$
276	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}}{210} & 0 & \frac{\sqrt{105}i}{210} & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{35} \\ -\frac{\sqrt{105}}{210} & 0 & -\frac{\sqrt{105}i}{210} & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & 0 & \frac{\sqrt{35}}{35} \\ 0 & -\frac{\sqrt{105}i}{210} & 0 & -\frac{\sqrt{105}}{210} & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & -\frac{\sqrt{35}i}{35} \\ \frac{\sqrt{105}i}{210} & 0 & -\frac{\sqrt{105}}{210} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{70} & \frac{\sqrt{35}i}{35} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{105}}{105} & 0 & -\frac{2\sqrt{105}i}{105} & \frac{3\sqrt{35}}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{105}}{105} & 0 & \frac{2\sqrt{105}i}{105} & 0 & -\frac{3\sqrt{35}}{70} \end{bmatrix}$
277	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{M}_2^{(1,1;a)}(A, 2)$	$\begin{bmatrix} 0 & \frac{4\sqrt{35}}{105} & 0 & -\frac{\sqrt{35}i}{30} & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{210} \\ \frac{4\sqrt{35}}{105} & 0 & \frac{\sqrt{35}i}{30} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{105}}{210} & 0 \\ 0 & -\frac{4\sqrt{35}i}{105} & 0 & -\frac{\sqrt{35}}{30} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{105}i}{210} \\ \frac{4\sqrt{35}i}{105} & 0 & -\frac{\sqrt{35}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{105}i}{210} & 0 \\ \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{105} & 0 & -\frac{\sqrt{35}i}{105} & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{35}}{105} & 0 & \frac{\sqrt{35}i}{105} & 0 & 0 & 0 \end{bmatrix}$
278	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} -\frac{\sqrt{35}}{105} & 0 & 0 & 0 & 0 & \frac{4\sqrt{35}}{105} & 0 & -\frac{\sqrt{35}i}{42} & \frac{2\sqrt{105}}{105} & 0 \\ 0 & \frac{\sqrt{35}}{105} & 0 & 0 & \frac{4\sqrt{35}}{105} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{2\sqrt{105}}{105} \\ 0 & 0 & -\frac{\sqrt{35}}{105} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{105} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{105} & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{105} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{42} & \frac{4\sqrt{35}}{105} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} \\ \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{4\sqrt{35}}{105} & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 \end{bmatrix}$
279	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{35}}{105} & 0 & 0 & \frac{\sqrt{35}i}{105} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{105} & -\frac{\sqrt{35}i}{105} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 \\ \frac{\sqrt{35}}{105} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{4\sqrt{35}i}{105} & \frac{2\sqrt{105}}{105} & 0 \\ 0 & -\frac{\sqrt{35}}{105} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{4\sqrt{35}i}{105} & 0 & 0 & -\frac{2\sqrt{105}}{105} \\ 0 & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{4\sqrt{35}}{105} & 0 & 0 & \frac{\sqrt{105}i}{70} \\ -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{35}}{105} & -\frac{\sqrt{105}i}{70} & 0 \end{bmatrix}$
280	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & \frac{\sqrt{35}i}{30} & 0 & \frac{4\sqrt{35}}{105} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{105}i}{210} \\ -\frac{\sqrt{35}i}{30} & 0 & \frac{4\sqrt{35}}{105} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & -\frac{\sqrt{105}i}{210} & 0 \\ 0 & \frac{\sqrt{35}}{30} & 0 & -\frac{4\sqrt{35}i}{105} & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{210} \\ \frac{\sqrt{35}}{30} & 0 & \frac{4\sqrt{35}i}{105} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{105}}{210} & 0 \\ 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{35}i}{105} & 0 & -\frac{\sqrt{35}}{105} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & -\frac{\sqrt{35}i}{105} & 0 & -\frac{\sqrt{35}}{105} & 0 & 0 & 0 \end{bmatrix}$

bra: =  $\langle p_x, \uparrow |, \langle p_x, \downarrow |, \langle p_y, \uparrow |, \langle p_y, \downarrow |, \langle p_z, \uparrow |, \langle p_z, \downarrow |$

ket: =  $|f_2, \uparrow \rangle, |f_2, \downarrow \rangle, |f_1, \uparrow \rangle, |f_1, \downarrow \rangle, |f_{bz}, \uparrow \rangle, |f_{bz}, \downarrow \rangle, |f_3, \uparrow \rangle, |f_3, \downarrow \rangle, |f_{3x}, \uparrow \rangle, |f_{3x}, \downarrow \rangle, |f_{3y}, \uparrow \rangle, |f_{3y}, \downarrow \rangle, |f_{az}, \uparrow \rangle, |f_{az}, \downarrow \rangle$

Table 7: (p,f) block.

No.	multipole	matrix
281	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} \end{bmatrix}$
282	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
283	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 \end{bmatrix}$
284	symmetry	$\sqrt{3}yz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_2^{(a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 \end{bmatrix}$
285	symmetry	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 \\ -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
286	symmetry	$\begin{bmatrix} \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \end{bmatrix}$
287	symmetry	$\begin{bmatrix} -\frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 \end{bmatrix}$
288	symmetry	$\begin{bmatrix} \frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_4^{(a)}(A, 3)$	$\begin{bmatrix} \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
289	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{16} & 0 & 0 & 0 \end{bmatrix}$
290	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 & 0 & 0 \end{bmatrix}$
291	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 \end{bmatrix}$
292	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_4^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
293	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{21}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & \frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 \end{bmatrix}$
294	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 \\ \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
295	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{1}{8} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & \frac{1}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & \frac{i}{8} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & \frac{i}{8} & 0 \\ 0 & \frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{48} & 0 & -\frac{\sqrt{6}i}{48} & 0 & 0 \\ -\frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{48} & 0 & -\frac{\sqrt{6}i}{48} & 0 & 0 & 0 \end{bmatrix}$
296	symmetry	$-\frac{\sqrt{15}(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4)}{12}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_4^{(1,-1;a)}(A, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{168} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{168} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & \frac{\sqrt{35}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{168} & 0 & -\frac{\sqrt{21}}{28} & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{56} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{168} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 \\ 0 & -\frac{\sqrt{14}}{16} & 0 & -\frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{210}i}{336} & 0 & 0 \\ \frac{\sqrt{14}}{16} & 0 & -\frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{210}i}{336} & 0 & 0 & 0 & 0 \end{bmatrix}$
297	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & -\frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & -\frac{\sqrt{105}}{56} & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{28} & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} \\ 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 \\ 0 & -\frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 \\ \frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 \end{bmatrix}$
298	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{32} & 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 \\ -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & -\frac{3i}{16} & 0 & 0 & \frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{16} \\ 0 & 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 \end{bmatrix}$
299	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{42}}{56} & 0 & \frac{3\sqrt{42}i}{224} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 \\ -\frac{\sqrt{42}}{56} & 0 & \frac{3\sqrt{42}i}{224} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & -\frac{\sqrt{70}}{56} & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{42}i}{224} & 0 & \frac{\sqrt{42}}{56} & \frac{\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{224} & 0 & -\frac{\sqrt{70}}{56} & \frac{\sqrt{105}i}{112} & 0 \\ -\frac{3\sqrt{42}i}{224} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{112} \\ 0 & 0 & -\frac{\sqrt{42}i}{32} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{32} & \frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{224} & 0 & 0 \end{bmatrix}$
300	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_4^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}}{32} & -\frac{3i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{32} & -\frac{\sqrt{15}i}{16} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & 0 & \frac{\sqrt{15}i}{16} \\ 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & 0 & -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 \end{bmatrix}$
301	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{8} & 0 & \frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{8} & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
302	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{3\sqrt{42}}{224} & \frac{\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{70}}{224} & -\frac{\sqrt{105}i}{112} & 0 \\ \frac{\sqrt{42}i}{56} & 0 & \frac{3\sqrt{42}}{224} & 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{70}}{224} & 0 & 0 & \frac{\sqrt{105}i}{112} \\ 0 & \frac{3\sqrt{42}}{224} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{5\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 \\ -\frac{3\sqrt{42}}{224} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} & \frac{5\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{3\sqrt{7}}{56} & \frac{\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{32} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & 0 & 0 & 0 \end{bmatrix}$
303	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{56} & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} \\ 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & -\frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & \frac{\sqrt{105}}{56} & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{112} & 0 & \frac{\sqrt{42}}{112} & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 \\ \frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 \end{bmatrix}$
304	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_2^{(1,0;a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{21} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & 0 & 0 \end{bmatrix}$
305	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & 0 & \frac{\sqrt{7}i}{42} & 0 & 0 & -\frac{\sqrt{42}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & -\frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{42} & \frac{\sqrt{42}}{84} & 0 \\ \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & \frac{\sqrt{7}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} \\ 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{7}i}{42} & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{42} & 0 & 0 & \frac{\sqrt{7}}{21} & 0 & \frac{\sqrt{7}i}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{42} & -\frac{\sqrt{7}}{21} & 0 & \frac{\sqrt{7}i}{21} & 0 & 0 & 0 \end{bmatrix}$
306	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & \frac{\sqrt{7}}{12} & 0 & -\frac{\sqrt{7}i}{84} & 0 & 0 \\ \frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & -\frac{\sqrt{7}}{12} & 0 & -\frac{\sqrt{7}i}{84} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & \frac{\sqrt{70}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{84} & 0 & \frac{5\sqrt{7}}{84} & \frac{\sqrt{42}i}{84} & 0 \\ -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{7}i}{84} & 0 & -\frac{5\sqrt{7}}{84} & 0 & 0 & -\frac{\sqrt{42}i}{84} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{7}i}{21} & 0 & 0 & \frac{\sqrt{42}}{28} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & 0 & \frac{\sqrt{7}i}{21} & -\frac{\sqrt{42}}{28} & 0 & 0 \end{bmatrix}$
307	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & \frac{\sqrt{70}i}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & \frac{\sqrt{7}}{84} & -\frac{\sqrt{42}i}{84} & 0 \\ -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{84} & 0 & 0 & \frac{\sqrt{42}i}{84} \\ 0 & \frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & \frac{\sqrt{7}}{84} & 0 & -\frac{\sqrt{7}i}{12} & 0 & 0 \\ -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & -\frac{\sqrt{7}}{84} & 0 & -\frac{\sqrt{7}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & \frac{\sqrt{7}i}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{7}i}{21} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 \end{bmatrix}$
308	symmetry	$\sqrt{3}xy$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & -\frac{\sqrt{7}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} \\ 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & \frac{\sqrt{7}i}{42} & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 \\ 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & \frac{\sqrt{7}i}{42} & 0 & 0 & -\frac{\sqrt{42}}{84} \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & \frac{\sqrt{70}}{84} & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{42} & \frac{\sqrt{42}}{84} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{21} & 0 & \frac{\sqrt{7}}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{42} & 0 & 0 & -\frac{\sqrt{7}i}{21} & 0 & -\frac{\sqrt{7}}{21} & 0 & 0 & 0 \end{bmatrix}$
309	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \\ 0 & \frac{\sqrt{6}}{48} & 0 & \frac{\sqrt{6}i}{48} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 \\ -\frac{\sqrt{6}}{48} & 0 & \frac{\sqrt{6}i}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
310	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{210}i}{60} & 0 & 0 & -\frac{\sqrt{35}}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{168} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{60} & \frac{\sqrt{35}}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 \\ \frac{\sqrt{210}i}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{280} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} \\ 0 & -\frac{\sqrt{210}i}{60} & 0 & 0 & -\frac{\sqrt{35}i}{280} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 \\ 0 & -\frac{\sqrt{210}}{240} & 0 & -\frac{\sqrt{210}i}{240} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{112} & 0 & \frac{5\sqrt{14}i}{112} & 0 & 0 & 0 \\ \frac{\sqrt{210}}{240} & 0 & -\frac{\sqrt{210}i}{240} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{112} & 0 & \frac{5\sqrt{14}i}{112} & 0 & 0 & 0 & 0 \end{bmatrix}$
311	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 & \frac{\sqrt{105}}{56} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{3\sqrt{7}}{56} \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{280} & -\frac{\sqrt{105}}{56} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & \frac{3\sqrt{7}}{56} & 0 \\ \frac{\sqrt{70}i}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & -\frac{\sqrt{105}}{140} & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} \\ 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & \frac{\sqrt{105}}{140} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 \\ 0 & \frac{\sqrt{70}}{80} & 0 & -\frac{\sqrt{70}i}{80} & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & -\frac{3\sqrt{42}}{112} & 0 & -\frac{3\sqrt{42}i}{112} & 0 & 0 \\ -\frac{\sqrt{70}}{80} & 0 & -\frac{\sqrt{70}i}{80} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} & \frac{3\sqrt{42}}{112} & 0 & -\frac{3\sqrt{42}i}{112} & 0 & 0 & 0 \end{bmatrix}$
312	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_4^{(1,0;a)}(A, 4)$	$\begin{bmatrix} 0 & \frac{\sqrt{10}}{40} & 0 & -\frac{3\sqrt{10}i}{160} & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & -\frac{\sqrt{6}}{8} & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 \\ -\frac{\sqrt{10}}{40} & 0 & -\frac{3\sqrt{10}i}{160} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} & \frac{\sqrt{6}}{8} & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{160} & 0 & 0 & \frac{\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{i}{16} & 0 \\ -\frac{\sqrt{10}i}{160} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{80} & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{i}{16} \\ 0 & 0 & \frac{3\sqrt{10}i}{160} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & \frac{1}{4} \\ 0 & 0 & 0 & -\frac{3\sqrt{10}i}{160} & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & -\frac{1}{4} & 0 & 0 \end{bmatrix}$
313	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{70}}{70} & 0 & -\frac{9\sqrt{70}i}{1120} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & 0 \\ -\frac{\sqrt{70}}{70} & 0 & -\frac{9\sqrt{70}i}{1120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & 0 \\ 0 & -\frac{19\sqrt{70}i}{1120} & 0 & -\frac{3\sqrt{70}}{280} & \frac{11\sqrt{105}i}{560} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & \frac{\sqrt{42}}{56} & \frac{\sqrt{7}i}{112} & 0 \\ -\frac{19\sqrt{70}i}{1120} & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & -\frac{11\sqrt{105}i}{560} & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{7}i}{112} \\ 0 & 0 & \frac{3\sqrt{70}i}{160} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & \frac{\sqrt{42}i}{224} & 0 & 0 & -\frac{\sqrt{7}}{28} \\ 0 & 0 & 0 & -\frac{3\sqrt{70}i}{160} & \frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{224} & \frac{\sqrt{7}}{28} & 0 & 0 \end{bmatrix}$
314	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}}{160} & -\frac{\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{32} & -\frac{i}{16} & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & \frac{i}{16} \\ 0 & \frac{3\sqrt{10}}{160} & 0 & -\frac{\sqrt{10}i}{40} & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 \\ -\frac{3\sqrt{10}}{160} & 0 & -\frac{\sqrt{10}i}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} & -\frac{\sqrt{6}}{32} & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 \\ -\frac{3\sqrt{10}i}{160} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{40} & -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & \frac{3\sqrt{10}i}{160} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & \frac{i}{4} & 0 \end{bmatrix}$
315	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{10} & -\frac{\sqrt{15}}{40} & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}i}{40} & 0 & -\frac{\sqrt{10}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
316	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_4^{(1,0;a)}(B, 3)$	$\begin{bmatrix} 0 & -\frac{3\sqrt{70}i}{280} & 0 & -\frac{19\sqrt{70}}{1120} & \frac{11\sqrt{105}i}{560} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{5\sqrt{42}}{224} & -\frac{\sqrt{7}i}{112} & 0 \\ -\frac{3\sqrt{70}i}{280} & 0 & \frac{19\sqrt{70}}{1120} & 0 & 0 & -\frac{11\sqrt{105}i}{560} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{5\sqrt{42}}{224} & 0 & 0 & \frac{\sqrt{7}i}{112} \\ 0 & -\frac{9\sqrt{70}}{1120} & 0 & \frac{\sqrt{70}i}{70} & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & \frac{5\sqrt{42}}{224} & 0 & 0 & 0 & 0 \\ \frac{9\sqrt{70}}{1120} & 0 & \frac{\sqrt{70}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} & -\frac{5\sqrt{42}}{224} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{70}i}{160} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & \frac{\sqrt{105}}{56} & -\frac{\sqrt{42}i}{224} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} \\ 0 & -\frac{3\sqrt{70}i}{160} & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & \frac{\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 \end{bmatrix}$
317	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} -\frac{\sqrt{70}i}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{56} & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} \\ 0 & \frac{\sqrt{70}i}{280} & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{3\sqrt{7}}{56} \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{280} & \frac{\sqrt{105}}{140} & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & -\frac{3\sqrt{7}}{56} & 0 \\ 0 & -\frac{\sqrt{70}i}{80} & 0 & -\frac{\sqrt{70}}{80} & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}i}{112} & 0 & \frac{3\sqrt{42}}{112} & 0 & 0 \\ -\frac{\sqrt{70}i}{80} & 0 & \frac{\sqrt{70}}{80} & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & -\frac{3\sqrt{42}i}{112} & 0 & -\frac{3\sqrt{42}}{112} & 0 & 0 & 0 \end{bmatrix}$
318	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & -\frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 \end{bmatrix}$
319	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{168} & -\frac{\sqrt{21}}{84} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{84} & -\frac{5\sqrt{14}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{84} & 0 & 0 & \frac{5\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 \\ 0 & -\frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{14}}{168} & 0 & -\frac{\sqrt{14}i}{168} & 0 & 0 \\ \frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{14}}{168} & 0 & -\frac{\sqrt{14}i}{168} & 0 & 0 & 0 \end{bmatrix}$
320	symmetry	$\sqrt{3}xz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_2^{(1,1;a)}(A, 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{5\sqrt{14}}{168} & 0 & \frac{\sqrt{14}i}{168} & 0 & 0 \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & -\frac{5\sqrt{14}}{168} & 0 & \frac{\sqrt{14}i}{168} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{14}i}{168} & 0 & -\frac{5\sqrt{14}}{168} & -\frac{\sqrt{21}i}{21} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{11\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & \frac{\sqrt{21}i}{21} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}i}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{42} & 0 & 0 & 0 \end{bmatrix}$
321	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{168} & 0 & \frac{11\sqrt{14}}{168} & \frac{\sqrt{21}i}{21} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{5\sqrt{14}i}{168} & 0 & -\frac{11\sqrt{14}}{168} & 0 & 0 & -\frac{\sqrt{21}i}{21} \\ 0 & -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{14}}{168} & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 \\ \frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{14}}{168} & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & -\frac{\sqrt{14}i}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}i}{42} & 0 & 0 & 0 & 0 \end{bmatrix}$
322	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & \frac{5\sqrt{14}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}}{84} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{168} & -\frac{\sqrt{21}}{84} & 0 \\ 0 & -\frac{\sqrt{210}i}{56} & 0 & -\frac{\sqrt{210}}{56} & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{168} & 0 & -\frac{\sqrt{14}}{168} & 0 & 0 \\ -\frac{\sqrt{210}i}{56} & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}i}{168} & 0 & \frac{\sqrt{14}}{168} & 0 & 0 & 0 \end{bmatrix}$
323	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
324	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(a)}(A, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
325	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 \end{bmatrix}$
326	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} \\ 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 \end{bmatrix}$
327	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
328	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

*continued ..*

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 \end{bmatrix}$
329	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 \\ -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
330	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{14}i}{84} & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{84} & \frac{\sqrt{21}}{42} & 0 \\ -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & -\frac{\sqrt{14}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}}{21} & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & -\frac{\sqrt{14}}{21} & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 & 0 \end{bmatrix}$
331	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$ $\begin{bmatrix} 0 & -\frac{3\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{210}i}{420} & 0 & 0 \\ \frac{3\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & \frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{210}i}{420} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{3\sqrt{14}}{56} & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{420} & 0 & -\frac{3\sqrt{210}}{280} & \frac{\sqrt{35}i}{70} & 0 \\ \frac{\sqrt{14}i}{28} & 0 & \frac{3\sqrt{14}}{56} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{210}i}{420} & 0 & \frac{3\sqrt{210}}{280} & 0 & 0 & -\frac{\sqrt{35}i}{70} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{210}i}{105} & 0 & 0 & -\frac{3\sqrt{35}}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & \frac{\sqrt{210}i}{105} & \frac{3\sqrt{35}}{140} & 0 & 0 \end{bmatrix}$
332	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}}{24} & 0 & \frac{\sqrt{14}i}{84} & 0 & 0 \\ \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & -\frac{\sqrt{14}}{24} & 0 & \frac{\sqrt{14}i}{84} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{84} & 0 & -\frac{\sqrt{210}}{168} & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & \frac{5\sqrt{14}}{168} & -\frac{\sqrt{21}i}{42} & 0 \\ \frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & -\frac{5\sqrt{14}}{168} & 0 & 0 & \frac{\sqrt{21}i}{42} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 & \frac{\sqrt{21}}{28} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{21} & -\frac{\sqrt{21}}{28} & 0 \end{bmatrix}$
333	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & \frac{3\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{28} & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{280} & 0 & \frac{\sqrt{210}}{420} & \frac{\sqrt{35}i}{70} & 0 \\ \frac{3\sqrt{14}i}{56} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & -\frac{3\sqrt{210}i}{280} & 0 & -\frac{\sqrt{210}}{420} & 0 & 0 & -\frac{\sqrt{35}i}{70} \\ 0 & \frac{\sqrt{14}}{28} & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{210}}{420} & 0 & -\frac{\sqrt{210}i}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{14}}{28} & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & -\frac{\sqrt{210}}{420} & 0 & -\frac{\sqrt{210}i}{280} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{42} & -\frac{\sqrt{210}i}{105} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{140} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}i}{105} & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{140} \end{bmatrix}$
334	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & \frac{\sqrt{210}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{70} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{210}i}{70} & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{210}i}{70} & 0 & 0 & \frac{\sqrt{35}}{70} & \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{70} & -\frac{\sqrt{35}}{70} & 0 & \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{105} & 0 & -\frac{\sqrt{210}}{105} & \frac{3\sqrt{35}i}{70} & 0 & \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{105} & 0 & \frac{\sqrt{210}}{105} & 0 & 0 & -\frac{3\sqrt{35}i}{70} & \end{bmatrix}$
335	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{84} & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & -\frac{\sqrt{14}}{84} & \frac{\sqrt{21}i}{42} & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & \frac{\sqrt{14}}{84} & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & -\frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{14}}{84} & 0 & -\frac{\sqrt{14}i}{24} & 0 & 0 & \\ \frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & \frac{\sqrt{14}}{84} & 0 & -\frac{\sqrt{14}i}{24} & 0 & 0 & 0 & 0 & \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & -\frac{\sqrt{14}i}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} \end{bmatrix}$
336	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & -\frac{\sqrt{14}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & 0 & \frac{\sqrt{21}}{42} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{84} & -\frac{\sqrt{21}}{42} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{21} & 0 & -\frac{\sqrt{14}}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}i}{21} & 0 & \frac{\sqrt{14}}{21} & 0 & 0 & 0 \end{bmatrix}$
337	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
338	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{120} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & \frac{\sqrt{3}}{12} & 0 \\ -\frac{\sqrt{30}i}{120} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} \\ 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & -\frac{\sqrt{30}}{120} & 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 \\ \frac{\sqrt{30}}{120} & 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{2}}{8} & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 \end{bmatrix}$
339	symmetry	$\frac{y(15x^4-40x^2y^2+30x^2z^2+8y^4-40y^2z^2+15z^4)}{8}$ $\begin{bmatrix} 0 & \frac{5\sqrt{14}}{112} & 0 & \frac{13\sqrt{14}i}{336} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{210}i}{336} & 0 & 0 \\ -\frac{5\sqrt{14}}{112} & 0 & \frac{13\sqrt{14}i}{336} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & -\frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{210}i}{336} & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{14}i}{112} & 0 & -\frac{5\sqrt{14}}{84} & \frac{5\sqrt{21}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{336} & 0 & -\frac{\sqrt{210}}{84} & \frac{\sqrt{35}i}{56} & 0 \\ \frac{5\sqrt{14}i}{112} & 0 & \frac{5\sqrt{14}}{84} & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 & 0 & \frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{56} \\ 0 & 0 & \frac{\sqrt{14}i}{48} & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{210}i}{112} & 0 & 0 & \frac{\sqrt{35}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{48} & -\frac{5\sqrt{21}}{168} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & -\frac{\sqrt{35}}{56} & 0 \end{bmatrix}$
340	symmetry	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_5^{(1,-1;a)}(A, 4)$	$\begin{bmatrix} 0 & \frac{\sqrt{10}}{80} & 0 & \frac{3\sqrt{10}i}{80} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 \\ -\frac{\sqrt{10}}{80} & 0 & \frac{3\sqrt{10}i}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{80} & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & \frac{i}{8} \\ \frac{\sqrt{10}i}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & -\frac{i}{8} \\ 0 & 0 & -\frac{3\sqrt{10}i}{80} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & \frac{1}{8} \\ 0 & 0 & 0 & \frac{3\sqrt{10}i}{80} & \frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & -\frac{1}{8} & 0 \end{bmatrix}$
341	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$ $\begin{bmatrix} 0 & \frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{30} & 0 & -\frac{\sqrt{30}}{40} & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & -\frac{\sqrt{3}i}{12} & 0 \\ \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{40} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & 0 & -\frac{\sqrt{30}i}{120} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{120} & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & \frac{\sqrt{3}}{12} & 0 & 0 \end{bmatrix}$
342	symmetry	$\frac{x(8x^4-40x^2y^2-40x^2z^2+15y^4+30y^2z^2+15z^4)}{8}$ $\begin{bmatrix} 0 & \frac{5\sqrt{14}i}{84} & 0 & -\frac{5\sqrt{14}}{112} & -\frac{5\sqrt{21}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{336} & \frac{\sqrt{35}i}{56} & 0 \\ \frac{5\sqrt{14}i}{84} & 0 & \frac{5\sqrt{14}}{112} & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & -\frac{\sqrt{210}}{336} & 0 & 0 & -\frac{\sqrt{35}i}{56} \\ 0 & -\frac{13\sqrt{14}}{336} & 0 & -\frac{5\sqrt{14}i}{112} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{210}i}{336} & 0 & 0 & 0 \\ \frac{13\sqrt{14}}{336} & 0 & -\frac{5\sqrt{14}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & -\frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{210}i}{336} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{14}i}{48} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 & \frac{\sqrt{21}}{84} & \frac{\sqrt{210}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 \\ 0 & \frac{\sqrt{14}i}{48} & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 \end{bmatrix}$
343	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{21}}{84} & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & \frac{\sqrt{35}}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & -\frac{\sqrt{210}}{84} & \frac{\sqrt{35}i}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{21} & 0 \end{bmatrix}$
344	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_5^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}}{80} & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & \frac{i}{8} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{80} & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & -\frac{i}{8} \\ 0 & -\frac{3\sqrt{10}}{80} & 0 & -\frac{\sqrt{10}i}{80} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 \\ \frac{3\sqrt{10}}{80} & 0 & -\frac{\sqrt{10}i}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 \\ \frac{3\sqrt{10}i}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{20} & \frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & \frac{i}{8} \\ 0 & -\frac{3\sqrt{10}i}{80} & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & \frac{i}{8} & 0 \end{bmatrix}$
345	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$ $\begin{bmatrix} \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
346	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$ $\begin{bmatrix} 0 & -\frac{\sqrt{30}i}{40} & 0 & \frac{\sqrt{30}}{30} & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ -\frac{\sqrt{30}i}{40} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} \\ 0 & \frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 \end{bmatrix}$
347	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$ $\begin{bmatrix} -\frac{\sqrt{30}i}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{120} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{120} & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{3}}{12} & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{120} & 0 & -\frac{\sqrt{30}}{120} & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{120} & 0 & \frac{\sqrt{30}}{120} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
348	symmetry	$\sqrt{15}xyz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,0;a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & \frac{1}{24} & 0 & \frac{i}{6} & 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & \frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & -\frac{1}{24} & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{24} & -\frac{\sqrt{15}}{24} & 0 \\ \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & -\frac{i}{24} & 0 & \frac{1}{6} & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & -\frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \\ 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & \frac{i}{6} & 0 & 0 & -\frac{\sqrt{10}}{48} & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & -\frac{i}{6} & \frac{\sqrt{10}}{48} & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
349	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{6}i}{96} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{11\sqrt{6}i}{96} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & 0 & \frac{i}{16} & 0 \\ \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{48} & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{16} \\ 0 & 0 & -\frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{10}i}{32} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 \end{bmatrix}$
350	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & \frac{i}{24} & 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & \frac{7\sqrt{10}i}{96} & 0 & 0 \\ \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & -\frac{i}{24} & \frac{\sqrt{10}}{24} & 0 & \frac{7\sqrt{10}i}{96} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{96} & 0 & -\frac{\sqrt{6}}{24} & \frac{7i}{48} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{10}i}{96} & 0 & \frac{\sqrt{10}}{24} & -\frac{\sqrt{15}i}{48} & 0 \\ -\frac{\sqrt{6}i}{96} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & -\frac{7i}{48} & 0 & 0 & -\frac{5\sqrt{10}i}{96} & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & \frac{\sqrt{15}i}{48} \\ 0 & 0 & -\frac{3\sqrt{6}i}{32} & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & \frac{\sqrt{10}i}{96} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{6}i}{32} & -\frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{96} & 0 & 0 & 0 & 0 \end{bmatrix}$
351	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}}{32} & -\frac{\sqrt{15}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{96} & \frac{i}{16} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{i}{16} \\ 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{11\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & \frac{11\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & -\frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
352	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,0;a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
353	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{96} & \frac{7i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & \frac{5\sqrt{10}}{96} & \frac{\sqrt{15}i}{48} & 0 \\ -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{96} & 0 & 0 & -\frac{7i}{48} & 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & -\frac{5\sqrt{10}}{96} & 0 & 0 & -\frac{\sqrt{15}i}{48} \\ 0 & \frac{\sqrt{6}}{96} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & -\frac{i}{24} & 0 & 0 & -\frac{7\sqrt{10}}{96} & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 \\ -\frac{\sqrt{6}}{96} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & \frac{i}{24} & \frac{7\sqrt{10}}{96} & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & 0 \\ -\frac{3\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{24} & -\frac{\sqrt{10}i}{96} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{6}i}{32} & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{24} & 0 & 0 & \frac{\sqrt{10}i}{96} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
354	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{24} & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{24} & 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & \frac{1}{6} & 0 & \frac{i}{24} & 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & -\frac{1}{6} & 0 & \frac{i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{24} & \frac{\sqrt{15}}{24} & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & \frac{i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & \frac{\sqrt{10}}{48} & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & -\frac{i}{6} & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & -\frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
355	symmetry	$y$ $\begin{bmatrix} 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 \\ \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & -\frac{3\sqrt{35}}{140} & -\frac{\sqrt{210}i}{140} & 0 \\ -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & \frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{35} & \frac{\sqrt{210}}{140} & 0 & 0 \end{bmatrix}$
356	symmetry	$x$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_1^{(1,1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{140} & -\frac{\sqrt{210}i}{140} & 0 \\ \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{3\sqrt{35}i}{140} & 0 & \frac{\sqrt{35}}{140} & 0 & 0 & \frac{\sqrt{210}i}{140} \\ 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 \\ \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & \frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}i}{140} \end{bmatrix}$
357	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & \frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{35} & \frac{\sqrt{210}}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & \frac{\sqrt{35}}{35} & \frac{\sqrt{210}i}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & -\frac{\sqrt{35}}{35} & 0 & -\frac{\sqrt{210}i}{70} \end{bmatrix}$
358	symmetry	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{168} \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{168} & \frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & \frac{\sqrt{105}}{168} & 0 \\ \frac{\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{14} & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} \\ 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 \\ 0 & -\frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{42}i}{48} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 \\ \frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{42}i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 \end{bmatrix}$
359	symmetry	$\begin{bmatrix} 0 & \frac{\sqrt{70}}{56} & 0 & -\frac{13\sqrt{70}i}{672} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & \frac{\sqrt{42}}{168} & 0 & -\frac{5\sqrt{42}i}{672} & 0 & 0 \\ -\frac{\sqrt{70}}{56} & 0 & -\frac{13\sqrt{70}i}{672} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & -\frac{\sqrt{42}}{168} & 0 & -\frac{5\sqrt{42}i}{672} & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{70}i}{224} & 0 & -\frac{\sqrt{70}}{42} & -\frac{5\sqrt{105}i}{336} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{672} & 0 & -\frac{\sqrt{42}}{42} & -\frac{5\sqrt{7}i}{112} & 0 \\ -\frac{5\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{42} & 0 & 0 & \frac{5\sqrt{105}i}{336} & 0 & 0 & -\frac{5\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & \frac{5\sqrt{7}i}{112} \\ 0 & 0 & -\frac{\sqrt{70}i}{96} & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}}{28} \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{96} & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{224} & -\frac{\sqrt{7}}{28} & 0 \end{bmatrix}$
360	symmetry	$\begin{bmatrix} -\frac{\sqrt{15}y(x-z)(x+z)}{2} \end{bmatrix}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,1;a)}(A, 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{42}}{42} & 0 & -\frac{17\sqrt{42}i}{672} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & 0 \\ -\frac{\sqrt{42}}{42} & 0 & -\frac{17\sqrt{42}i}{672} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{42}i}{672} & 0 & -\frac{\sqrt{42}}{56} & -\frac{\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & \frac{5\sqrt{105}i}{336} & 0 \\ -\frac{11\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{5\sqrt{105}i}{336} \\ 0 & 0 & -\frac{\sqrt{42}i}{96} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 & -\frac{\sqrt{105}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{96} & \frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & -\frac{5\sqrt{70}i}{224} & \frac{\sqrt{105}}{84} & 0 & 0 \end{bmatrix}$
361	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{70}i}{42} & 0 & \frac{5\sqrt{70}}{224} & \frac{5\sqrt{105}i}{336} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & -\frac{5\sqrt{42}}{672} & -\frac{5\sqrt{7}i}{112} & 0 \\ \frac{\sqrt{70}i}{42} & 0 & -\frac{5\sqrt{70}}{224} & 0 & 0 & -\frac{5\sqrt{105}i}{336} & 0 & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & \frac{5\sqrt{42}}{672} & 0 & 0 & \frac{5\sqrt{7}i}{112} \\ 0 & \frac{13\sqrt{70}}{672} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{5\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{168} & 0 & 0 & 0 \\ -\frac{13\sqrt{70}}{672} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & \frac{5\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{168} & 0 & 0 & 0 \\ \frac{\sqrt{70}i}{96} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{168} & -\frac{5\sqrt{42}i}{224} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 \\ 0 & -\frac{\sqrt{70}i}{96} & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & \frac{5\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 \end{bmatrix}$
362	symmetry	$\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{168} & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}i}{84} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & \frac{5\sqrt{7}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & \frac{5\sqrt{7}i}{84} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{42} & -\frac{5\sqrt{7}}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & \frac{5\sqrt{42}}{168} & \frac{2\sqrt{7}i}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & -\frac{5\sqrt{42}}{168} & 0 & 0 & -\frac{2\sqrt{7}i}{21} \end{bmatrix}$
363	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{11\sqrt{42}}{672} & -\frac{\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{3\sqrt{70}}{224} & -\frac{5\sqrt{105}i}{336} & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & \frac{11\sqrt{42}}{672} & 0 & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{3\sqrt{70}}{224} & 0 & 0 & \frac{5\sqrt{105}i}{336} \\ 0 & -\frac{17\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{3\sqrt{70}}{224} & 0 & 0 & 0 & 0 & 0 \\ \frac{17\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & \frac{3\sqrt{70}}{224} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{96} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{56} & -\frac{5\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 \\ 0 & \frac{\sqrt{42}i}{96} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 \end{bmatrix}$
364	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,1;a)}(B, 4)$	$\begin{bmatrix} -\frac{\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & \frac{3\sqrt{7}}{56} & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} \\ 0 & \frac{\sqrt{42}i}{168} & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}}{168} & \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{168} & -\frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & -\frac{\sqrt{105}}{168} & 0 \\ 0 & \frac{\sqrt{42}i}{48} & 0 & \frac{\sqrt{42}}{48} & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 \\ \frac{\sqrt{42}i}{48} & 0 & -\frac{\sqrt{42}}{48} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 \end{bmatrix}$
365	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & \end{bmatrix}$
366	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
367	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 & 0 & 0 \end{bmatrix}$
368	symmetry	$\sqrt{3}yz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_2^{(a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 \end{bmatrix}$
369	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 \\ -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
370	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$
371	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} -\frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 \end{bmatrix}$
372	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2 + y^2 - 6z^2)}{4}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(a)}(A, 3)$	$\begin{bmatrix} \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
373	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 \end{bmatrix}$
374	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
375	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} \\ 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 \end{bmatrix}$
376	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
377	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} \\ 0 & 0 & \frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 \end{bmatrix}$
378	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 \\ \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
379	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{i}{8} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & \frac{i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & -\frac{1}{8} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{1}{8} \\ 0 & \frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 \\ -\frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 & 0 \end{bmatrix}$
380	symmetry	$-\frac{\sqrt{15}(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4)}{12}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(1,-1;a)}(A, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{168} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{56} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{168} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & \frac{\sqrt{35}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{168} & 0 & -\frac{\sqrt{21}i}{28} & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{168} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 \\ 0 & -\frac{\sqrt{14}i}{16} & 0 & \frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{210}}{336} & 0 & 0 & 0 \\ \frac{\sqrt{14}i}{16} & 0 & \frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{210}}{336} & 0 & 0 & 0 \end{bmatrix}$
381	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & \frac{\sqrt{105}i}{56} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{56} & -\frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & -\frac{\sqrt{105}i}{56} & 0 \\ \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{28} & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} \\ 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 \\ 0 & -\frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 \\ \frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & \frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 & 0 \end{bmatrix}$
382	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{32} & 0 & 0 & -\frac{3}{16} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & 0 & \frac{\sqrt{15}}{16} & 0 \\ \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{16} \\ 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{\sqrt{10}}{32} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 \end{bmatrix}$
383	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{3\sqrt{42}}{224} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & -\frac{5\sqrt{70}}{224} & 0 & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & -\frac{3\sqrt{42}}{224} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} & -\frac{\sqrt{70}i}{56} & 0 & -\frac{5\sqrt{70}}{224} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{42}}{224} & 0 & \frac{\sqrt{42}i}{56} & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{56} & -\frac{\sqrt{105}}{112} & 0 \\ \frac{3\sqrt{42}}{224} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & -\frac{\sqrt{70}}{224} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}}{112} \\ 0 & 0 & \frac{\sqrt{42}}{32} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{32} & \frac{\sqrt{7}i}{14} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{224} & 0 & 0 & 0 \end{bmatrix}$
384	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & \frac{3}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{32} & \frac{\sqrt{15}}{16} & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{3}{16} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{32} & 0 & 0 & -\frac{\sqrt{15}}{16} \\ 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 \end{bmatrix}$
385	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{8} & 0 & \frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{8} & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
386	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{3\sqrt{42}i}{224} & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{70}i}{224} & \frac{\sqrt{105}}{112} & 0 \\ -\frac{\sqrt{42}}{56} & 0 & \frac{3\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{70}i}{224} & 0 & 0 & -\frac{\sqrt{105}}{112} \\ 0 & \frac{3\sqrt{42}i}{224} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{5\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 \\ -\frac{3\sqrt{42}i}{224} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} & \frac{5\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 \\ \frac{\sqrt{42}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{3\sqrt{7}i}{56} & -\frac{\sqrt{70}}{224} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{32} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & 0 & 0 & 0 \end{bmatrix}$
387	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{3\sqrt{7}i}{56} & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} \\ 0 & \frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{56} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{56} & -\frac{\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & \frac{\sqrt{105}i}{56} & 0 \\ 0 & -\frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{42}i}{112} & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{70}i}{112} & 0 & 0 \\ -\frac{\sqrt{42}}{112} & 0 & -\frac{\sqrt{42}i}{112} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 \end{bmatrix}$
388	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_2^{(1,0;a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} & 0 & \frac{\sqrt{21}}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & 0 \end{bmatrix}$
389	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & \frac{\sqrt{42}i}{84} \\ 0 & 0 & 0 & \frac{\sqrt{105}}{42} & \frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{42} & -\frac{\sqrt{42}i}{84} & 0 \\ \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & -\frac{\sqrt{70}i}{84} & \frac{\sqrt{7}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} \\ 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{7}}{42} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{42} & 0 & 0 & -\frac{\sqrt{7}i}{21} & 0 & \frac{\sqrt{7}}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{42} & \frac{\sqrt{7}i}{21} & 0 & \frac{\sqrt{7}}{21} & 0 & 0 & 0 \end{bmatrix}$
390	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{7}i}{12} & 0 & -\frac{\sqrt{7}}{84} & 0 & 0 \\ -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & \frac{\sqrt{7}i}{12} & 0 & -\frac{\sqrt{7}}{84} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{84} & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{84} & 0 & -\frac{5\sqrt{7}i}{84} & \frac{\sqrt{42}}{84} & 0 \\ -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{7}}{84} & 0 & \frac{5\sqrt{7}i}{84} & 0 & 0 & -\frac{\sqrt{42}}{84} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{7}}{21} & 0 & 0 & -\frac{\sqrt{42}i}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{21} & \frac{\sqrt{42}i}{28} & 0 \end{bmatrix}$
391	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{84} & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}}{84} & 0 & -\frac{\sqrt{7}i}{84} & -\frac{\sqrt{42}}{84} & 0 \\ -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & -\frac{5\sqrt{7}}{84} & 0 & \frac{\sqrt{7}i}{84} & 0 & 0 & \frac{\sqrt{42}}{84} \\ 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{12} & 0 & 0 \\ \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & \frac{\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{84} & \frac{\sqrt{7}}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{7}}{21} & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 \end{bmatrix}$
392	symmetry	$\sqrt{3}xy$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_2^{(1,0;a)}(B, 2)$	$\begin{bmatrix} \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & -\frac{\sqrt{70}i}{84} & -\frac{\sqrt{7}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} \\ 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & \frac{\sqrt{42}}{84} & 0 \\ 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & \frac{\sqrt{42}i}{84} \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & -\frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & 0 & -\frac{\sqrt{7}}{42} & -\frac{\sqrt{42}i}{84} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{21} & 0 & -\frac{\sqrt{7}i}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{42} & 0 & 0 & -\frac{\sqrt{7}}{21} & 0 & \frac{\sqrt{7}i}{21} & 0 & 0 & 0 \end{bmatrix}$
393	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 \\ -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} \\ 0 & \frac{\sqrt{6}}{12} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 \\ 0 & -\frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{16} & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
394	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{210}}{60} & 0 & 0 & \frac{\sqrt{35}i}{280} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{60} & -\frac{\sqrt{35}i}{280} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 \\ \frac{\sqrt{210}}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} \\ 0 & -\frac{\sqrt{210}}{60} & 0 & 0 & -\frac{\sqrt{35}}{280} & 0 & \frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 \\ 0 & \frac{\sqrt{210}i}{240} & 0 & -\frac{\sqrt{210}}{240} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{112} & 0 & \frac{5\sqrt{14}}{112} & 0 & 0 \\ -\frac{\sqrt{210}i}{240} & 0 & -\frac{\sqrt{210}}{240} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{112} & 0 & \frac{5\sqrt{14}}{112} & 0 & 0 & 0 \end{bmatrix}$
395	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{70}}{280} & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & \frac{3\sqrt{7}i}{56} \\ 0 & 0 & 0 & \frac{\sqrt{70}}{280} & \frac{\sqrt{105}i}{56} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & -\frac{3\sqrt{7}i}{56} & 0 \\ \frac{\sqrt{70}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & \frac{\sqrt{105}i}{140} & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} \\ 0 & -\frac{\sqrt{70}}{280} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 \\ 0 & -\frac{\sqrt{70}i}{80} & 0 & -\frac{\sqrt{70}}{80} & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & 0 & \frac{3\sqrt{42}i}{112} & 0 & -\frac{3\sqrt{42}}{112} & 0 & 0 \\ \frac{\sqrt{70}i}{80} & 0 & -\frac{\sqrt{70}}{80} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & -\frac{3\sqrt{42}i}{112} & 0 & -\frac{3\sqrt{42}}{112} & 0 & 0 & 0 \end{bmatrix}$
396	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(1,0;a)}(A, 4)$	$\begin{bmatrix} 0 & -\frac{\sqrt{10}i}{40} & 0 & -\frac{3\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & \frac{\sqrt{6}i}{8} & 0 & \frac{\sqrt{6}}{32} & 0 & 0 \\ \frac{\sqrt{10}i}{40} & 0 & -\frac{3\sqrt{10}}{160} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & -\frac{\sqrt{6}i}{8} & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & -\frac{1}{16} & 0 \\ -\frac{\sqrt{10}}{160} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{80} & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{1}{16} \\ 0 & 0 & \frac{3\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & -\frac{i}{4} \\ 0 & 0 & 0 & -\frac{3\sqrt{10}}{160} & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{32} & \frac{i}{4} & 0 \end{bmatrix}$
397	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{70}i}{70} & 0 & -\frac{9\sqrt{70}}{1120} & 0 & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{224} & 0 & 0 \\ \frac{\sqrt{70}i}{70} & 0 & -\frac{9\sqrt{70}}{1120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & -\frac{5\sqrt{42}}{224} & 0 & 0 \\ 0 & -\frac{19\sqrt{70}}{1120} & 0 & \frac{3\sqrt{70}i}{280} & \frac{11\sqrt{105}}{560} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{224} & 0 & -\frac{\sqrt{42}i}{56} & \frac{\sqrt{7}}{112} & 0 \\ -\frac{19\sqrt{70}}{1120} & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & -\frac{11\sqrt{105}}{560} & 0 & 0 & 0 & -\frac{5\sqrt{42}}{224} & 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{7}}{112} \\ 0 & 0 & \frac{3\sqrt{70}}{160} & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & \frac{\sqrt{42}}{224} & 0 & 0 & \frac{\sqrt{7}i}{28} \\ 0 & 0 & 0 & -\frac{3\sqrt{70}}{160} & -\frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{224} & -\frac{\sqrt{7}i}{28} & 0 \end{bmatrix}$
398	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}i}{160} & -\frac{\sqrt{15}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{32} & -\frac{1}{16} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{160} & 0 & 0 & \frac{\sqrt{15}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & \frac{1}{16} \\ 0 & -\frac{3\sqrt{10}i}{160} & 0 & -\frac{\sqrt{10}}{40} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & -\frac{\sqrt{6}i}{32} & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 \\ \frac{3\sqrt{10}i}{160} & 0 & -\frac{\sqrt{10}}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & \frac{\sqrt{6}i}{32} & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 \\ -\frac{3\sqrt{10}}{160} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{40} & -\frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{1}{4} \\ 0 & \frac{3\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & \frac{1}{4} & 0 \end{bmatrix}$
399	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{10} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{10} & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{10} & \frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{40} & 0 & -\frac{\sqrt{10}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
400	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(1,0;a)}(B, 3)$	$\begin{bmatrix} 0 & -\frac{3\sqrt{70}}{280} & 0 & \frac{19\sqrt{70}i}{1120} & \frac{11\sqrt{105}}{560} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{5\sqrt{42}i}{224} & -\frac{\sqrt{7}}{112} & 0 \\ -\frac{3\sqrt{70}}{280} & 0 & -\frac{19\sqrt{70}i}{1120} & 0 & 0 & -\frac{11\sqrt{105}}{560} & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{5\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}}{112} \\ 0 & \frac{9\sqrt{70}i}{1120} & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & 0 & 0 & 0 \\ -\frac{9\sqrt{70}i}{1120} & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{56} & \frac{5\sqrt{42}i}{224} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{70}}{160} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{56} & -\frac{\sqrt{42}}{224} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} \\ 0 & -\frac{3\sqrt{70}}{160} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & \frac{\sqrt{42}}{224} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 \end{bmatrix}$
401	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} -\frac{\sqrt{70}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & \frac{\sqrt{105}i}{56} & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} \\ 0 & \frac{\sqrt{70}}{280} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{70}}{280} & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} \\ 0 & 0 & 0 & \frac{\sqrt{70}}{280} & -\frac{\sqrt{105}i}{140} & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{56} & \frac{3\sqrt{7}i}{56} & 0 \\ 0 & -\frac{\sqrt{70}}{80} & 0 & \frac{\sqrt{70}i}{80} & \frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{42}}{112} & 0 & -\frac{3\sqrt{42}i}{112} & 0 & 0 \\ -\frac{\sqrt{70}}{80} & 0 & -\frac{\sqrt{70}i}{80} & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & -\frac{3\sqrt{42}}{112} & 0 & \frac{3\sqrt{42}i}{112} & 0 & 0 \end{bmatrix}$
402	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & \frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & -\frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{84} & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 \end{bmatrix}$
403	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{84} & 0 & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & \frac{\sqrt{21}i}{84} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{168} & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & -\frac{\sqrt{21}i}{84} & 0 \\ -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{84} & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} \\ 0 & \frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{84} & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 \\ 0 & -\frac{\sqrt{210}i}{56} & 0 & -\frac{\sqrt{210}}{56} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}i}{168} & 0 & \frac{\sqrt{14}}{168} & 0 & 0 \\ \frac{\sqrt{210}i}{56} & 0 & -\frac{\sqrt{210}}{56} & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{14}i}{168} & 0 & \frac{\sqrt{14}}{168} & 0 & 0 & 0 & 0 \end{bmatrix}$
404	symmetry	$\sqrt{3}xz$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{5\sqrt{14}i}{168} & 0 & -\frac{\sqrt{14}}{168} & 0 & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & -\frac{5\sqrt{14}i}{168} & 0 & -\frac{\sqrt{14}}{168} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & \frac{11\sqrt{14}}{168} & 0 & -\frac{5\sqrt{14}i}{168} & \frac{\sqrt{21}}{21} & 0 \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{11\sqrt{14}}{168} & 0 & \frac{5\sqrt{14}i}{168} & 0 & 0 & -\frac{\sqrt{21}}{21} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{42} & 0 & 0 \end{bmatrix}$
405	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & \frac{11\sqrt{14}i}{168} & -\frac{\sqrt{21}}{21} & 0 \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & -\frac{11\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}}{21} \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 \\ \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{14}}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{14}}{42} & 0 & 0 & 0 \end{bmatrix}$
406	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & \frac{\sqrt{35}i}{42} & -\frac{5\sqrt{14}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} \\ 0 & \frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} \\ 0 & 0 & 0 & \frac{\sqrt{210}}{168} & -\frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & -\frac{\sqrt{21}i}{84} & 0 & 0 \\ 0 & \frac{\sqrt{210}}{56} & 0 & -\frac{\sqrt{210}i}{56} & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{168} & 0 & -\frac{\sqrt{14}i}{168} & 0 & 0 & 0 \\ \frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}}{168} & 0 & \frac{\sqrt{14}i}{168} & 0 & 0 & 0 \end{bmatrix}$
407	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
408	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_3^{(a)}(A, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 \end{bmatrix}$
409	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & 0 & 0 \end{bmatrix}$
410	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} \\ 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 \end{bmatrix}$
411	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
412	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & 0 & -\frac{3\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & 0 & 0 \end{bmatrix}$
413	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 \\ \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
414	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}}{84} & 0 & 0 & \frac{\sqrt{21}i}{42} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{84} & -\frac{\sqrt{21}i}{42} & 0 \\ -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{42} & -\frac{\sqrt{14}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}}{84} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}i}{21} & 0 & \frac{\sqrt{14}}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & \frac{\sqrt{14}i}{21} & 0 & \frac{\sqrt{14}}{21} & 0 & 0 & 0 \end{bmatrix}$
415	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$ $\begin{bmatrix} 0 & \frac{3\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{210}}{420} & 0 & 0 \\ -\frac{3\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & -\frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{210}}{420} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}}{28} & 0 & \frac{3\sqrt{14}i}{56} & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{420} & 0 & \frac{3\sqrt{210}i}{280} & \frac{\sqrt{35}}{70} & 0 \\ \frac{\sqrt{14}}{28} & 0 & -\frac{3\sqrt{14}i}{56} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}}{420} & 0 & -\frac{3\sqrt{210}i}{280} & 0 & 0 & -\frac{\sqrt{35}}{70} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{210}}{105} & 0 & 0 & \frac{3\sqrt{35}i}{140} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & \frac{\sqrt{210}}{105} & -\frac{3\sqrt{35}i}{140} & 0 & 0 \end{bmatrix}$
416	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}i}{24} & 0 & \frac{\sqrt{14}}{84} & 0 & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & \frac{\sqrt{14}i}{24} & 0 & \frac{\sqrt{14}}{84} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}}{84} & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{84} & 0 & -\frac{5\sqrt{14}i}{168} & -\frac{\sqrt{21}}{42} & 0 \\ \frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}}{84} & 0 & \frac{5\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}}{42} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}}{21} & 0 & 0 & -\frac{\sqrt{21}i}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{21} & \frac{\sqrt{21}i}{28} & 0 \end{bmatrix}$
417	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & \frac{3\sqrt{14}}{56} & 0 & \frac{\sqrt{14}i}{28} & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{210}}{280} & 0 & -\frac{\sqrt{210}i}{420} & \frac{\sqrt{35}}{70} & 0 \\ \frac{3\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{3\sqrt{210}}{280} & 0 & \frac{\sqrt{210}i}{420} & 0 & 0 & -\frac{\sqrt{35}}{70} \\ 0 & -\frac{\sqrt{14}i}{28} & 0 & \frac{3\sqrt{14}}{56} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{210}i}{420} & 0 & -\frac{\sqrt{210}}{280} & 0 & 0 \\ \frac{\sqrt{14}i}{28} & 0 & \frac{3\sqrt{14}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & \frac{\sqrt{210}i}{420} & 0 & -\frac{\sqrt{210}}{280} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{42} & -\frac{\sqrt{210}}{105} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{210}}{105} & 0 & 0 & 0 & -\frac{3\sqrt{35}}{140} & 0 \end{bmatrix}$
418	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & \frac{\sqrt{21}i}{42} & \frac{\sqrt{210}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{70} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{210}}{70} & 0 & 0 & 0 & \frac{\sqrt{35}}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}}{70} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{70} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{70} & \frac{\sqrt{35}i}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{105} & 0 & \frac{\sqrt{210}i}{105} & \frac{3\sqrt{35}}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{105} & 0 & -\frac{\sqrt{210}i}{105} & 0 & 0 & 0 & -\frac{3\sqrt{35}}{70} \end{bmatrix}$
419	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{84} & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & \frac{\sqrt{14}i}{84} & \frac{\sqrt{21}}{42} & 0 \\ -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & -\frac{\sqrt{14}i}{84} & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & \frac{\sqrt{210}i}{84} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & -\frac{\sqrt{14}}{24} & 0 & 0 \\ -\frac{\sqrt{210}i}{84} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & -\frac{\sqrt{14}i}{84} & 0 & -\frac{\sqrt{14}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & -\frac{\sqrt{14}i}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}}{21} & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 \end{bmatrix}$
420	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & -\frac{\sqrt{14}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}}{84} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}}{84} & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & -\frac{\sqrt{14}}{84} & \frac{\sqrt{21}i}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{21} & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}}{21} & 0 & -\frac{\sqrt{14}i}{21} & 0 & 0 & 0 \end{bmatrix}$
421	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
422	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{30}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{120} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & -\frac{\sqrt{3}i}{12} & 0 \\ -\frac{\sqrt{30}}{120} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & \frac{\sqrt{30}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & \frac{\sqrt{30}i}{120} & 0 & \frac{\sqrt{30}}{120} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 \\ -\frac{\sqrt{30}i}{120} & 0 & \frac{\sqrt{30}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 \end{bmatrix}$
423	symmetry	$\frac{y(15x^4-40x^2y^2+30x^2z^2+8y^4-40y^2z^2+15z^4)}{8}$ $\begin{bmatrix} 0 & -\frac{5\sqrt{14}i}{112} & 0 & \frac{13\sqrt{14}}{336} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{210}}{336} & 0 & 0 \\ \frac{5\sqrt{14}i}{112} & 0 & \frac{13\sqrt{14}}{336} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & \frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{210}}{336} & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{14}}{112} & 0 & \frac{5\sqrt{14}i}{84} & \frac{5\sqrt{21}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{336} & 0 & \frac{\sqrt{210}i}{84} & \frac{\sqrt{35}}{56} & 0 \\ \frac{5\sqrt{14}}{112} & 0 & -\frac{5\sqrt{14}i}{84} & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 & 0 & \frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & \frac{\sqrt{14}}{48} & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & \frac{\sqrt{210}}{112} & 0 & 0 & -\frac{\sqrt{35}i}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{48} & \frac{5\sqrt{21}i}{168} & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & \frac{\sqrt{35}i}{56} & 0 & 0 \end{bmatrix}$
424	symmetry	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_5^{(1,-1;a)}(A, 4)$	$\begin{bmatrix} 0 & -\frac{\sqrt{10}i}{80} & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 \\ \frac{\sqrt{10}i}{80} & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{80} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 & \frac{1}{8} \\ \frac{\sqrt{10}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & -\frac{1}{8} \\ 0 & 0 & -\frac{3\sqrt{10}}{80} & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & -\frac{i}{8} \\ 0 & 0 & 0 & \frac{3\sqrt{10}}{80} & -\frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & \frac{i}{8} & 0 \end{bmatrix}$
425	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$ $\begin{bmatrix} 0 & -\frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{40} & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & -\frac{\sqrt{3}}{12} & 0 \\ \frac{\sqrt{30}}{30} & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & \frac{\sqrt{3}}{12} \\ 0 & 0 & -\frac{\sqrt{30}}{120} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{120} & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & -\frac{\sqrt{3}i}{12} & 0 \end{bmatrix}$
426	symmetry	$\frac{x(8x^4-40x^2y^2-40x^2z^2+15y^4+30y^2z^2+15z^4)}{8}$ $\begin{bmatrix} 0 & \frac{5\sqrt{14}}{84} & 0 & \frac{5\sqrt{14}i}{112} & -\frac{5\sqrt{21}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{336} & \frac{\sqrt{35}}{56} & 0 \\ \frac{5\sqrt{14}}{84} & 0 & -\frac{5\sqrt{14}i}{112} & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & \frac{\sqrt{210}i}{336} & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & \frac{13\sqrt{14}i}{336} & 0 & -\frac{5\sqrt{14}}{112} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{210}}{336} & 0 & 0 \\ -\frac{13\sqrt{14}i}{336} & 0 & -\frac{5\sqrt{14}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & \frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{210}}{336} & 0 & 0 & 0 \\ -\frac{\sqrt{14}}{48} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 & -\frac{\sqrt{21}i}{84} & \frac{\sqrt{210}}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{56} \\ 0 & \frac{\sqrt{14}}{48} & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 & \frac{\sqrt{35}}{56} & 0 \end{bmatrix}$
427	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{21}i}{84} & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & \frac{\sqrt{35}i}{42} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{84} & -\frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & \frac{\sqrt{210}i}{84} & \frac{\sqrt{35}}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}}{21} \end{bmatrix}$
428	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_5^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}i}{80} & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} & \frac{1}{8} & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{80} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & -\frac{1}{8} \\ 0 & \frac{3\sqrt{10}i}{80} & 0 & -\frac{\sqrt{10}}{80} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 \\ -\frac{3\sqrt{10}i}{80} & 0 & -\frac{\sqrt{10}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 \\ \frac{3\sqrt{10}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{15}i}{20} & \frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & \frac{1}{8} \\ 0 & -\frac{3\sqrt{10}}{80} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & \frac{1}{8} & 0 \end{bmatrix}$
429	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$ $\begin{bmatrix} \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{20} & -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
430	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$ $\begin{bmatrix} 0 & -\frac{\sqrt{30}}{40} & 0 & -\frac{\sqrt{30}i}{30} & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & \frac{\sqrt{3}}{12} & 0 \\ -\frac{\sqrt{30}}{40} & 0 & \frac{\sqrt{30}i}{30} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & -\frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 \\ 0 & \frac{\sqrt{30}}{120} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 \end{bmatrix}$
431	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$ $\begin{bmatrix} -\frac{\sqrt{30}}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} \\ 0 & \frac{\sqrt{30}}{120} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & \frac{\sqrt{3}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{120} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{120} & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & -\frac{\sqrt{3}i}{12} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{120} & 0 & \frac{\sqrt{30}i}{120} & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 \\ -\frac{\sqrt{30}}{120} & 0 & -\frac{\sqrt{30}i}{120} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 \end{bmatrix}$
432	symmetry	$\sqrt{15}xyz$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & \frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & \frac{\sqrt{10}}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & -\frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & 0 & -\frac{\sqrt{10}}{24} & -\frac{\sqrt{15}i}{24} & 0 \\ -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & \frac{1}{24} & 0 & \frac{i}{6} & \frac{\sqrt{10}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & \frac{\sqrt{6}}{24} & 0 & 0 & \frac{1}{24} & 0 & -\frac{i}{6} & 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 \\ 0 & \frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & \frac{\sqrt{10}}{48} & 0 & 0 \\ -\frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & 0 & \frac{1}{6} & \frac{\sqrt{10}i}{48} & 0 & \frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
433	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{11\sqrt{6}}{96} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{11\sqrt{6}}{96} & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{32} & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{1}{16} & 0 \\ -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{1}{16} \\ 0 & 0 & \frac{3\sqrt{10}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{\sqrt{6}}{96} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 \end{bmatrix}$
434	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{1}{24} & 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & -\frac{7\sqrt{10}}{96} & 0 & 0 \\ \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{1}{24} & \frac{\sqrt{10}i}{24} & 0 & -\frac{7\sqrt{10}}{96} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{96} & 0 & -\frac{\sqrt{6}i}{24} & -\frac{7}{48} & 0 & 0 & 0 & 0 & \frac{5\sqrt{10}}{96} & 0 & \frac{\sqrt{10}i}{24} & \frac{\sqrt{15}}{48} & 0 \\ \frac{\sqrt{6}}{96} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & \frac{7}{48} & 0 & 0 & \frac{5\sqrt{10}}{96} & 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & -\frac{\sqrt{15}}{48} \\ 0 & 0 & \frac{3\sqrt{6}}{32} & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{24} & 0 & 0 & -\frac{\sqrt{10}}{96} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{6}}{32} & -\frac{i}{6} & 0 & \frac{1}{24} & 0 & 0 & 0 & \frac{\sqrt{10}}{96} & 0 & 0 & 0 \end{bmatrix}$
435	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & \frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{96} & -\frac{1}{16} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{96} & 0 & 0 & \frac{1}{16} \\ 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & -\frac{11\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & \frac{11\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & \frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{10}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
436	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_3^{(1,0;a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 \end{bmatrix}$
437	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{96} & -\frac{7}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{24} & 0 & \frac{5\sqrt{10}i}{96} & -\frac{\sqrt{15}}{48} & 0 \\ \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & \frac{7}{48} & 0 & 0 & \frac{\sqrt{10}}{24} & 0 & -\frac{5\sqrt{10}i}{96} & 0 & 0 & \frac{\sqrt{15}}{48} \\ 0 & \frac{\sqrt{6}i}{96} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & \frac{1}{24} & 0 & 0 & -\frac{7\sqrt{10}i}{96} & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 \\ -\frac{\sqrt{6}i}{96} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & -\frac{1}{24} & \frac{7\sqrt{10}i}{96} & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & 0 \\ \frac{3\sqrt{6}}{32} & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{24} & \frac{\sqrt{10}}{96} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{6}}{32} & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & -\frac{\sqrt{10}}{96} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
438	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{24} & \frac{\sqrt{10}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{24} & 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 \\ 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{24} & 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & -\frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & -\frac{i}{6} & 0 & -\frac{1}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{24} & \frac{\sqrt{15}i}{24} & 0 \\ 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & -\frac{1}{6} & 0 & 0 & 0 & \frac{\sqrt{10}}{48} & 0 & \frac{\sqrt{10}i}{48} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{16} & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{\sqrt{10}}{48} & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 \end{bmatrix}$
439	symmetry	$y$ $\begin{bmatrix} 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 \\ -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & -\frac{\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & \frac{3\sqrt{35}i}{140} & -\frac{\sqrt{210}}{140} & 0 \\ -\frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & \frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & 0 & \frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}}{35} & -\frac{\sqrt{210}i}{140} & 0 & 0 \end{bmatrix}$
440	symmetry	$x$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_1^{(1,1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{28} & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{140} & 0 & \frac{\sqrt{35}i}{140} & -\frac{\sqrt{210}}{140} & 0 \\ \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{3\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & \frac{\sqrt{210}}{140} \\ 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 \\ -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & -\frac{\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{35}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & -\frac{\sqrt{210}}{140} \end{bmatrix}$
441	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{35}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & 0 & \frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{35} & -\frac{\sqrt{210}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & -\frac{\sqrt{35}i}{35} & \frac{\sqrt{210}}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}}{70} \end{bmatrix}$
442	symmetry	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & \frac{\sqrt{105}i}{168} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{168} & -\frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & -\frac{\sqrt{105}i}{168} & 0 \\ \frac{\sqrt{42}}{168} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & -\frac{\sqrt{7}i}{14} & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} \\ 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 \\ 0 & \frac{\sqrt{42}i}{48} & 0 & \frac{\sqrt{42}}{48} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 \\ -\frac{\sqrt{42}i}{48} & 0 & \frac{\sqrt{42}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 \end{bmatrix}$
443	symmetry	$\begin{bmatrix} 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{13\sqrt{70}}{672} & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & -\frac{5\sqrt{42}}{672} & 0 & 0 \\ \frac{\sqrt{70}i}{56} & 0 & -\frac{13\sqrt{70}}{672} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & \frac{\sqrt{42}i}{168} & 0 & -\frac{5\sqrt{42}}{672} & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{70}}{224} & 0 & \frac{\sqrt{70}i}{42} & -\frac{5\sqrt{105}}{336} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{42} & -\frac{5\sqrt{7}}{112} & 0 & 0 \\ -\frac{5\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{42} & 0 & 0 & \frac{5\sqrt{105}}{336} & 0 & 0 & -\frac{5\sqrt{42}}{672} & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & \frac{5\sqrt{7}}{112} \\ 0 & 0 & -\frac{\sqrt{70}}{96} & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & -\frac{5\sqrt{42}}{224} & 0 & 0 & -\frac{\sqrt{7}i}{28} \\ 0 & 0 & 0 & \frac{\sqrt{70}}{96} & \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{224} & \frac{\sqrt{7}i}{28} & 0 \end{bmatrix}$
444	symmetry	$\begin{bmatrix} -\frac{\sqrt{15}y(x-z)(x+z)}{2} \end{bmatrix}$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{\sqrt{42}i}{42} & 0 & -\frac{17\sqrt{42}}{672} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{224} & 0 & 0 \\ \frac{\sqrt{42}i}{42} & 0 & -\frac{17\sqrt{42}}{672} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{70}}{224} & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{56} & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{56} & \frac{5\sqrt{105}}{336} & 0 \\ -\frac{11\sqrt{42}}{672} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & \frac{3\sqrt{70}}{224} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{5\sqrt{105}}{336} \\ 0 & 0 & -\frac{\sqrt{42}}{96} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{5\sqrt{70}}{224} & 0 & 0 & \frac{\sqrt{105}i}{84} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{96} & -\frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & -\frac{5\sqrt{70}}{224} & -\frac{\sqrt{105}i}{84} & 0 & 0 \end{bmatrix}$
445	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{70}}{42} & 0 & -\frac{5\sqrt{70}i}{224} & \frac{5\sqrt{105}}{336} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & \frac{5\sqrt{42}i}{672} & -\frac{5\sqrt{7}}{112} & 0 \\ \frac{\sqrt{70}}{42} & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 & -\frac{5\sqrt{105}}{336} & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & -\frac{5\sqrt{42}i}{672} & 0 & 0 & \frac{5\sqrt{7}}{112} \\ 0 & -\frac{13\sqrt{70}i}{672} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & \frac{5\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{168} & 0 & 0 \\ \frac{13\sqrt{70}i}{672} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & -\frac{5\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{168} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{70}}{96} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{168} & -\frac{5\sqrt{42}}{224} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} \\ 0 & -\frac{\sqrt{70}}{96} & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & \frac{5\sqrt{42}}{224} & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 \end{bmatrix}$
446	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & \frac{\sqrt{105}i}{168} & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{84} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & \frac{5\sqrt{7}}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & -\frac{5\sqrt{7}i}{84} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{42} & \frac{5\sqrt{7}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{168} & 0 & -\frac{5\sqrt{42}i}{168} & \frac{2\sqrt{7}}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{168} & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & -\frac{2\sqrt{7}}{21} \end{bmatrix}$
447	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{11\sqrt{42}i}{672} & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{70}i}{224} & -\frac{5\sqrt{105}}{336} & 0 \\ -\frac{\sqrt{42}}{56} & 0 & -\frac{11\sqrt{42}i}{672} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{3\sqrt{70}i}{224} & 0 & 0 & \frac{5\sqrt{105}}{336} \\ 0 & \frac{17\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & 0 \\ -\frac{17\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} & -\frac{3\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}}{96} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & -\frac{5\sqrt{70}}{224} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{84} \\ 0 & \frac{\sqrt{42}}{96} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{5\sqrt{70}}{224} & 0 & 0 & 0 & \frac{\sqrt{105}}{84} & 0 \end{bmatrix}$
448	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(B, 4)$	$-\frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad -\frac{3\sqrt{7}i}{56} \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{168}$	
	$0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad \frac{3\sqrt{7}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{168} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{168} \quad \frac{\sqrt{7}i}{14} \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad \frac{\sqrt{105}i}{168} \quad 0$	
	$0 \quad \frac{\sqrt{42}}{48} \quad 0 \quad -\frac{\sqrt{42}i}{48} \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{112} \quad 0 \quad -\frac{\sqrt{70}i}{112} \quad 0 \quad 0$	
	$\frac{\sqrt{42}}{48} \quad 0 \quad \frac{\sqrt{42}i}{48} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{112} \quad 0 \quad \frac{\sqrt{70}i}{112} \quad 0 \quad 0 \quad 0$	

bra: =  $\langle d_v, \uparrow |, \langle d_v, \downarrow |, \langle d_{xy}, \uparrow |, \langle d_{xy}, \downarrow |, \langle d_{xz}, \uparrow |, \langle d_{xz}, \downarrow |, \langle d_{yz}, \uparrow |, \langle d_{yz}, \downarrow |, \langle d_u, \uparrow |, \langle d_u, \downarrow |$ ket: =  $|d_v, \uparrow \rangle, |d_v, \downarrow \rangle, |d_{xy}, \uparrow \rangle, |d_{xy}, \downarrow \rangle, |d_{xz}, \uparrow \rangle, |d_{xz}, \downarrow \rangle, |d_{yz}, \uparrow \rangle, |d_{yz}, \downarrow \rangle, |d_u, \uparrow \rangle, |d_u, \downarrow \rangle$ 

Table 8: (d,d) block.

No.	multipole	matrix
449	symmetry	1
$\left[ \begin{array}{ccccccccc} \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} \end{array} \right]$		
$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$		
450		$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} \end{bmatrix}$
451	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 \\ -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
452	symmetry	$\sqrt{3}xz$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(A, 3)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 \\ \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 \\ 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \end{bmatrix}$
453	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 \\ 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \end{bmatrix}$
454	symmetry	$\sqrt{3}xy$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(B, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{Q}_4^{(a)}(A, 1)$		$\begin{bmatrix} \frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{10} \end{bmatrix}$
		$\frac{-\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A, 2)$	$-\frac{\sqrt{21}}{14}$	0 0 0 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{21}}{14}$ 0 0 0 0 0 0 0 0 0
	0	0 $\frac{2\sqrt{21}}{21}$ 0 0 0 0 0 0 0 0
	0	0 0 0 $\frac{2\sqrt{21}}{21}$ 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0
	0	0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{14}$ 0
	0	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{14}$
457	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
$\mathbb{Q}_4^{(a)}(A, 3)$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{14}$ 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{14}$	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{7}}{7}$ 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{7}}{7}$ 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{7}}{7}$ 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{7}}{7}$ 0 0	
	$-\frac{\sqrt{21}}{14}$ 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{21}}{14}$ 0 0 0 0 0 0 0 0	
458	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

*continued ...*

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{4} & 0 \\ 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{4} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
459	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 \\ -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} \\ 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} \\ 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
460	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(B, 1)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{4} & 0 \\ 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{4} & 0 & 0 \end{bmatrix}$
461 symmetry		$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
462 symmetry		$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(B, 3)$	0 0 0 0 0 0 $\frac{3\sqrt{7}}{28}$ 0 0 0	
	0 0 0 0 0 0 0 $\frac{3\sqrt{7}}{28}$ 0 0	
	0 0 0 0 $\frac{\sqrt{7}}{7}$ 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{7}}{7}$ 0 0 0 0	
	0 0 $\frac{\sqrt{7}}{7}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{7}}{7}$ 0 0 0 0 0 0	
	$\frac{3\sqrt{7}}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0	
	0 $\frac{3\sqrt{7}}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$	
	0 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0	
463	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{Q}_4^{(a)}(B, 4)$	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{14}$ 0	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{14}$	
	0 0 0 0 0 0 $\frac{\sqrt{7}}{7}$ 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{7}}{7}$ 0 0	
	0 0 0 0 $\frac{\sqrt{7}}{7}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{21}}{14}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{21}}{14}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
464	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(A, 1)$	0 0 $-\frac{\sqrt{30}i}{15}$ 0 0 $-\frac{\sqrt{30}}{60}$ 0 $-\frac{\sqrt{30}i}{60}$ 0 0	
	0 0 0 $\frac{\sqrt{30}i}{15}$ $\frac{\sqrt{30}}{60}$ 0 $-\frac{\sqrt{30}i}{60}$ 0 0 0	
	$\frac{\sqrt{30}i}{15}$ 0 0 0 0 $\frac{\sqrt{30}i}{60}$ 0 $-\frac{\sqrt{30}}{60}$ 0 0	
	0 $-\frac{\sqrt{30}i}{15}$ 0 0 $\frac{\sqrt{30}i}{60}$ 0 $\frac{\sqrt{30}}{60}$ 0 0 0	
	0 $\frac{\sqrt{30}}{60}$ 0 $-\frac{\sqrt{30}i}{60}$ 0 0 $-\frac{\sqrt{30}i}{30}$ 0 0 $-\frac{\sqrt{10}}{20}$	
	$-\frac{\sqrt{30}}{60}$ 0 $-\frac{\sqrt{30}i}{60}$ 0 0 0 0 $\frac{\sqrt{30}i}{30}$ $\frac{\sqrt{10}}{20}$ 0	
	0 $\frac{\sqrt{30}i}{60}$ 0 $\frac{\sqrt{30}}{60}$ $\frac{\sqrt{30}i}{30}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$	
	$\frac{\sqrt{30}i}{60}$ 0 $-\frac{\sqrt{30}}{60}$ 0 0 $-\frac{\sqrt{30}i}{30}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0	
	0 0 0 0 0 $\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0	
465 symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$	
	0 0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 0 $\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0	
	0 $\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $-\frac{\sqrt{30}}{20}$	
	$-\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}}{20}$ 0	
	0 $-\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $-\frac{\sqrt{30}i}{20}$	
	$-\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0	
	0 0 0 0 0 $\frac{\sqrt{30}}{20}$ 0 $\frac{\sqrt{30}i}{20}$ 0 0	
466 symmetry	$\sqrt{3}xz$	
	continued ...	

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(A, 3)$	0 0 0 $-\frac{\sqrt{10}i}{10}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 0 $-\frac{\sqrt{10}i}{10}$ 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	0 $\frac{\sqrt{10}i}{10}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0	
	$\frac{\sqrt{10}i}{10}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0	
	0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0	
	$-\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 $-\frac{\sqrt{30}i}{20}$ 0	
	0 $\frac{\sqrt{10}i}{20}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{30}i}{20}$	
	0 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 0	
467 symmetry	$\sqrt{3}yz$	
	0 0 0 $-\frac{\sqrt{10}}{10}$ $\frac{\sqrt{10}i}{20}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{10}}{10}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0	
	0 $\frac{\sqrt{10}}{10}$ 0 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0	
	$-\frac{\sqrt{10}}{10}$ 0 0 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	$-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0 $-\frac{\sqrt{10}}{20}$ $\frac{\sqrt{30}i}{20}$ 0	
	0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $\frac{\sqrt{10}}{20}$ 0 0 $-\frac{\sqrt{30}i}{20}$	
	0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0	
	0 0 0 $\frac{\sqrt{10}i}{20}$ $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 0 0 0 0	
468 symmetry	$\sqrt{3}xy$	

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(B, 2)$	0 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0	
	0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 0 $\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 $-\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$	
	$-\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0	
	0 $-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $-\frac{\sqrt{30}}{20}$	
	$\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}}{20}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 $\frac{\sqrt{30}}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 $-\frac{\sqrt{30}}{20}$ 0 0 0	
469	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{Q}_4^{(1,-1;a)}(A, 1)$	0 0 $\frac{\sqrt{15}i}{30}$ 0 0 $-\frac{\sqrt{15}}{60}$ 0 $-\frac{\sqrt{15}i}{60}$ 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{30}$ $\frac{\sqrt{15}}{60}$ 0 $-\frac{\sqrt{15}i}{60}$ 0 0 0	
	$-\frac{\sqrt{15}i}{30}$ 0 0 0 0 $-\frac{\sqrt{15}i}{15}$ 0 $\frac{\sqrt{15}}{15}$ 0 0	
	0 $\frac{\sqrt{15}i}{30}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 $-\frac{\sqrt{15}}{15}$ 0 0 0	
	0 $\frac{\sqrt{15}}{60}$ 0 $\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{5}}{20}$	
	$-\frac{\sqrt{15}}{60}$ 0 $\frac{\sqrt{15}i}{15}$ 0 0 0 0 $\frac{\sqrt{15}i}{15}$ $\frac{\sqrt{5}}{20}$ 0	
	0 $\frac{\sqrt{15}i}{60}$ 0 $-\frac{\sqrt{15}}{15}$ $\frac{\sqrt{15}i}{15}$ 0 0 0 0 $\frac{\sqrt{5}i}{20}$	
	$\frac{\sqrt{15}i}{60}$ 0 $\frac{\sqrt{15}}{15}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 0 0 $\frac{\sqrt{5}i}{20}$	
	0 0 0 0 0 $\frac{\sqrt{5}}{20}$ 0 $-\frac{\sqrt{5}i}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{5}}{20}$ 0 $-\frac{\sqrt{5}i}{20}$ 0 0 0	
470	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A, 2)$	0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{5\sqrt{21}}{84}$ 0 $\frac{5\sqrt{21}i}{84}$ 0 0	
	0 0 0 $-\frac{\sqrt{21}i}{42}$ $-\frac{5\sqrt{21}}{84}$ 0 $\frac{5\sqrt{21}i}{84}$ 0 0 0	
	$-\frac{\sqrt{21}i}{42}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0	
	0 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0	
	0 $-\frac{5\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $-\frac{\sqrt{7}}{28}$	
	$\frac{5\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 $\frac{\sqrt{21}i}{21}$ $\frac{\sqrt{7}}{28}$ 0	
	0 $-\frac{5\sqrt{21}i}{84}$ 0 $\frac{\sqrt{21}}{42}$ $\frac{\sqrt{21}i}{21}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$	
	$-\frac{5\sqrt{21}i}{84}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0	
	0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0	
471	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
$\mathbb{Q}_4^{(1,-1;a)}(A, 3)$	0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{14}$ $\frac{\sqrt{21}i}{14}$ 0	
	0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{21}i}{14}$	
	0 $\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $\frac{\sqrt{21}}{28}$	
	$-\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0	
	0 $-\frac{\sqrt{7}i}{28}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$	
	$-\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0	
	0 0 $-\frac{\sqrt{21}i}{14}$ 0 0 $-\frac{\sqrt{21}}{28}$ 0 $-\frac{\sqrt{21}i}{28}$ 0 0	
	0 0 0 $\frac{\sqrt{21}i}{14}$ $\frac{\sqrt{21}}{28}$ 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0	
472	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A, 4)$		$\begin{bmatrix} 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 \\ 0 & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 \\ 0 & -\frac{i}{8} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} \\ -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & \frac{\sqrt{3}i}{8} \\ 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 \\ \frac{i}{8} & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 \\ 0 & -\frac{i}{8} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 \end{bmatrix}$
		$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
$\mathbb{Q}_4^{(1,-1;a)}(A, 5)$		$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{7}i}{56} & 0 & 0 & \frac{5\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{21}}{14} \\ 0 & 0 & -\frac{\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}i}{56} & -\frac{\sqrt{21}}{14} & 0 \\ 0 & \frac{\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} \\ \frac{\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 \\ -\frac{5\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{21}i}{56} & 0 \\ 0 & \frac{5\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{56} \\ 0 & -\frac{\sqrt{21}}{14} & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & -\frac{\sqrt{21}i}{56} & 0 & 0 & 0 \\ \frac{\sqrt{21}}{14} & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{56} & 0 & 0 \end{bmatrix}$
		$\sqrt{35}yz(y-z)(y+z)$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(B, 1)$	0 0 0 $-\frac{1}{8}$ $\frac{i}{8}$ 0 0 0 0 0	
	0 0 $\frac{1}{8}$ 0 0 $-\frac{i}{8}$ 0 0 0 0	
	0 $\frac{1}{8}$ 0 0 0 0 $\frac{i}{4}$ 0 0 $\frac{\sqrt{3}}{8}$	
	$-\frac{1}{8}$ 0 0 0 0 0 0 $-\frac{i}{4}$ $-\frac{\sqrt{3}}{8}$ 0	
	$-\frac{i}{8}$ 0 0 0 0 0 0 0 $\frac{1}{4}$ $-\frac{\sqrt{3}i}{8}$ 0	
	0 $\frac{i}{8}$ 0 0 0 0 $-\frac{1}{4}$ 0 0 $\frac{\sqrt{3}i}{8}$	
	0 0 $-\frac{i}{4}$ 0 0 $-\frac{1}{4}$ 0 0 0 0	
	0 0 0 $\frac{i}{4}$ $\frac{1}{4}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{3}}{8}$ $\frac{\sqrt{3}i}{8}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{3}}{8}$ 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0	
475	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{Q}_4^{(1,-1;a)}(B, 2)$	0 0 0 0 0 $\frac{i}{4}$ 0 $-\frac{1}{4}$ 0 0	
	0 0 0 0 $\frac{i}{4}$ 0 $\frac{1}{4}$ 0 0 0 0	
	0 0 0 0 0 0 $-\frac{1}{4}$ 0 $-\frac{i}{4}$ 0 0	
	0 0 0 0 $\frac{1}{4}$ 0 $-\frac{i}{4}$ 0 0 0 0	
	0 $-\frac{i}{4}$ 0 $\frac{1}{4}$ 0 0 0 0 0 0 0	
	$-\frac{i}{4}$ 0 $-\frac{1}{4}$ 0 0 0 0 0 0 0 0	
	0 $\frac{1}{4}$ 0 $\frac{i}{4}$ 0 0 0 0 0 0 0	
	$-\frac{1}{4}$ 0 $\frac{i}{4}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0	
476	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(B, 3)$	0	0 0 0 $-\frac{\sqrt{7}}{56}$ $\frac{5\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{21}i}{14}$
	0	0 0 $\frac{\sqrt{7}}{56}$ 0 0 $-\frac{5\sqrt{7}i}{56}$ 0 0 $\frac{\sqrt{21}i}{14}$ 0
	0	$\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{3\sqrt{21}}{56}$
	$-\frac{\sqrt{7}}{56}$	0 0 0 0 0 0 0 $\frac{\sqrt{7}i}{28}$ $\frac{3\sqrt{21}}{56}$ 0
	$-\frac{5\sqrt{7}i}{56}$	0 0 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ $-\frac{\sqrt{21}i}{56}$ 0
	0	$\frac{5\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 $\frac{\sqrt{21}i}{56}$
	0	0 0 $\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{7}i}{28}$ $\frac{\sqrt{7}}{28}$ 0 0 0 0 0
	0	$-\frac{\sqrt{21}i}{14}$ 0 $\frac{3\sqrt{21}}{56}$ $\frac{\sqrt{21}i}{56}$ 0 0 0 0 0
	$-\frac{\sqrt{21}i}{14}$	0 $-\frac{3\sqrt{21}}{56}$ 0 0 $-\frac{\sqrt{21}i}{56}$ 0 0 0 0
477	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{Q}_4^{(1,-1;a)}(B, 4)$	0	0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{14}$ $\frac{\sqrt{21}i}{14}$ 0
	0	0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{21}i}{14}$
	0	0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0
	0	0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0
	0	$\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$
	$\frac{\sqrt{7}i}{14}$	0 $\frac{\sqrt{7}}{28}$ 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0
	0	$\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$
	$-\frac{\sqrt{7}}{14}$	0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 0 $\frac{\sqrt{21}}{28}$ 0
	$-\frac{\sqrt{21}i}{14}$	0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{21}}{28}$ 0 0 0
	0	$\frac{\sqrt{21}i}{14}$ 0 0 $-\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{21}}{28}$ 0 0 0
478	symmetry	1

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_0^{(1,1;a)}(A)$	$0 \quad 0 \quad -\frac{\sqrt{15}i}{15} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{30} \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{15} \quad -\frac{\sqrt{15}}{30} \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{15}i}{15} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad \frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{15}i}{15} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10}$	
	$\frac{\sqrt{15}}{30} \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30} \quad -\frac{\sqrt{5}}{10} \quad 0$	
	$0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad -\frac{\sqrt{15}}{30} \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{10}$	
	$-\frac{\sqrt{15}i}{30} \quad 0 \quad \frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{10} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad \frac{\sqrt{5}i}{10} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10} \quad 0 \quad \frac{\sqrt{5}i}{10} \quad 0 \quad 0 \quad 0 \quad 0$	
479	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{Q}_2^{(1,1;a)}(A, 1)$	$0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad \frac{\sqrt{105}}{70} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{35} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35}$	
	$-\frac{\sqrt{105}}{70} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{35} \quad -\frac{\sqrt{35}}{35} \quad 0$	
	$0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad \frac{\sqrt{105}}{70} \quad \frac{\sqrt{105}i}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{35}$	
	$\frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{35} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{35} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{35} \quad 0 \quad \frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35} \quad 0 \quad \frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad 0 \quad 0$	
480	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(1,1;a)}(A, 2)$	0 0 0 0 0 $\frac{\sqrt{35}}{35}$ 0 $-\frac{\sqrt{35}i}{35}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{35}}{35}$ 0 $-\frac{\sqrt{35}i}{35}$ 0 0 0	
	0 0 0 0 0 $-\frac{3\sqrt{35}i}{70}$ 0 $-\frac{3\sqrt{35}}{70}$ $-\frac{3\sqrt{35}i}{70}$ 0	
	0 0 0 0 $-\frac{3\sqrt{35}i}{70}$ 0 $\frac{3\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{105}i}{42}$	
	0 $-\frac{\sqrt{35}}{35}$ 0 $\frac{3\sqrt{35}i}{70}$ 0 0 0 0 0 $\frac{\sqrt{105}}{210}$	
	$\frac{\sqrt{35}}{35}$ 0 $\frac{3\sqrt{35}i}{70}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{210}$ 0	
	0 $\frac{\sqrt{35}i}{35}$ 0 $\frac{3\sqrt{35}}{70}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{210}$	
	$\frac{\sqrt{35}i}{35}$ 0 $-\frac{3\sqrt{35}}{70}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{210}$ 0	
	0 0 $\frac{\sqrt{105}i}{42}$ 0 0 $-\frac{\sqrt{105}}{210}$ 0 $-\frac{\sqrt{105}i}{210}$ 0 0	
	0 0 0 $-\frac{\sqrt{105}i}{42}$ $\frac{\sqrt{105}}{210}$ 0 $-\frac{\sqrt{105}i}{210}$ 0 0 0	
481	symmetry	$\sqrt{3}xz$
$\mathbb{Q}_2^{(1,1;a)}(A, 3)$	0 0 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 $\frac{\sqrt{105}}{42}$	
	0 0 $-\frac{\sqrt{35}i}{70}$ 0 0 0 0 $\frac{\sqrt{35}i}{35}$ $-\frac{\sqrt{105}}{42}$ 0	
	0 $\frac{\sqrt{35}i}{70}$ 0 0 $\frac{\sqrt{35}i}{35}$ 0 0 0 0 $-\frac{\sqrt{105}i}{42}$	
	$\frac{\sqrt{35}i}{70}$ 0 0 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 $-\frac{\sqrt{105}i}{42}$ 0	
	0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 0 0 $\frac{\sqrt{35}i}{35}$ 0 0	
	0 0 0 $\frac{\sqrt{35}i}{35}$ 0 0 $\frac{\sqrt{35}i}{35}$ 0 0 0	
	$\frac{\sqrt{35}i}{35}$ 0 0 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 $-\frac{2\sqrt{105}i}{105}$ 0	
	0 $-\frac{\sqrt{35}i}{35}$ 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 0 0 $\frac{2\sqrt{105}i}{105}$	
	0 $-\frac{\sqrt{105}}{42}$ 0 $\frac{\sqrt{105}i}{42}$ 0 0 $\frac{2\sqrt{105}i}{105}$ 0 0 0	
482	symmetry	$\sqrt{3}yz$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(1,1;a)}(B, 1)$	0	0 0 0 $-\frac{\sqrt{35}}{70}$ $-\frac{\sqrt{35}i}{35}$ 0 0 0 0 $\frac{\sqrt{105}i}{42}$
	0	0 0 $\frac{\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{35}i}{35}$ 0 0 $\frac{\sqrt{105}i}{42}$ 0
	0	$\frac{\sqrt{35}}{70}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 $\frac{\sqrt{105}i}{42}$
	$-\frac{\sqrt{35}}{70}$	0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{35}$ $-\frac{\sqrt{105}i}{42}$ 0
	$\frac{\sqrt{35}i}{35}$	0 0 0 0 0 0 0 $\frac{\sqrt{35}}{35}$ $\frac{2\sqrt{105}i}{105}$ 0
	0	$-\frac{\sqrt{35}i}{35}$ 0 0 0 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 $-\frac{2\sqrt{105}i}{105}$
	0	0 0 $\frac{\sqrt{35}i}{35}$ 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{35}i}{35}$ $\frac{\sqrt{35}}{35}$ 0 0 0 0 0
	0	$-\frac{\sqrt{105}i}{42}$ 0 $-\frac{\sqrt{105}}{42}$ $-\frac{2\sqrt{105}i}{105}$ 0 0 0 0 0
$\mathbb{Q}_2^{(1,1;a)}(B, 2)$	$-\frac{\sqrt{105}i}{42}$	0 0 $\frac{\sqrt{105}}{42}$ 0 0 $\frac{2\sqrt{105}i}{105}$ 0 0 0 0
	483	symmetry $\sqrt{3}xy$
	0	0 0 0 0 0 $\frac{3\sqrt{35}i}{70}$ 0 $\frac{3\sqrt{35}}{70}$ $\frac{\sqrt{105}i}{42}$ 0
	0	0 0 0 0 $\frac{3\sqrt{35}i}{70}$ 0 $-\frac{3\sqrt{35}}{70}$ 0 0 $-\frac{\sqrt{105}i}{42}$
	0	0 0 0 0 0 $\frac{\sqrt{35}}{35}$ 0 $-\frac{\sqrt{35}i}{35}$ 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{35}}{35}$ 0 $-\frac{\sqrt{35}i}{35}$ 0 0 0
	0	$-\frac{3\sqrt{35}i}{70}$ 0 $-\frac{\sqrt{35}}{35}$ 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{210}$
	$-\frac{3\sqrt{35}i}{70}$	0 $\frac{\sqrt{35}}{35}$ 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{210}$ 0
	0	$-\frac{3\sqrt{35}}{70}$ 0 $\frac{\sqrt{35}i}{35}$ 0 0 0 0 0 0 $\frac{\sqrt{105}}{210}$
484	symmetry	$y$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{G}_1^{(1,0;a)}(A)$	0 0 0 $\frac{\sqrt{10}i}{10}$ 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 0 $\frac{\sqrt{10}i}{10}$ 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 $-\frac{\sqrt{10}i}{10}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0	
	$-\frac{\sqrt{10}i}{10}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	$-\frac{\sqrt{10}i}{20}$ 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 $-\frac{\sqrt{30}i}{20}$ 0	
	0 $\frac{\sqrt{10}i}{20}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{30}i}{20}$	
	0 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 0 0	
485	symmetry	$x$
$\mathbb{G}_1^{(1,0;a)}(B, 1)$	0 0 0 $-\frac{\sqrt{10}}{10}$ $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{10}}{10}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 0	
	0 $\frac{\sqrt{10}}{10}$ 0 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0	
	$-\frac{\sqrt{10}}{10}$ 0 0 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	$\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0 $-\frac{\sqrt{10}}{20}$ $-\frac{\sqrt{30}i}{20}$ 0	
	0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{10}}{20}$ 0 0 0 $\frac{\sqrt{30}i}{20}$	
	0 0 $\frac{\sqrt{10}i}{20}$ 0 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{10}i}{20}$ $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 0 0 0	
486	symmetry	$z$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{G}_1^{(1,0;a)}(B, 2)$	0 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0	
	0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 $-\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$	
	$-\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0	
	0 $\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}}{20}$	
	$-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $-\frac{\sqrt{30}}{20}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 $-\frac{\sqrt{30}}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 $\frac{\sqrt{30}}{20}$ 0 0 0	
487	symmetry	$\sqrt{15}xyz$
$\mathbb{G}_3^{(1,0;a)}(A, 1)$	0 0 0 0 0 $-\frac{1}{4}$ 0 $\frac{i}{4}$ 0 0	
	0 0 0 0 $\frac{1}{4}$ 0 $\frac{i}{4}$ 0 0 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$	
	0 $\frac{1}{4}$ 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{12}$	
	$-\frac{1}{4}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{3}}{12}$ 0	
	0 $-\frac{i}{4}$ 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{12}$	
	$-\frac{i}{4}$ 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{12}$ 0	
	0 0 $\frac{\sqrt{3}i}{6}$ 0 0 $-\frac{\sqrt{3}}{12}$ 0 $-\frac{\sqrt{3}i}{12}$ 0 0	
	0 0 0 $-\frac{\sqrt{3}i}{6}$ $\frac{\sqrt{3}}{12}$ 0 $-\frac{\sqrt{3}i}{12}$ 0 0 0	
488	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(A, 2)$	0 0 0 $\frac{\sqrt{15}i}{40}$ 0 0 $\frac{3\sqrt{15}i}{40}$ 0 0 0	
	0 0 $\frac{\sqrt{15}i}{40}$ 0 0 0 0 $-\frac{3\sqrt{15}i}{40}$ 0 0	
	0 $-\frac{\sqrt{15}i}{40}$ 0 0 $\frac{\sqrt{15}i}{20}$ 0 0 0 0 $-\frac{\sqrt{5}i}{8}$	
	$-\frac{\sqrt{15}i}{40}$ 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 $-\frac{\sqrt{5}i}{8}$ 0	
	0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0	
	0 0 0 $\frac{\sqrt{15}i}{20}$ 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 0	
	$-\frac{3\sqrt{15}i}{40}$ 0 0 0 0 $\frac{\sqrt{15}i}{20}$ 0 0 $\frac{\sqrt{5}i}{40}$ 0	
	0 $\frac{3\sqrt{15}i}{40}$ 0 0 $\frac{\sqrt{15}i}{20}$ 0 0 0 0 $-\frac{\sqrt{5}i}{40}$	
	0 0 0 $\frac{\sqrt{5}i}{8}$ 0 0 $-\frac{\sqrt{5}i}{40}$ 0 0 0	
	0 0 $\frac{\sqrt{5}i}{8}$ 0 0 0 0 $\frac{\sqrt{5}i}{40}$ 0 0	
489	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{G}_3^{(1,0;a)}(A, 3)$	0 0 0 $-\frac{i}{8}$ 0 0 $\frac{i}{8}$ 0 0 $-\frac{\sqrt{3}}{6}$	
	0 0 $-\frac{i}{8}$ 0 0 0 0 $-\frac{i}{8}$ $\frac{\sqrt{3}}{6}$ 0	
	0 $\frac{i}{8}$ 0 0 $\frac{i}{4}$ 0 0 0 0 $\frac{\sqrt{3}i}{24}$	
	$\frac{i}{8}$ 0 0 0 0 $-\frac{i}{4}$ 0 0 $\frac{\sqrt{3}i}{24}$ 0	
	0 0 $-\frac{i}{4}$ 0 0 0 0 $\frac{i}{4}$ 0 0	
	0 0 0 $\frac{i}{4}$ 0 0 $\frac{i}{4}$ 0 0 0	
	$-\frac{i}{8}$ 0 0 0 0 $-\frac{i}{4}$ 0 0 $-\frac{\sqrt{3}i}{24}$ 0	
	0 $\frac{i}{8}$ 0 0 $-\frac{i}{4}$ 0 0 0 0 $\frac{\sqrt{3}i}{24}$	
	0 $\frac{\sqrt{3}}{6}$ 0 $-\frac{\sqrt{3}i}{24}$ 0 0 $\frac{\sqrt{3}i}{24}$ 0 0 0	
	$-\frac{\sqrt{3}}{6}$ 0 $-\frac{\sqrt{3}i}{24}$ 0 0 0 0 $-\frac{\sqrt{3}i}{24}$ 0 0	
490	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(B, 1)$	0 0 0 $-\frac{\sqrt{15}}{40}$ $-\frac{3\sqrt{15}i}{40}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{15}}{40}$ 0 0 $\frac{3\sqrt{15}i}{40}$ 0 0 0 0	
	0 $\frac{\sqrt{15}}{40}$ 0 0 0 0 $\frac{\sqrt{15}i}{20}$ 0 0 $-\frac{\sqrt{5}}{8}$	
	$-\frac{\sqrt{15}}{40}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ $\frac{\sqrt{5}}{8}$ 0	
	$\frac{3\sqrt{15}i}{40}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{20}$ $\frac{\sqrt{5}i}{40}$ 0	
	0 $-\frac{3\sqrt{15}i}{40}$ 0 0 0 0 $-\frac{\sqrt{15}}{20}$ 0 0 $-\frac{\sqrt{5}i}{40}$	
	0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 $-\frac{\sqrt{15}}{20}$ 0 0 0 0	
	0 0 0 $\frac{\sqrt{15}i}{20}$ $\frac{\sqrt{15}}{20}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{5}}{8}$ $-\frac{\sqrt{5}i}{40}$ 0 0 0 0 0	
	0 0 $-\frac{\sqrt{5}}{8}$ 0 0 $\frac{\sqrt{5}i}{40}$ 0 0 0 0	
$\mathbb{G}_3^{(1,0;a)}(B, 2)$	$-\frac{z(3x^2+3y^2-2z^2)}{2}$	
	0 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 $\frac{\sqrt{15}}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 $-\frac{\sqrt{15}}{20}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{15}}{20}$ 0 $-\frac{\sqrt{15}i}{20}$ 0 0	
	0 0 0 0 0 $\frac{\sqrt{15}}{20}$ 0 $-\frac{\sqrt{15}i}{20}$ 0 0	
	0 $\frac{\sqrt{15}i}{20}$ 0 $\frac{\sqrt{15}}{20}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{10}$	
	$\frac{\sqrt{15}i}{20}$ 0 $-\frac{\sqrt{15}}{20}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0	
	0 $-\frac{\sqrt{15}}{20}$ 0 $\frac{\sqrt{15}i}{20}$ 0 0 0 0 0 $\frac{\sqrt{5}}{10}$	
	$\frac{\sqrt{15}}{20}$ 0 $\frac{\sqrt{15}i}{20}$ 0 0 0 0 0 $-\frac{\sqrt{5}}{10}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 $-\frac{\sqrt{5}}{10}$ 0 0	
492	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$	
	0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0 0	

continued ...

Table 8

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(B, 3)$		$\begin{bmatrix} 0 & 0 & 0 & -\frac{1}{8} & \frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{i}{8} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & -\frac{\sqrt{3}}{24} \\ -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & \frac{\sqrt{3}}{24} & 0 \\ -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & \frac{\sqrt{3}i}{24} \\ 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & -\frac{\sqrt{3}i}{24} \\ 0 & 0 & \frac{i}{4} & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{4} & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{24} & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 \end{bmatrix}$
$\mathbb{G}_3^{(1,0;a)}(B, 4)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & -\frac{i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
494	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
494	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(A, 1)$	0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 $-\frac{\sqrt{42}}{28}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 $-\frac{\sqrt{42}}{28}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{42}}{28}$ 0 $\frac{\sqrt{42}i}{28}$ 0 0	
	0 0 0 0 $\frac{\sqrt{42}}{28}$ 0 $-\frac{\sqrt{42}i}{28}$ 0 0 0	
	0 $\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{28}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$	
	$-\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0	
	0 $-\frac{\sqrt{42}}{28}$ 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$	
	$-\frac{\sqrt{42}}{28}$ 0 $-\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 $\frac{\sqrt{14}}{28}$	
	0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{14}}{28}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{14}}{28}$ 0 0 0	
495	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
$\mathbb{T}_2^{(1,0;a)}(A, 2)$	0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0	
	0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ $\frac{\sqrt{42}}{21}$ 0	
	0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 $\frac{\sqrt{14}i}{28}$ 0 0 $-\frac{\sqrt{42}}{21}$	
	$0 -\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{14}}{28}$ 0 0 $-\frac{\sqrt{14}}{14}$ 0 0 $-\frac{\sqrt{42}i}{84}$	
	$\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{14}}{28}$ 0 0 0 0 $\frac{\sqrt{14}}{14}$ $\frac{\sqrt{42}i}{84}$ 0	
	0 $-\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ $-\frac{\sqrt{14}}{14}$ 0 0 0 0 $\frac{\sqrt{42}}{84}$	
	$-\frac{\sqrt{14}}{28}$ 0 $\frac{\sqrt{14}i}{28}$ 0 0 $\frac{\sqrt{14}}{14}$ 0 0 0 $\frac{\sqrt{42}}{84}$	
	0 0 $\frac{\sqrt{42}}{21}$ 0 0 $-\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{84}$ 0 0	
	0 0 0 $-\frac{\sqrt{42}}{21}$ $\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{84}$ 0 0 0	
496	symmetry	$\sqrt{3}xz$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(A,3)$	0	$\frac{\sqrt{14}i}{14}$
	$-\frac{\sqrt{14}i}{14}$	0
	0	$0$
	$0$	$0$
	$0$	$0$
	$0$	$0$
	$0$	$0$
	$\frac{\sqrt{14}}{28}$	0
	$0$	$0$
	$0$	$0$
497	symmetry	$\sqrt{3}yz$
$\mathbb{T}_2^{(1,0;a)}(B,1)$	0	$\frac{\sqrt{14}}{14}$
	$\frac{\sqrt{14}}{14}$	0
	0	$0$
	$0$	$0$
	$0$	$0$
	$0$	$0$
	$0$	$0$
	$\frac{\sqrt{14}}{28}$	0
	$0$	$0$
	$0$	$0$
498	symmetry	$\sqrt{3}xy$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(B, 2)$	0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $\frac{\sqrt{14}i}{28}$ $-\frac{\sqrt{42}}{21}$ 0	
	0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ 0 0 $\frac{\sqrt{42}}{21}$	
	0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0	
	0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 0	
	0 $-\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ $\frac{\sqrt{14}}{14}$ 0 0 0 0 $-\frac{\sqrt{42}}{84}$	
	$-\frac{\sqrt{14}}$ 0 $\frac{\sqrt{14}i}{28}$ 0 0 $-\frac{\sqrt{14}}{14}$ 0 0 $-\frac{\sqrt{42}}{84}$ 0	
	0 $\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 $-\frac{\sqrt{14}}{14}$ 0 0 $-\frac{\sqrt{42}i}{84}$	
	$-\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 0 0 $\frac{\sqrt{14}}{14}$ $\frac{\sqrt{42}i}{84}$ 0	
	$-\frac{\sqrt{42}}{21}$ 0 0 0 0 $-\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{84}$ 0 0	
	0 $\frac{\sqrt{42}}{21}$ 0 0 $-\frac{\sqrt{42}}{84}$ 0 $\frac{\sqrt{42}i}{84}$ 0 0 0	
499	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{T}_4^{(1,0;a)}(A, 1)$	0 0 $-\frac{\sqrt{3}}{6}$ 0 0 $-\frac{\sqrt{3}i}{12}$ 0 $\frac{\sqrt{3}}{12}$ 0 0	
	0 0 0 $\frac{\sqrt{3}}{6}$ $\frac{\sqrt{3}i}{12}$ 0 $\frac{\sqrt{3}}{12}$ 0 0 0	
	$-\frac{\sqrt{3}}{6}$ 0 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{3}}{6}$ 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 0 0 $\frac{i}{4}$	
	$\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 0 0 $-\frac{i}{4}$ 0	
	0 $\frac{\sqrt{3}}{12}$ 0 0 0 0 0 0 0 $\frac{1}{4}$	
	$\frac{\sqrt{3}}{12}$ 0 0 0 0 0 0 0 $\frac{1}{4}$ 0	
	0 0 0 0 0 $\frac{i}{4}$ 0 $\frac{1}{4}$ 0 0	
500	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A, 2)$	0 0 $\frac{\sqrt{105}}{30}$ 0 0 $\frac{\sqrt{105}i}{420}$ 0 $-\frac{\sqrt{105}}{420}$ 0 0	
	0 0 0 $-\frac{\sqrt{105}}{30}$ $-\frac{\sqrt{105}i}{420}$ 0 $-\frac{\sqrt{105}}{420}$ 0 0 0	
	$\frac{\sqrt{105}}{30}$ 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0 $-\frac{\sqrt{105}i}{70}$ 0 0	
	0 $-\frac{\sqrt{105}}{30}$ 0 0 $-\frac{\sqrt{105}}{70}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 0	
	0 $\frac{\sqrt{105}i}{420}$ 0 $-\frac{\sqrt{105}}{70}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$	
	$-\frac{\sqrt{105}i}{420}$ 0 $-\frac{\sqrt{105}}{70}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0	
	0 $-\frac{\sqrt{105}}{420}$ 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 $\frac{\sqrt{35}}{28}$	
	$-\frac{\sqrt{105}}{420}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0	
	0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 $\frac{\sqrt{35}}{28}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 $\frac{\sqrt{35}}{28}$ 0 0 0	
501	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
$\mathbb{T}_4^{(1,0;a)}(A, 3)$	0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 $-\frac{\sqrt{35}}{28}$ 0 0	
	0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 $-\frac{\sqrt{35}}{28}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 $\frac{\sqrt{35}i}{70}$ $\frac{\sqrt{105}}{70}$ 0	
	0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{105}}{70}$	
	0 $-\frac{\sqrt{35}i}{28}$ 0 $-\frac{\sqrt{35}}{70}$ 0 0 0 $\frac{\sqrt{35}}{35}$ 0 0 $\frac{3\sqrt{105}i}{140}$	
	$\frac{\sqrt{35}i}{28}$ 0 $-\frac{\sqrt{35}}{70}$ 0 0 0 0 $-\frac{\sqrt{35}}{35}$ $-\frac{3\sqrt{105}i}{140}$ 0	
	0 $-\frac{\sqrt{35}}{28}$ 0 $\frac{\sqrt{35}i}{70}$ $\frac{\sqrt{35}}{35}$ 0 0 0 0 $-\frac{3\sqrt{105}}{140}$	
	$-\frac{\sqrt{35}}{28}$ 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 $-\frac{3\sqrt{105}}{140}$ 0	
	0 0 $\frac{\sqrt{105}}{70}$ 0 0 $\frac{3\sqrt{105}i}{140}$ 0 $-\frac{3\sqrt{105}}{140}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{105}}{70}$ $-\frac{3\sqrt{105}i}{140}$ 0 $-\frac{3\sqrt{105}}{140}$ 0 0 0	
502	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 8

No.	multipole	matrix
	$\mathbb{T}_4^{(1,0;a)}(A, 4)$	$\begin{bmatrix} 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & \frac{\sqrt{5}}{40} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{40} & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} \\ -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 \\ 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}i}{5} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & -\frac{\sqrt{5}i}{5} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 \\ \frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 \\ 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} \\ 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & -\frac{3\sqrt{5}i}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} & \frac{3\sqrt{5}i}{20} & 0 \end{bmatrix}$
503	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
	$\mathbb{T}_4^{(1,0;a)}(A, 5)$	$\begin{bmatrix} 0 & -\frac{3\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{40} & 0 & 0 & \frac{11\sqrt{35}}{280} & 0 & 0 & \frac{\sqrt{105}i}{140} \\ \frac{3\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{35}}{280} & -\frac{\sqrt{105}i}{140} & 0 \\ 0 & -\frac{\sqrt{35}}{40} & 0 & \frac{\sqrt{35}i}{35} & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} \\ -\frac{\sqrt{35}}{40} & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 \\ 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 \\ \frac{11\sqrt{35}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & -\frac{\sqrt{35}i}{35} & \frac{\sqrt{105}}{280} & 0 \\ 0 & -\frac{11\sqrt{35}}{280} & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{105}}{280} \\ 0 & \frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & \frac{\sqrt{105}}{280} & 0 & 0 & \frac{3\sqrt{35}i}{140} \\ -\frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{280} & -\frac{3\sqrt{35}i}{140} & 0 \end{bmatrix}$
504	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(B, 1)$	0	$\frac{\sqrt{5}}{20} \quad 0 \quad -\frac{\sqrt{5}i}{40} \quad -\frac{\sqrt{5}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20}$
	$\frac{\sqrt{5}}{20}$	$0 \quad \frac{\sqrt{5}i}{40} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20} \quad 0$
	0	$- \frac{\sqrt{5}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{40}$
	$\frac{\sqrt{5}i}{40}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad \frac{\sqrt{15}i}{40} \quad 0$
	$-\frac{\sqrt{5}}{40}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad -\frac{\sqrt{15}}{40} \quad 0$
	0	$\frac{\sqrt{5}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{40}$
	0	$0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad -\frac{\sqrt{5}}{5} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad \frac{\sqrt{5}i}{20} \quad 0 \quad -\frac{\sqrt{5}}{5} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{15}}{20} \quad 0 \quad -\frac{\sqrt{15}i}{40} \quad -\frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{5}}{20}$
	$\frac{\sqrt{15}}{20}$	$0 \quad \frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{5}}{20} \quad 0$
505	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{T}_4^{(1,0;a)}(B, 2)$	$\frac{\sqrt{5}}{5}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0$
	0	$-\frac{\sqrt{5}}{5} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad 0 \quad \frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{5}}{5} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{5} \quad \frac{\sqrt{5}i}{20} \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{5}}{20} \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{5}}{20}$	$0 \quad \frac{\sqrt{5}i}{20} \quad 0 \quad 0$
	0	$-\frac{\sqrt{5}i}{20} \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{5}i}{20}$	$0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0$
506	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(B, 3)$	0	$-\frac{3\sqrt{35}}{140} \quad 0 \quad \frac{\sqrt{35}i}{40} \quad \frac{11\sqrt{35}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140}$
	$-\frac{3\sqrt{35}}{140}$	$0 \quad -\frac{\sqrt{35}i}{40} \quad 0 \quad 0 \quad 0 \quad -\frac{11\sqrt{35}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0$
	0	$\frac{\sqrt{35}i}{40} \quad 0 \quad \frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{56}$
	$-\frac{\sqrt{35}i}{40}$	$0 \quad \frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{28} \quad \frac{\sqrt{105}i}{56} \quad 0$
	$\frac{11\sqrt{35}}{280}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{35} \quad 0 \quad -\frac{\sqrt{35}i}{28} \quad -\frac{\sqrt{105}}{280} \quad 0$
	0	$-\frac{11\sqrt{35}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{35} \quad 0 \quad \frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{280}$
	0	$0 \quad -\frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{28} \quad \frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{105}}{140}$	$0 \quad -\frac{\sqrt{105}i}{56} \quad -\frac{\sqrt{105}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{35}}{140}$
$\mathbb{T}_4^{(1,0;a)}(B, 4)$	$-\frac{\sqrt{105}}{140}$	$0 \quad \frac{\sqrt{105}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{280} \quad 0 \quad 0 \quad \frac{3\sqrt{35}}{140} \quad 0$
	507	symmetry
		$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad \frac{\sqrt{35}i}{70} \quad \frac{\sqrt{105}}{70} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{28} \quad 0 \quad \frac{\sqrt{35}}{28} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{28} \quad 0 \quad \frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad \frac{\sqrt{35}i}{28} \quad \frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{105}}{140}$
508	$-\frac{\sqrt{35}}{70}$	$0 \quad -\frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad -\frac{3\sqrt{105}}{140} \quad 0$
	0	$\frac{\sqrt{35}i}{70} \quad 0 \quad \frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{105}i}{140}$
	$-\frac{\sqrt{35}i}{70}$	$0 \quad \frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35} \quad \frac{3\sqrt{105}i}{140} \quad 0$
	$\frac{\sqrt{105}}{70}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{105}}{140} \quad 0 \quad -\frac{3\sqrt{105}i}{140} \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{3\sqrt{105}}{140} \quad 0 \quad \frac{3\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0$

continued ...

Table 8

No.	multipole	matrix
$M_1^{(a)}(A)$	0	0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0
	$-\frac{\sqrt{5}i}{10}$	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{10}$ 0
	0	$-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{10}$
	0	0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{15}i}{10}$ 0 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{15}i}{10}$ 0 0 0 0
509	symmetry	$x$
$M_1^{(a)}(B, 1)$	0	0 0 0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0
	0	0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0
	0	0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0
	$-\frac{\sqrt{5}i}{10}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{10}$ 0
	0	$-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{10}$
	0	0 0 0 0 0 0 $\frac{\sqrt{15}i}{10}$ 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{10}$ 0 0
510	symmetry	$z$

*continued ...*

Table 8

No.	multipole	matrix
$\mathbb{M}_1^{(a)}(B, 2)$	0 0 $-\frac{\sqrt{5}i}{5}$ 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{5}i}{5}$ 0 0 0 0 0 0	
	$\frac{\sqrt{5}i}{5}$ 0 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{5}i}{5}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0	
	0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
511	symmetry	$\sqrt{15}xyz$
$\mathbb{M}_3^{(a)}(A, 1)$	0 0 0 0 0 0 0 0 $\frac{i}{2}$ 0	
	0 0 0 0 0 0 0 0 0 $\frac{i}{2}$	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	$-\frac{i}{2}$ 0 0 0 0 0 0 0 0 0	
	0 $-\frac{i}{2}$ 0 0 0 0 0 0 0 0	
512	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 \\ \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
513	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & \frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$
514	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(B, 1)$	0 0 0 0 0 0 $-\frac{\sqrt{5}i}{20}$ 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{5}i}{5}$ 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{5}i}{5}$ 0 0 0 0	
	0 0 $\frac{\sqrt{5}i}{5}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{5}i}{5}$ 0 0 0 0 0 0	
	$\frac{\sqrt{5}i}{20}$ 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{20}$ 0	
	0 $\frac{\sqrt{5}i}{20}$ 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{20}$	
	0 0 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0	
515	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{M}_3^{(a)}(B, 2)$	0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0	
	$-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{5}i}{5}$ 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{5}$ 0 0	
	0 0 0 0 $\frac{\sqrt{5}i}{5}$ 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{5}i}{5}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
516	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 \\ 0 & -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 \end{bmatrix}$
517	$\mathbb{M}_3^{(a)}(B, 3)$	
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
517	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
518	symmetry	$y$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_1^{(1,-1;a)}(A)$	0	$-\frac{\sqrt{10}i}{10}$
	$\frac{\sqrt{10}i}{10}$	0
	0	0
	0	$-\frac{\sqrt{10}i}{10}$
	0	$\frac{\sqrt{10}i}{10}$
	0	0
	0	$-\frac{\sqrt{10}i}{10}$
	0	$\frac{\sqrt{10}i}{10}$
	0	0
	0	$\frac{\sqrt{10}i}{10}$
519	symmetry	$x$
$\mathbb{M}_1^{(1,-1;a)}(B, 1)$	0	$\frac{\sqrt{10}}{10}$
	$\frac{\sqrt{10}}{10}$	0
	0	0
	0	$\frac{\sqrt{10}}{10}$
	0	$\frac{\sqrt{10}}{10}$
	0	0
	0	$\frac{\sqrt{10}}{10}$
	0	$\frac{\sqrt{10}}{10}$
	0	0
	0	$\frac{\sqrt{10}}{10}$
520	symmetry	$z$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_1^{(1,-1;a)}(B, 2)$	$\sqrt{\frac{10}{10}}$	0 0 0 0 0 0 0 0 0 0
	0	- $\sqrt{\frac{10}{10}}$ 0 0 0 0 0 0 0 0 0
	0	0 $\sqrt{\frac{10}{10}}$ 0 0 0 0 0 0 0 0
	0	0 0 - $\sqrt{\frac{10}{10}}$ 0 0 0 0 0 0 0
	0	0 0 0 0 $\sqrt{\frac{10}{10}}$ 0 0 0 0 0
	0	0 0 0 0 0 - $\sqrt{\frac{10}{10}}$ 0 0 0 0
	0	0 0 0 0 0 0 $\sqrt{\frac{10}{10}}$ 0 0 0
	0	0 0 0 0 0 0 0 - $\sqrt{\frac{10}{10}}$ 0 0
	0	0 0 0 0 0 0 0 0 $\sqrt{\frac{10}{10}}$ 0
	0	0 0 0 0 0 0 0 0 0 - $\sqrt{\frac{10}{10}}$
521	symmetry	$\sqrt{15}xyz$
$\mathbb{M}_3^{(1,-1;a)}(A, 1)$	0	0 0 0 0 0 - $\frac{\sqrt{7}i}{14}$ 0 - $\frac{\sqrt{7}}{14}$ 0 0
	0	0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 - $\frac{\sqrt{7}}{14}$ 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{7}}{14}$ 0 - $\frac{\sqrt{7}i}{14}$ - $\frac{\sqrt{21}}{21}$ 0
	0	0 0 0 0 $\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{21}}{21}$
	0	- $\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{7}}{14}$ 0 0 - $\frac{\sqrt{21}i}{42}$
	$\frac{\sqrt{7}i}{14}$	0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 - $\frac{\sqrt{7}}{14}$ $\frac{\sqrt{21}i}{42}$ 0
	0	- $\frac{\sqrt{7}}{14}$ 0 - $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{21}}{42}$
	- $\frac{\sqrt{7}}{14}$	0 $\frac{\sqrt{7}i}{14}$ 0 0 0 - $\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{21}}{42}$
	0	0 - $\frac{\sqrt{21}}{21}$ 0 0 - $\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0
	0	0 0 0 $\frac{\sqrt{21}}{21}$ $\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0
522	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(1,-1;a)}(A, 2)$	0	$-\frac{\sqrt{105}i}{70}$
	$\frac{\sqrt{105}i}{70}$	0 0 0 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{105}i}{70}$ $-\frac{\sqrt{105}}{70}$ 0 0 0 0
	0	0 0 $\frac{\sqrt{105}i}{70}$ 0 0 $\frac{\sqrt{105}}{70}$ 0 0 $\frac{\sqrt{35}}{35}$ 0
	0	0 0 $-\frac{\sqrt{105}}{70}$ 0 0 $\frac{\sqrt{105}i}{35}$ 0 $-\frac{\sqrt{105}}{70}$ 0 0
	0	0 0 0 $\frac{\sqrt{105}}{70}$ $-\frac{\sqrt{105}i}{35}$ 0 $-\frac{\sqrt{105}}{70}$ 0 0 0
	$\frac{\sqrt{105}}{70}$	0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0 $-\frac{\sqrt{105}i}{70}$ $-\frac{\sqrt{35}}{70}$ 0
	0	$-\frac{\sqrt{105}}{70}$ 0 0 $-\frac{\sqrt{105}}{70}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 $\frac{\sqrt{35}}{70}$
	0	$-\frac{3\sqrt{35}i}{70}$ 0 $\frac{\sqrt{35}}{35}$ 0 0 $-\frac{\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{105}i}{70}$
	$\frac{3\sqrt{35}i}{70}$	0 $\frac{\sqrt{35}}{35}$ 0 0 0 0 $\frac{\sqrt{35}}{70}$ $-\frac{\sqrt{105}i}{70}$ 0
523	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{M}_3^{(1,-1;a)}(A, 3)$	0	$\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{21}i}{42}$
	$-\frac{\sqrt{7}i}{14}$	0 0 0 0 0 0 0 $\frac{\sqrt{7}}{14}$ $\frac{\sqrt{21}i}{42}$ 0
	0	0 0 0 $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{21}}{21}$
	0	0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{21}}{21}$ 0
	0	0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0
	0	0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 0
	$-\frac{\sqrt{7}}{14}$	0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{21}}{42}$ 0
	0	$\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{21}}{42}$
	0	$-\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{21}$ 0 0 $\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{7}i}{14}$
	$\frac{\sqrt{21}i}{42}$	0 $\frac{\sqrt{21}}{21}$ 0 0 0 0 $-\frac{\sqrt{21}}{42}$ $\frac{\sqrt{7}i}{14}$ 0
524	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(1,-1;a)}(B, 1)$	0	$\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{35}}{70}$
	$\frac{\sqrt{105}}{70}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{35}}{70} \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{35}$
	0	$0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad \frac{\sqrt{35}i}{35} \quad 0$
	$-\frac{\sqrt{105}}{70}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad -\frac{\sqrt{35}}{70} \quad 0$
	0	$\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70}$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{\sqrt{105}}{35} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{\sqrt{105}}{35} \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{3\sqrt{35}}{70} \quad 0 \quad -\frac{\sqrt{35}i}{35} \quad -\frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70}$
	$-\frac{3\sqrt{35}}{70}$	$0 \quad 0 \quad \frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0$
525	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{M}_3^{(1,-1;a)}(B, 2)$	$-\frac{\sqrt{105}}{35}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0$
	0	$\frac{\sqrt{105}}{35} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{35} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{35} \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70}$
	$-\frac{\sqrt{105}}{70}$	$0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0$
	0	$0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70}$
	$\frac{\sqrt{105}i}{70}$	$0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad -\frac{\sqrt{35}i}{70} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad \frac{\sqrt{35}i}{70} \quad \frac{\sqrt{105}}{35} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{35}$
526	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(1,-1;a)}(B,3)$	0	$\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42}$
	$\frac{\sqrt{7}}{14}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{21}$
	0	$0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad -\frac{\sqrt{21}i}{21} \quad 0$
	$-\frac{\sqrt{7}}{14}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad -\frac{\sqrt{21}}{42} \quad 0$
	0	$\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42}$
	0	$0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{21} \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14}$
	$\frac{\sqrt{21}}{42}$	$0 \quad -\frac{\sqrt{21}i}{21} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0$
527	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
$\mathbb{M}_3^{(1,-1;a)}(B,4)$	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad -\frac{\sqrt{21}}{21} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{21}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{7}}{14} \quad 0 \quad \frac{\sqrt{7}i}{14} \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42}$
	$\frac{\sqrt{7}}{14}$	$0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0$
	0	$-\frac{\sqrt{7}i}{14} \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42}$
	$\frac{\sqrt{7}i}{14}$	$0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad -\frac{\sqrt{21}i}{42} \quad 0$
	$-\frac{\sqrt{21}}{21}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0$
	0	$\frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0$
528	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$

continued ...

Table 8

No.	multipole	matrix
$M_5^{(1,-1;a)}(A, 1)$	0 0 $\frac{\sqrt{5}}{10}$ 0 0 $-\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0	
	0 0 0 $-\frac{\sqrt{5}}{10}$ $\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0 0	
	$\frac{\sqrt{5}}{10}$ 0 0 0 0 $\frac{\sqrt{5}}{10}$ 0 $\frac{\sqrt{5}i}{10}$ 0 0	
	0 $-\frac{\sqrt{5}}{10}$ 0 0 $\frac{\sqrt{5}}{10}$ 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0	
	0 $-\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 0	
	$\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{5}}{10}$ 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0	
	$\frac{\sqrt{5}}{10}$ 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
529	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
$M_5^{(1,-1;a)}(A, 2)$	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{15}}{30}$ 0 $-\frac{\sqrt{15}i}{30}$ $-\frac{\sqrt{5}}{10}$ 0	
	0 0 0 0 $\frac{\sqrt{15}}{30}$ 0 $\frac{\sqrt{15}i}{30}$ 0 0 $\frac{\sqrt{5}}{10}$	
	0 0 0 $\frac{\sqrt{15}}{30}$ 0 0 $-\frac{\sqrt{15}}{15}$ 0 0 $\frac{\sqrt{5}i}{10}$	
	0 0 $\frac{\sqrt{15}}{30}$ 0 0 0 0 $\frac{\sqrt{15}}{15}$ $-\frac{\sqrt{5}i}{10}$ 0	
	0 0 0 $-\frac{\sqrt{15}i}{30}$ $-\frac{\sqrt{15}}{15}$ 0 0 0 0 $-\frac{\sqrt{5}}{10}$	
	0 0 $\frac{\sqrt{15}i}{30}$ 0 0 $\frac{\sqrt{15}}{15}$ 0 0 $-\frac{\sqrt{5}}{10}$ 0	
	0 0 $-\frac{\sqrt{5}}{10}$ 0 0 $\frac{\sqrt{5}i}{10}$ 0 $-\frac{\sqrt{5}}{10}$ 0 0	
	0 0 0 $\frac{\sqrt{5}}{10}$ $-\frac{\sqrt{5}i}{10}$ 0 $-\frac{\sqrt{5}}{10}$ 0 0 0	
530	symmetry	$\frac{y(15x^4-40x^2y^2+30x^2z^2+8y^4-40y^2z^2+15z^4)}{8}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(A, 3)$	$0 \quad -\frac{19\sqrt{7}i}{168} \quad 0 \quad \frac{\sqrt{7}}{12} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad -\frac{5\sqrt{21}i}{168}$	
	$\frac{19\sqrt{7}i}{168} \quad 0 \quad \frac{\sqrt{7}}{12} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{84} \quad \frac{5\sqrt{21}i}{168} \quad 0$	
	$0 \quad \frac{\sqrt{7}}{12} \quad 0 \quad \frac{2\sqrt{7}i}{21} \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84}$	
	$\frac{\sqrt{7}}{12} \quad 0 \quad -\frac{2\sqrt{7}i}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{42} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{42} \quad \frac{\sqrt{7}i}{42} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad 0$	
	$\frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad \frac{2\sqrt{7}i}{21} \quad \frac{\sqrt{21}}{28} \quad 0$	
	$0 \quad -\frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad -\frac{2\sqrt{7}i}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28}$	
	$0 \quad -\frac{5\sqrt{21}i}{168} \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad -\frac{3\sqrt{7}i}{56}$	
531 symmetry	$\frac{5\sqrt{21}i}{168} \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad \frac{3\sqrt{7}i}{56} \quad 0$	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
	$0 \quad -\frac{\sqrt{5}i}{40} \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40}$	
	$\frac{\sqrt{5}i}{40} \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad -\frac{\sqrt{15}i}{40} \quad 0$	
	$0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{20}$	
	$\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{20} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{10} \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10} \quad -\frac{\sqrt{5}i}{10} \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20} \quad 0$	
	$0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{20}$	
532 symmetry	$0 \quad \frac{\sqrt{15}i}{40} \quad 0 \quad -\frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad -\frac{3\sqrt{5}i}{40}$	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(A, 5)$	0	$-\frac{\sqrt{15}i}{20} \quad 0 \quad \frac{\sqrt{15}}{15} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20}$
	$\frac{\sqrt{15}i}{20}$	$0 \quad \frac{\sqrt{15}}{15} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{30} \quad -\frac{\sqrt{5}i}{20} \quad 0$
	0	$\frac{\sqrt{15}}{15} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{15} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{15}}{15}$	$0 \quad -\frac{\sqrt{15}i}{15} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0$
	$-\frac{\sqrt{15}}{30}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{15} \quad -\frac{\sqrt{5}}{10} \quad 0$
	0	$\frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{15} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10}$
	0	$\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{20}$
	$-\frac{\sqrt{5}i}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10} \quad -\frac{\sqrt{15}i}{20} \quad 0$
533	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
$\mathbb{M}_5^{(1,-1;a)}(B, 1)$	0	$\frac{19\sqrt{7}}{168} \quad 0 \quad \frac{\sqrt{7}i}{12} \quad -\frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{21}}{168}$
	$\frac{19\sqrt{7}}{168}$	$0 \quad -\frac{\sqrt{7}i}{12} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad -\frac{5\sqrt{21}}{168} \quad 0$
	0	$\frac{\sqrt{7}i}{12} \quad 0 \quad -\frac{2\sqrt{7}}{21} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{84}$
	$-\frac{\sqrt{7}i}{12}$	$0 \quad -\frac{2\sqrt{7}}{21} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{42} \quad \frac{\sqrt{21}i}{84} \quad 0$
	$-\frac{5\sqrt{7}}{84}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{2\sqrt{7}}{21} \quad 0 \quad -\frac{\sqrt{7}i}{42} \quad \frac{\sqrt{21}}{28} \quad 0$
	0	$\frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad -\frac{2\sqrt{7}}{21} \quad 0 \quad \frac{\sqrt{7}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28}$
	0	$0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{42} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{42} \quad \frac{\sqrt{7}i}{42} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0$
	0	$0 \quad -\frac{5\sqrt{21}}{168} \quad 0 \quad -\frac{\sqrt{21}i}{84} \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}}{56}$
	$-\frac{5\sqrt{21}}{168}$	$0 \quad \frac{\sqrt{21}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad \frac{3\sqrt{7}}{56} \quad 0$
534	symmetry	$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(B, 2)$		$\begin{bmatrix} \frac{\sqrt{7}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & \frac{\sqrt{7}i}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{42} & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & -\frac{\sqrt{7}i}{42} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & -\frac{\sqrt{7}i}{42} & 0 & \frac{\sqrt{7}}{42} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{42} & \frac{\sqrt{7}i}{42} & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{7}}{42} & 0 & -\frac{\sqrt{7}i}{42} & -\frac{2\sqrt{7}}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} \\ \frac{\sqrt{7}}{42} & 0 & \frac{\sqrt{7}i}{42} & 0 & 0 & \frac{2\sqrt{7}}{21} & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 \\ 0 & \frac{\sqrt{7}i}{42} & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & -\frac{2\sqrt{7}}{21} & 0 & 0 & \frac{\sqrt{21}i}{21} \\ -\frac{\sqrt{7}i}{42} & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & 0 & 0 & \frac{2\sqrt{7}}{21} & -\frac{\sqrt{21}i}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & \frac{\sqrt{21}i}{21} & \frac{\sqrt{7}}{7} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & -\frac{\sqrt{21}i}{21} & 0 & 0 & -\frac{\sqrt{7}}{7} \end{bmatrix}$
		$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$
		$\mathbb{M}_5^{(1,-1;a)}(B, 3)$
535	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$
536	symmetry	$\begin{bmatrix} 0 & \frac{\sqrt{5}}{40} & 0 & \frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} \\ \frac{\sqrt{5}}{40} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 \\ 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{15}i}{20} & 0 \\ \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{15}}{20} & 0 \\ 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{15}}{20} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{15}i}{20} & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} \\ \frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 \end{bmatrix}$
		$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(B, 4)$		$\begin{bmatrix} \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
$\mathbb{M}_5^{(1,-1;a)}(B, 5)$		$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$ $\begin{bmatrix} 0 & -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{15} & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{15} & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{15} & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{15} & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 \\ 0 & \frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \end{bmatrix}$
538	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(B, 6)$	0	0 0 0 0 0 $-\frac{\sqrt{15}}{30}$ 0 $\frac{\sqrt{15}i}{30}$ $\frac{\sqrt{5}}{10}$ 0
	0	0 0 0 0 $-\frac{\sqrt{15}}{30}$ 0 $-\frac{\sqrt{15}i}{30}$ 0 0 $-\frac{\sqrt{5}}{10}$
	0	0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{15}}{30}$ 0 0 $\frac{\sqrt{15}}{15}$ 0 0 0 0 0 $\frac{\sqrt{5}}{10}$
	$-\frac{\sqrt{15}}{30}$	0 0 0 0 0 $-\frac{\sqrt{15}}{15}$ 0 0 $\frac{\sqrt{5}}{10}$ 0
	0	$\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 $-\frac{\sqrt{15}}{15}$ 0 0 $\frac{\sqrt{5}i}{10}$
	$-\frac{\sqrt{15}i}{30}$	0 0 0 0 0 0 0 $\frac{\sqrt{15}}{15}$ $-\frac{\sqrt{5}i}{10}$ 0
	$\frac{\sqrt{5}}{10}$	0 0 0 0 0 $\frac{\sqrt{5}}{10}$ 0 $\frac{\sqrt{5}i}{10}$ 0 0
	0	$-\frac{\sqrt{5}}{10}$ 0 0 $\frac{\sqrt{5}}{10}$ 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0
539	symmetry	$y$
$\mathbb{M}_1^{(1,1;a)}(A)$	0	0 $-\frac{\sqrt{70}i}{70}$ 0 0 0 0 0 $-\frac{3\sqrt{70}}{140}$ 0 0 $-\frac{\sqrt{210}i}{70}$
	$\frac{\sqrt{70}i}{70}$	0 0 0 0 0 0 0 $\frac{3\sqrt{70}}{140}$ $\frac{\sqrt{210}i}{70}$ 0
	0	0 0 0 $-\frac{\sqrt{70}i}{70}$ $\frac{3\sqrt{70}}{140}$ 0 0 0 0 $-\frac{\sqrt{210}}{70}$
	0	0 0 $\frac{\sqrt{70}i}{70}$ 0 0 $-\frac{3\sqrt{70}}{140}$ 0 0 $-\frac{\sqrt{210}}{70}$ 0
	0	0 0 $\frac{3\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{70}i}{35}$ 0 $\frac{3\sqrt{70}}{140}$ 0 0 0
	0	0 0 0 $-\frac{3\sqrt{70}}{140}$ $-\frac{\sqrt{70}i}{35}$ 0 $\frac{3\sqrt{70}}{140}$ 0 0 0
	$-\frac{3\sqrt{70}}{140}$	0 0 0 0 0 $\frac{3\sqrt{70}}{140}$ 0 $-\frac{\sqrt{70}i}{70}$ $\frac{\sqrt{210}}{140}$ 0
	0	$\frac{3\sqrt{70}}{140}$ 0 0 $\frac{3\sqrt{70}}{140}$ 0 $\frac{\sqrt{70}i}{70}$ 0 0 $-\frac{\sqrt{210}}{140}$
	0	$-\frac{\sqrt{210}i}{70}$ 0 $-\frac{\sqrt{210}}{70}$ 0 0 0 $\frac{\sqrt{210}}{140}$ 0 $\frac{\sqrt{70}i}{70}$
	$\frac{\sqrt{210}i}{70}$	0 $-\frac{\sqrt{210}}{70}$ 0 0 0 0 $-\frac{\sqrt{210}}{140}$ $-\frac{\sqrt{70}i}{70}$ 0
540	symmetry	$x$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_1^{(1,1;a)}(B, 1)$	0	$\frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{70}$
	$\frac{\sqrt{70}}{70}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{140} \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{70} \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{70}$
	0	$0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{140} \quad -\frac{\sqrt{210}i}{70} \quad 0$
	$\frac{3\sqrt{70}}{140}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad -\frac{3\sqrt{70}i}{140} \quad \frac{\sqrt{210}}{140} \quad 0$
	0	$-\frac{3\sqrt{70}}{140} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad \frac{3\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{140} \quad 0 \quad -\frac{\sqrt{70}}{35} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{140} \quad \frac{3\sqrt{70}i}{140} \quad 0 \quad -\frac{\sqrt{70}}{35} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{210}}{70} \quad 0 \quad \frac{\sqrt{210}i}{70} \quad \frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{70}$
$\mathbb{M}_1^{(1,1;a)}(B, 2)$	$-\frac{\sqrt{70}}{35}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0 \quad \frac{3\sqrt{70}i}{140} \quad 0 \quad 0$
	0	$\frac{\sqrt{70}}{35} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0 \quad -\frac{3\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{70}}{35} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{140} \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{35} \quad \frac{3\sqrt{70}i}{140} \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0 \quad 0 \quad 0$
	0	$\frac{3\sqrt{70}}{140} \quad 0 \quad -\frac{3\sqrt{70}i}{140} \quad \frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{140}$
	$\frac{3\sqrt{70}}{140}$	$0 \quad \frac{3\sqrt{70}i}{140} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{140} \quad 0$
	0	$0 \quad \frac{3\sqrt{70}i}{140} \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140}$
	$-\frac{3\sqrt{70}i}{140}$	$0 \quad \frac{3\sqrt{70}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{70} \quad \frac{\sqrt{210}i}{140} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{140} \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad \frac{\sqrt{70}}{35} \quad 0$
542	symmetry	
	$\sqrt{15}xyz$	

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(A, 1)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{21} & 0 & -\frac{\sqrt{21}i}{21} & \frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{21} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & \frac{\sqrt{7}i}{28} \\ -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & -\frac{\sqrt{7}i}{28} & 0 \\ 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{21} & \frac{\sqrt{21}}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} \\ \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 \\ 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 \end{bmatrix}$
		$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
		$\begin{bmatrix} 0 & -\frac{19\sqrt{35}i}{420} & 0 & -\frac{\sqrt{35}}{24} & 0 & 0 & -\frac{5\sqrt{35}}{168} & 0 & 0 & -\frac{\sqrt{105}i}{84} \\ \frac{19\sqrt{35}i}{420} & 0 & -\frac{\sqrt{35}}{24} & 0 & 0 & 0 & 0 & \frac{5\sqrt{35}}{168} & \frac{\sqrt{105}i}{84} & 0 \\ 0 & -\frac{\sqrt{35}}{24} & 0 & \frac{4\sqrt{35}i}{105} & -\frac{\sqrt{35}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} \\ -\frac{\sqrt{35}}{24} & 0 & -\frac{4\sqrt{35}i}{105} & 0 & 0 & \frac{\sqrt{35}}{84} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 \\ 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{105} & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{84} & \frac{\sqrt{35}i}{105} & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & 0 \\ -\frac{5\sqrt{35}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & \frac{4\sqrt{35}i}{105} & -\frac{\sqrt{105}}{56} & 0 \\ 0 & \frac{5\sqrt{35}}{168} & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & -\frac{4\sqrt{35}i}{105} & 0 & 0 & \frac{\sqrt{105}}{56} \\ 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & -\frac{3\sqrt{35}i}{140} \\ \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{56} & \frac{3\sqrt{35}i}{140} & 0 \end{bmatrix}$
		$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
543	symmetry	
544	symmetry	

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(A, 3)$		$\begin{bmatrix} 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{24} & 0 & 0 & -\frac{\sqrt{21}}{168} & 0 & 0 & \frac{\sqrt{7}i}{28} \\ \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{168} & -\frac{\sqrt{7}i}{28} & 0 \\ 0 & -\frac{\sqrt{21}}{24} & 0 & \frac{\sqrt{21}i}{21} & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} \\ -\frac{\sqrt{21}}{24} & 0 & -\frac{\sqrt{21}i}{21} & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{21} & \frac{5\sqrt{7}}{56} & 0 \\ 0 & \frac{\sqrt{21}}{168} & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & -\frac{5\sqrt{7}}{56} \\ 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{5\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{21}i}{28} \\ -\frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}}{56} & -\frac{\sqrt{21}i}{28} & 0 \end{bmatrix}$
		$x \left( 2x^2 - 3y^2 - 3z^2 \right) / 2$
$\mathbb{M}_3^{(1,1;a)}(B, 1)$		$\begin{bmatrix} 0 & \frac{19\sqrt{35}}{420} & 0 & -\frac{\sqrt{35}i}{24} & \frac{5\sqrt{35}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} \\ \frac{19\sqrt{35}}{420} & 0 & \frac{\sqrt{35}i}{24} & 0 & 0 & -\frac{5\sqrt{35}}{168} & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 \\ 0 & -\frac{\sqrt{35}i}{24} & 0 & -\frac{4\sqrt{35}}{105} & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & \frac{\sqrt{105}i}{168} \\ \frac{\sqrt{35}i}{24} & 0 & -\frac{4\sqrt{35}}{105} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{84} & -\frac{\sqrt{105}i}{168} & 0 \\ \frac{5\sqrt{35}}{168} & 0 & 0 & 0 & 0 & -\frac{4\sqrt{35}}{105} & 0 & \frac{\sqrt{35}i}{84} & -\frac{\sqrt{105}}{56} & 0 \\ 0 & -\frac{5\sqrt{35}}{168} & 0 & 0 & -\frac{4\sqrt{35}}{105} & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & \frac{\sqrt{105}}{56} \\ 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{105} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{84} & -\frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{105} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{168} & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{140} \\ -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & \frac{3\sqrt{35}}{140} & 0 \end{bmatrix}$
		$-z \left( 3x^2 + 3y^2 - 2z^2 \right) / 2$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(B, 2)$	$\frac{\sqrt{35}}{105} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad -\frac{\sqrt{35}i}{84} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{35}}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad \frac{\sqrt{35}i}{84} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{35}}{105} \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{84} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{105} \quad -\frac{\sqrt{35}i}{84} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad \frac{\sqrt{35}i}{84} \quad -\frac{4\sqrt{35}}{105} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42}$	
	$-\frac{\sqrt{35}}{84} \quad 0 \quad -\frac{\sqrt{35}i}{84} \quad 0 \quad 0 \quad \frac{4\sqrt{35}}{105} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42} \quad 0$	
	$0 \quad -\frac{\sqrt{35}i}{84} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad 0 \quad -\frac{4\sqrt{35}}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{42}$	
	$\frac{\sqrt{35}i}{84} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{4\sqrt{35}}{105} \quad \frac{\sqrt{105}i}{42} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42} \quad 0 \quad -\frac{\sqrt{105}i}{42} \quad \frac{2\sqrt{35}}{35} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42} \quad 0 \quad \frac{\sqrt{105}i}{42} \quad 0 \quad 0 \quad -\frac{2\sqrt{35}}{35}$	
547	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
$\mathbb{M}_3^{(1,1;a)}(B, 3)$	$0 \quad -\frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{24} \quad -\frac{\sqrt{21}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28}$	
	$-\frac{\sqrt{21}}{28} \quad 0 \quad -\frac{\sqrt{21}i}{24} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0$	
	$0 \quad \frac{\sqrt{21}i}{24} \quad 0 \quad \frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad \frac{3\sqrt{7}i}{56}$	
	$-\frac{\sqrt{21}i}{24} \quad 0 \quad \frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad -\frac{3\sqrt{7}i}{56} \quad 0$	
	$-\frac{\sqrt{21}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{21} \quad 0 \quad \frac{\sqrt{21}i}{28} \quad -\frac{5\sqrt{7}}{56} \quad 0$	
	$0 \quad \frac{\sqrt{21}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{21} \quad 0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{56}$	
	$0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad \frac{3\sqrt{7}i}{56} \quad -\frac{5\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28}$	
	$-\frac{\sqrt{7}}{28} \quad 0 \quad -\frac{3\sqrt{7}i}{56} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0$	
548	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(B, 4)$	0	0 0 0 0 0 $\frac{\sqrt{21}}{21}$ 0 $-\frac{\sqrt{21}i}{21}$ $\frac{\sqrt{7}}{14}$ 0
	0	0 0 0 0 $\frac{\sqrt{21}}{21}$ 0 $\frac{\sqrt{21}i}{21}$ 0 0 $-\frac{\sqrt{7}}{14}$
	0	0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{21}}{28}$ 0 0
	0	0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{21}}{28}$ 0 0 0
	0	$\frac{\sqrt{21}}{21}$ 0 $-\frac{\sqrt{21}i}{28}$ $\frac{\sqrt{21}}{21}$ 0 0 0 0 $-\frac{\sqrt{7}}{28}$
	$\frac{\sqrt{21}}{21}$	0 $\frac{\sqrt{21}i}{28}$ 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 $-\frac{\sqrt{7}}{28}$ 0
	0	$-\frac{\sqrt{21}i}{21}$ 0 $-\frac{\sqrt{21}}{28}$ 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 $-\frac{\sqrt{7}i}{28}$
	$\frac{\sqrt{21}i}{21}$	0 $-\frac{\sqrt{21}}{28}$ 0 0 0 0 0 $\frac{\sqrt{21}}{21}$ $\frac{\sqrt{7}i}{28}$ 0
	$\frac{\sqrt{7}}{14}$	0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0
	0	$-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0 0

bra:  $= \langle d_v, \uparrow |, \langle d_v, \downarrow |, \langle d_{xy}, \uparrow |, \langle d_{xy}, \downarrow |, \langle d_{xz}, \uparrow |, \langle d_{xz}, \downarrow |, \langle d_{yz}, \uparrow |, \langle d_{yz}, \downarrow |, \langle d_u, \uparrow |, \langle d_u, \downarrow |$ ket:  $= |f_2, \uparrow \rangle, |f_2, \downarrow \rangle, |f_1, \uparrow \rangle, |f_1, \downarrow \rangle, |f_{bz}, \uparrow \rangle, |f_{bz}, \downarrow \rangle, |f_3, \uparrow \rangle, |f_3, \downarrow \rangle, |f_{3x}, \uparrow \rangle, |f_{3x}, \downarrow \rangle, |f_{3y}, \uparrow \rangle, |f_{3y}, \downarrow \rangle, |f_{az}, \uparrow \rangle, |f_{az}, \downarrow \rangle$ 

Table 9: (d,f) block.

No.	multipole	matrix
549	symmetry	<i>y</i>
0 0 $\frac{\sqrt{42}}{28}$ 0 0 0 0 0 0 $\frac{\sqrt{70}}{140}$ 0 0 0		
0 0 0 $\frac{\sqrt{42}}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{70}}{140}$ 0 0		
$-\frac{\sqrt{42}}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}}{140}$ 0 0 0 0 0		
0 $-\frac{\sqrt{42}}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}}{140}$ 0 0 0 0		
0 0 0 0 0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 0 0 0		
0 0 0 0 0 0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 0 0		
0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0		
0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$		
0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{210}}{70}$ 0 0 0		

continued ...

Table 9

No.	multipole	matrix
550	symmetry $\mathbb{Q}_1^{(a)}(B, 1)$	$x$ $\begin{bmatrix} \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{70} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{70} & 0 & 0 & 0 & 0 \end{bmatrix}$
551	symmetry $\mathbb{Q}_1^{(a)}(B, 2)$	$z$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{35} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{70} & 0 \end{bmatrix}$
552	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 \\ -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
553	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{11\sqrt{30}}{240} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{11\sqrt{30}}{240} & 0 & 0 \\ -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{240} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{240} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{40} \\ 0 & 0 & \frac{5\sqrt{6}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{80} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{6}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{80} & 0 & 0 \end{bmatrix}$
554	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(a)}(A, 3)$		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 \\ \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} \\ 0 & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & 0 \end{bmatrix}$
		$\frac{x(2x^2-3y^2-3z^2)}{2}$
$\mathbb{Q}_3^{(a)}(B, 1)$		$\begin{bmatrix} \frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{11\sqrt{30}}{240} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{11\sqrt{30}}{240} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{240} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{240} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{40} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{6}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{80} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{6}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{80} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\frac{x(2x^2-3y^2-2z^2)}{2}$
556	symmetry	$\frac{-z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(a)}(B, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 \end{bmatrix}$
557	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
$\mathbb{Q}_3^{(a)}(B, 3)$		$\begin{bmatrix} \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
558	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{Q}_3^{(a)}(B, 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
559	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
560	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(a)}(A, 2)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0	
	0 0 $\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0	
	0 0 0 $\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0	
	$-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{30}}{20}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{30}}{20}$ 0 0 0 0 0 0 0 0	
561	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$
$\mathbb{Q}_5^{(a)}(A, 3)$	0 0 $\frac{11\sqrt{7}}{112}$ 0 0 0 0 0 0 $\frac{5\sqrt{105}}{336}$ 0 0 0	
	0 0 0 $\frac{11\sqrt{7}}{112}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{105}}{336}$ 0 0	
	$\frac{5\sqrt{7}}{56}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}}{168}$ 0 0 0 0 0	
	0 $\frac{5\sqrt{7}}{56}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}}{168}$ 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{42}}{84}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{42}}{84}$ 0 0 0 0 0 0	
	0 0 0 0 $\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0	
	0 0 0 0 0 $\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 0 0 $\frac{\sqrt{70}}{56}$	
	0 0 $\frac{\sqrt{21}}{48}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{35}}{112}$ 0 0 0	
	0 0 0 $\frac{\sqrt{21}}{48}$ 0 0 0 0 0 0 0 0 $\frac{3\sqrt{35}}{112}$ 0 0	
562	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(a)}(A, 4)$	$\frac{3\sqrt{5}}{80}$	$\begin{bmatrix} 0 & 0 & \frac{3\sqrt{5}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{5}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{16} & 0 & 0 & 0 \\ \frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} \\ 0 & 0 & -\frac{3\sqrt{15}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{15}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 \end{bmatrix}$
	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$	
	$\frac{7\sqrt{15}}{120}$	$\begin{bmatrix} 0 & 0 & \frac{7\sqrt{15}}{120} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{7\sqrt{15}}{120} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 \\ \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 \end{bmatrix}$
	$\frac{x(8x^4-40x^2y^2-40x^2z^2+15y^4+30y^2z^2+15z^4)}{8}$	
	$\frac{3\sqrt{5}}{80}$	
	$\frac{7\sqrt{15}}{120}$	
	$\frac{\sqrt{15}}{15}$	
	$\frac{\sqrt{15}}{15}$	
	$\frac{\sqrt{10}}{20}$	
	$\frac{\sqrt{10}}{20}$	
	$\frac{\sqrt{5}}{40}$	
	$\frac{\sqrt{5}}{40}$	
563	symmetry	
564	symmetry	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(a)}(B, 1)$	$\frac{11\sqrt{7}}{112} \quad 0 \quad -\frac{5\sqrt{105}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{11\sqrt{7}}{112} \quad 0 \quad -\frac{5\sqrt{105}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{5\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{42}}{168} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{42}}{168} \quad 0 \quad \frac{\sqrt{70}}{56}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$	
	$-\frac{\sqrt{21}}{48} \quad 0 \quad \frac{3\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{21}}{48} \quad 0 \quad \frac{3\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
565	symmetry	$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$
$\mathbb{Q}_5^{(a)}(B, 2)$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{210}}{42} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{210}}{42} \quad 0 \quad 0 \quad 0$	
566	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(a)}(B, 3)$	$\frac{3\sqrt{5}}{80} \quad 0 \quad \frac{\sqrt{3}}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{3\sqrt{5}}{80} \quad 0 \quad \frac{\sqrt{3}}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{5}}{40} \quad 0 \quad -\frac{\sqrt{3}}{8} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{40} \quad 0 \quad -\frac{\sqrt{3}}{8} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{40} \quad 0 \quad \frac{\sqrt{2}}{8} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{40} \quad 0 \quad \frac{\sqrt{2}}{8}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{20} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{20} \quad 0 \quad 0$	
	$\frac{3\sqrt{15}}{80} \quad 0 \quad \frac{3}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{3\sqrt{15}}{80} \quad 0 \quad \frac{3}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
567	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
$\mathbb{Q}_5^{(a)}(B, 4)$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{20} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{20} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{20} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{30}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
568	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{Q}_5^{(a)}(B, 5)$	$\begin{bmatrix} -\frac{7\sqrt{15}}{120} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{7\sqrt{15}}{120} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
569	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
	$\mathbb{Q}_5^{(a)}(B, 6)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
570	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,-1;a)}(A, 1)$	0	$\frac{\sqrt{105}i}{84} \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad \frac{\sqrt{7}}{28} \quad -\frac{\sqrt{42}i}{84} \quad 0$
	$\frac{\sqrt{105}i}{84}$	$0 \quad \frac{\sqrt{105}}{84} \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{84}$
	0	$\frac{\sqrt{105}}{84} \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0$
	$-\frac{\sqrt{105}}{84}$	$0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0$
	$-\frac{\sqrt{105}i}{84}$	$0 \quad 0 \quad \frac{\sqrt{42}i}{42}$
	0	$\frac{\sqrt{105}i}{84} \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{42} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{42}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad \frac{\sqrt{42}}{42} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0$
571	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
$\mathbb{Q}_3^{(1,-1;a)}(A, 2)$	$-\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{140}$	
	0	$\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{140} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad \frac{3\sqrt{70}}{280} \quad 0$
	0	$\frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad \frac{\sqrt{105}}{56} \quad -\frac{\sqrt{70}i}{70} \quad 0$
	$\frac{\sqrt{7}i}{28}$	$0 \quad \frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad -\frac{\sqrt{105}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{70}$
	0	$\frac{3\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{280} \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0$
	$-\frac{3\sqrt{7}}{56}$	$0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{280} \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad -\frac{3\sqrt{14}}{56} \quad \frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad \frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0$
572	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,-1;a)}(A, 3)$	$\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{84}$	
	$0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{84} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{168}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad -\frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{\sqrt{7}}{56} \quad \frac{\sqrt{42}i}{42} \quad 0$	
	$\frac{\sqrt{105}i}{84} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad \frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{42}$	
	$0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0$	
	$-\frac{\sqrt{105}}{168} \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{84} \quad 0 \quad -\frac{\sqrt{210}}{168} \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{84} \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0$	
573	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
$\mathbb{Q}_3^{(1,-1;a)}(B, 1)$	$0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{140}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad -\frac{\sqrt{70}}{140} \quad 0$	
	$-\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}i}{280}$	
	$0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0$	
	$0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad \frac{3\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0 \quad -\frac{\sqrt{105}i}{280} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{7}}{28} \quad 0 \quad \frac{3\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{140} \quad 0 \quad -\frac{\sqrt{105}i}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{3\sqrt{7}i}{56} \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{56} \quad 0 \quad \frac{\sqrt{105}}{140} \quad \frac{\sqrt{70}i}{70} \quad 0$	
	$-\frac{3\sqrt{7}i}{56} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{56} \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{70}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad \frac{3\sqrt{14}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad \frac{3\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0$	
574	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,-1;a)}(B, 2)$		$\begin{bmatrix} 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 \\ \frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & \frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{28} & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 \\ -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & \frac{\sqrt{105}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & -\frac{\sqrt{70}}{70} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & \frac{\sqrt{70}}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{70} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & 0 & \frac{\sqrt{70}i}{70} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 \end{bmatrix}$
		575 symmetry $\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{42}}{84} \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & \frac{\sqrt{42}}{84} & 0 \\ -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{168} \\ 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 \\ 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 \\ \frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{28} & \frac{\sqrt{42}i}{42} & 0 \\ \frac{\sqrt{105}i}{168} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{42}i}{42} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 \end{bmatrix}$
		576 symmetry $\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,-1;a)}(B, 4)$	0	$-\frac{\sqrt{105}}{84} \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0$
	$\frac{\sqrt{105}}{84}$	$0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{105}i}{84} \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad \frac{\sqrt{42}i}{84} \quad 0$
	$\frac{\sqrt{105}i}{84}$	$0 \quad \frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{84}$
	0	$0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{42}$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad \frac{\sqrt{42}}{42} \quad 0 \quad 0$
	$-\frac{\sqrt{105}i}{84}$	$0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{42}$
	0	$\frac{\sqrt{105}i}{84} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{42} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{84} \quad -\frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0$
577	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
$\mathbb{Q}_5^{(1,-1;a)}(A, 1)$	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad -\frac{\sqrt{10}}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{20} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad \frac{\sqrt{10}}{20} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{6}i}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{20} \quad 0 \quad \frac{1}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{6}i}{20} \quad 0 \quad 0 \quad -\frac{i}{20} \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{6}i}{20} \quad 0 \quad 0 \quad \frac{1}{20} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{20} \quad -\frac{1}{20} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0$
	0	$0 \quad -\frac{3\sqrt{2}i}{20} \quad 0 \quad \frac{3\sqrt{2}}{20} \quad 0 \quad 0$
	$-\frac{3\sqrt{2}i}{20}$	$0 \quad -\frac{3\sqrt{2}}{20} \quad 0 \quad 0$
578	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,-1;a)}(A, 2)$	0	$\frac{\sqrt{2}i}{40} \quad 0 \quad -\frac{\sqrt{2}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad \frac{\sqrt{30}}{40} \quad -\frac{\sqrt{5}i}{10} \quad 0$
	$\frac{\sqrt{2}i}{40}$	$0 \quad \frac{\sqrt{2}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad -\frac{\sqrt{30}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{10}$
	0	$\frac{\sqrt{2}}{40} \quad 0 \quad \frac{\sqrt{2}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{120} \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{2}}{40}$	$0 \quad \frac{\sqrt{2}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0$
	$-\frac{3\sqrt{2}i}{40}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{15} \quad 0 \quad \frac{\sqrt{3}}{20} \quad -\frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20}$
	0	$\frac{3\sqrt{2}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{15} \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0$
	0	$0 \quad -\frac{3\sqrt{2}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{15} \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20}$
	0	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{2}i}{40} \quad \frac{\sqrt{3}}{15} \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad -\frac{\sqrt{5}}{20} \quad 0$
	0	$0 \quad -\frac{\sqrt{6}i}{40} \quad 0 \quad -\frac{\sqrt{6}}{40} \quad \frac{i}{5} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad 0$
	$-\frac{\sqrt{6}i}{40}$	$0 \quad \frac{\sqrt{6}}{40} \quad 0 \quad 0 \quad -\frac{i}{5} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad 0 \quad 0$
579	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$
$\mathbb{Q}_5^{(1,-1;a)}(A, 3)$	$-\frac{\sqrt{210}i}{560}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{60} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad \frac{\sqrt{14}i}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{84}$
	0	$\frac{\sqrt{210}i}{560} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{60} \quad 0 \quad \frac{\sqrt{35}}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{336} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{84} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{210}i}{560} \quad 0 \quad 0 \quad -\frac{5\sqrt{35}}{168} \quad 0 \quad -\frac{\sqrt{35}i}{60} \quad 0 \quad 0 \quad -\frac{13\sqrt{14}i}{336} \quad 0 \quad 0 \quad -\frac{5\sqrt{21}}{168}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{560} \quad \frac{5\sqrt{35}}{168} \quad 0 \quad -\frac{\sqrt{35}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{14}i}{336} \quad \frac{5\sqrt{21}}{168} \quad 0$
	0	$0 \quad -\frac{11\sqrt{210}i}{1680} \quad 0 \quad \frac{\sqrt{210}}{168} \quad \frac{\sqrt{35}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{336} \quad 0 \quad -\frac{5\sqrt{14}}{168} \quad \frac{\sqrt{21}i}{56} \quad 0$
	$-\frac{11\sqrt{210}i}{1680}$	$0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{336} \quad 0 \quad \frac{5\sqrt{14}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{56}$
	0	$\frac{5\sqrt{210}}{336} \quad 0 \quad \frac{17\sqrt{210}i}{1680} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{60} \quad 0 \quad 0 \quad \frac{5\sqrt{14}}{336} \quad 0 \quad -\frac{\sqrt{14}i}{336} \quad 0 \quad 0$
	$-\frac{5\sqrt{210}}{336}$	$0 \quad \frac{17\sqrt{210}i}{1680} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{60} \quad -\frac{5\sqrt{14}}{336} \quad 0 \quad -\frac{\sqrt{14}i}{336} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{70}i}{80}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{210} \quad 0 \quad \frac{\sqrt{105}}{84} \quad -\frac{\sqrt{42}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad \frac{\sqrt{70}i}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{210} \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{112} \quad 0 \quad 0 \quad 0 \quad 0$
580	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,-1;a)}(A, 4)$	$\frac{-\sqrt{6}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{20} \quad 0 \quad \frac{1}{20} \quad -\frac{\sqrt{10}i}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{20}$	
	$0 \quad \frac{\sqrt{6}i}{80} \quad 0 \quad 0 \quad \frac{i}{20} \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{16} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{20} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{6}i}{80} \quad 0 \quad 0 \quad -\frac{3}{40} \quad 0 \quad -\frac{i}{20} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{40}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{6}i}{80} \quad \frac{3}{40} \quad 0 \quad -\frac{i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{80} \quad -\frac{\sqrt{15}}{40} \quad 0$	
	$0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad \frac{\sqrt{6}}{40} \quad \frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{80} \quad 0 \quad -\frac{\sqrt{10}}{40} \quad \frac{\sqrt{15}i}{40} \quad 0$	
	$-\frac{\sqrt{6}i}{16} \quad 0 \quad -\frac{\sqrt{6}}{40} \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{80} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{40}$	
	$0 \quad -\frac{\sqrt{6}}{80} \quad 0 \quad -\frac{\sqrt{6}i}{80} \quad 0 \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad \frac{3\sqrt{10}}{80} \quad 0 \quad \frac{\sqrt{10}i}{80} \quad 0 \quad 0$	
	$\frac{\sqrt{6}}{80} \quad 0 \quad -\frac{\sqrt{6}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{20} \quad -\frac{3\sqrt{10}}{80} \quad 0 \quad \frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad 0$	
	$\frac{9\sqrt{2}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad -\frac{\sqrt{3}}{20} \quad -\frac{\sqrt{30}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{9\sqrt{2}i}{80} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{80} \quad 0 \quad 0 \quad 0 \quad 0$	
581	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
$\mathbb{Q}_5^{(1,-1;a)}(A, 5)$	$\frac{\sqrt{2}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{15} \quad 0 \quad -\frac{\sqrt{3}}{10} \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{2}i}{40} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{15} \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{2}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{60} \quad 0 \quad -\frac{\sqrt{3}i}{15} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}i}{40} \quad \frac{\sqrt{3}}{60} \quad 0 \quad -\frac{\sqrt{3}i}{15} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{40} \quad -\frac{\sqrt{5}}{20} \quad 0$	
	$0 \quad -\frac{\sqrt{2}i}{10} \quad 0 \quad \frac{\sqrt{2}}{8} \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{40} \quad -\frac{\sqrt{5}i}{20} \quad 0$	
	$-\frac{\sqrt{2}i}{10} \quad 0 \quad -\frac{\sqrt{2}}{8} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20}$	
	$0 \quad \frac{\sqrt{2}}{20} \quad 0 \quad \frac{\sqrt{2}i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{15} \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{60} \quad 0 \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{2}}{20} \quad 0 \quad \frac{\sqrt{2}i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{15} \quad \frac{\sqrt{30}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{6}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{10} \quad \frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{6}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0 \quad 0$	
582	symmetry	$\frac{x(8x^4-40x^2y^2-40x^2z^2+15y^4+30y^2z^2+15z^4)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,-1;a)}(B, 1)$	0 0 $\frac{\sqrt{210}i}{560}$ 0 0 $-\frac{\sqrt{35}}{60}$ 0 $-\frac{\sqrt{35}i}{84}$ 0 0 $\frac{\sqrt{14}i}{336}$ 0 0 $\frac{\sqrt{21}}{84}$	
	0 0 0 $-\frac{\sqrt{210}i}{560}$ $\frac{\sqrt{35}}{60}$ 0 $-\frac{\sqrt{35}i}{84}$ 0 0 0 0 $-\frac{\sqrt{14}i}{336}$ $-\frac{\sqrt{21}}{84}$ 0	
	$-\frac{\sqrt{210}i}{560}$ 0 0 0 0 $-\frac{5\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{60}$ $\frac{13\sqrt{14}i}{336}$ 0 0 0 0 $\frac{5\sqrt{21}i}{168}$	
	0 $\frac{\sqrt{210}i}{560}$ 0 0 $-\frac{5\sqrt{35}i}{168}$ 0 $-\frac{\sqrt{35}}{60}$ 0 0 $-\frac{13\sqrt{14}i}{336}$ 0 0 $\frac{5\sqrt{21}i}{168}$ 0	
	0 $\frac{17\sqrt{210}}{1680}$ 0 $\frac{5\sqrt{210}i}{336}$ 0 0 $-\frac{\sqrt{35}i}{60}$ 0 0 $\frac{\sqrt{14}}{336}$ 0 $-\frac{5\sqrt{14}i}{336}$ 0 0	
	$-\frac{17\sqrt{210}}{1680}$ 0 $\frac{5\sqrt{210}i}{336}$ 0 0 0 0 $\frac{\sqrt{35}i}{60}$ $-\frac{\sqrt{14}}{336}$ 0 $-\frac{5\sqrt{14}i}{336}$ 0 0 0	
	0 $\frac{\sqrt{210}i}{168}$ 0 $-\frac{11\sqrt{210}}{1680}$ $\frac{\sqrt{35}i}{120}$ 0 0 0 0 $\frac{5\sqrt{14}i}{168}$ 0 $-\frac{\sqrt{14}}{336}$ $-\frac{\sqrt{21}i}{56}$ 0	
	$\frac{\sqrt{210}i}{168}$ 0 $\frac{11\sqrt{210}}{1680}$ 0 0 $-\frac{\sqrt{35}i}{120}$ 0 0 $\frac{5\sqrt{14}i}{168}$ 0 $\frac{\sqrt{14}}{336}$ 0 0 $\frac{\sqrt{21}i}{56}$	
	0 0 $-\frac{\sqrt{70}i}{80}$ 0 0 $-\frac{\sqrt{105}}{210}$ 0 $-\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{42}i}{112}$ 0 0 0	
	0 0 0 $\frac{\sqrt{70}i}{80}$ $\frac{\sqrt{105}}{210}$ 0 $-\frac{\sqrt{105}i}{84}$ 0 0 0 0 $-\frac{\sqrt{42}i}{112}$ 0 0	
583	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$
$\mathbb{Q}_5^{(1,-1;a)}(B, 2)$	0 $\frac{\sqrt{210}}{420}$ 0 $-\frac{\sqrt{210}i}{420}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{14}}{42}$ 0 $\frac{\sqrt{14}i}{42}$ 0 0	
	$-\frac{\sqrt{210}}{420}$ 0 $-\frac{\sqrt{210}i}{420}$ 0 0 0 0 $-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{14}}{42}$ 0 $\frac{\sqrt{14}i}{42}$ 0 0 0	
	0 $\frac{\sqrt{210}i}{420}$ 0 $\frac{\sqrt{210}}{420}$ $-\frac{\sqrt{35}i}{42}$ 0 0 0 0 $-\frac{\sqrt{14}i}{42}$ 0 $\frac{\sqrt{14}}{42}$ 0 0	
	$\frac{\sqrt{210}i}{420}$ 0 $-\frac{\sqrt{210}}{420}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{14}i}{42}$ 0 $-\frac{\sqrt{14}}{42}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{35}}{60}$ 0 $\frac{\sqrt{35}i}{60}$ 0 0 0 $-\frac{5\sqrt{14}i}{84}$ 0 0 $-\frac{\sqrt{21}}{42}$	
	0 0 0 0 $\frac{\sqrt{35}}{60}$ 0 $\frac{\sqrt{35}i}{60}$ 0 0 0 0 $\frac{5\sqrt{14}i}{84}$ $\frac{\sqrt{21}}{42}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{35}i}{60}$ 0 $-\frac{\sqrt{35}}{60}$ $\frac{5\sqrt{14}i}{84}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$	
	0 0 0 0 $-\frac{\sqrt{35}i}{60}$ 0 $\frac{\sqrt{35}}{60}$ 0 0 $-\frac{5\sqrt{14}i}{84}$ 0 0 0 $\frac{\sqrt{21}i}{42}$	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{84}$ 0 0 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{84}$ 0 0 0	
584	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,-1;a)}(B, 3)$	0 0 $\frac{\sqrt{6}i}{80}$ 0 0 $-\frac{1}{20}$ 0 $\frac{i}{20}$ 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 $-\frac{\sqrt{15}}{20}$	
	0 0 0 $-\frac{\sqrt{6}i}{80}$ $\frac{1}{20}$ 0 $\frac{i}{20}$ 0 0 0 0 $\frac{\sqrt{10}i}{16}$ $\frac{\sqrt{15}}{20}$ 0	
	$-\frac{\sqrt{6}i}{80}$ 0 0 0 0 $-\frac{3i}{40}$ 0 $\frac{1}{20}$ $-\frac{\sqrt{10}i}{80}$ 0 0 0 0 $-\frac{\sqrt{15}i}{40}$	
	0 $\frac{\sqrt{6}i}{80}$ 0 0 $-\frac{3i}{40}$ 0 $-\frac{1}{20}$ 0 0 $\frac{\sqrt{10}i}{80}$ 0 0 $-\frac{\sqrt{15}i}{40}$ 0	
	0 $-\frac{\sqrt{6}}{80}$ 0 $-\frac{\sqrt{6}i}{80}$ 0 0 $-\frac{i}{20}$ 0 0 $-\frac{\sqrt{10}}{80}$ 0 $-\frac{3\sqrt{10}i}{80}$ 0 0	
	$\frac{\sqrt{6}}{80}$ 0 $-\frac{\sqrt{6}i}{80}$ 0 0 0 $\frac{i}{20}$ $\frac{\sqrt{10}}{80}$ 0 $-\frac{3\sqrt{10}i}{80}$ 0 0 0	
	0 $\frac{\sqrt{6}i}{40}$ 0 $-\frac{\sqrt{6}}{16}$ $\frac{i}{8}$ 0 0 0 0 $\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{80}$ $-\frac{\sqrt{15}i}{40}$ 0	
	$\frac{\sqrt{6}i}{40}$ 0 $\frac{\sqrt{6}}{16}$ 0 0 $-\frac{i}{8}$ 0 0 $\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{80}$ 0 0 $\frac{\sqrt{15}i}{40}$	
	0 0 $\frac{9\sqrt{2}i}{80}$ 0 0 $\frac{\sqrt{3}}{10}$ 0 $\frac{\sqrt{3}i}{20}$ 0 0 $\frac{\sqrt{30}i}{80}$ 0 0 0	
	0 0 0 $-\frac{9\sqrt{2}i}{80}$ $-\frac{\sqrt{3}}{10}$ 0 $\frac{\sqrt{3}i}{20}$ 0 0 0 $-\frac{\sqrt{30}i}{80}$ 0 0 0	
585	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
$\mathbb{Q}_5^{(1,-1;a)}(B, 4)$	0 0 0 0 0 0 $-\frac{i}{10}$ 0 0 $-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 0 0 0 0 $\frac{i}{10}$ $\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 0 0 0 $-\frac{i}{10}$ 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0	
	0 0 0 0 0 $\frac{i}{10}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0	
	0 0 $\frac{\sqrt{6}i}{20}$ 0 0 $\frac{1}{20}$ 0 $\frac{i}{20}$ 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{6}i}{20}$ $-\frac{1}{20}$ 0 $\frac{i}{20}$ 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{6}i}{20}$ 0 0 0 $\frac{i}{20}$ 0 $-\frac{1}{20}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{6}i}{20}$ 0 0 $\frac{i}{20}$ 0 $\frac{1}{20}$ 0 0 0 0 0 0 0	
	0 $\frac{3\sqrt{2}}{20}$ 0 $\frac{3\sqrt{2}i}{20}$ 0 0 0 0 0 0 0 0 0 0	
	$-\frac{3\sqrt{2}}{20}$ 0 $\frac{3\sqrt{2}i}{20}$ 0 0 0 0 0 0 0 0 0 0 0	
586	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,-1;a)}(B, 5)$	0 0 $\frac{\sqrt{2}i}{40}$ 0 0 $\frac{\sqrt{3}}{15}$ 0 $\frac{\sqrt{3}i}{10}$ 0 0 $-\frac{\sqrt{30}i}{120}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{2}i}{40}$ $-\frac{\sqrt{3}}{15}$ 0 $\frac{\sqrt{3}i}{10}$ 0 0 0 0 $\frac{\sqrt{30}i}{120}$ 0 0	
	$-\frac{\sqrt{2}i}{40}$ 0 0 0 0 $\frac{\sqrt{3}i}{60}$ 0 $-\frac{\sqrt{3}}{15}$ $\frac{\sqrt{30}i}{40}$ 0 0 0 0 $\frac{\sqrt{5}i}{20}$	
	0 $\frac{\sqrt{2}i}{40}$ 0 0 $\frac{\sqrt{3}i}{60}$ 0 $\frac{\sqrt{3}}{15}$ 0 0 $-\frac{\sqrt{30}i}{40}$ 0 0 $\frac{\sqrt{5}i}{20}$ 0	
	0 $-\frac{\sqrt{2}}{10}$ 0 $-\frac{\sqrt{2}i}{20}$ 0 0 $-\frac{\sqrt{3}i}{15}$ 0 0 0 0 $-\frac{\sqrt{30}i}{60}$ 0 0	
	$\frac{\sqrt{2}}{10}$ 0 $-\frac{\sqrt{2}i}{20}$ 0 0 0 0 $\frac{\sqrt{3}i}{15}$ 0 0 0 $-\frac{\sqrt{30}i}{60}$ 0 0 0	
	0 $-\frac{\sqrt{2}i}{8}$ 0 $\frac{\sqrt{2}}{10}$ $\frac{\sqrt{3}i}{20}$ 0 0 0 0 $\frac{\sqrt{30}i}{40}$ 0 0 0 $-\frac{\sqrt{5}i}{20}$ 0	
	$-\frac{\sqrt{2}i}{8}$ 0 $-\frac{\sqrt{2}}{10}$ 0 0 $-\frac{\sqrt{3}i}{20}$ 0 0 $\frac{\sqrt{30}i}{40}$ 0 0 0 0 $\frac{\sqrt{5}i}{20}$	
	0 0 $-\frac{\sqrt{6}i}{40}$ 0 0 0 0 $-\frac{i}{10}$ 0 0 $\frac{\sqrt{10}i}{40}$ 0 0 0	
	0 0 0 $\frac{\sqrt{6}i}{40}$ 0 0 $-\frac{i}{10}$ 0 0 0 0 $-\frac{\sqrt{10}i}{40}$ 0 0	
587	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
$\mathbb{Q}_5^{(1,-1;a)}(B, 6)$	0 $\frac{\sqrt{2}}{40}$ 0 $\frac{\sqrt{2}i}{40}$ 0 0 0 0 0 $\frac{\sqrt{30}}{120}$ 0 $-\frac{\sqrt{30}i}{120}$ 0 0	
	$-\frac{\sqrt{2}}{40}$ 0 $\frac{\sqrt{2}i}{40}$ 0 0 0 0 0 $-\frac{\sqrt{30}}{120}$ 0 $-\frac{\sqrt{30}i}{120}$ 0 0 0	
	0 $-\frac{\sqrt{2}i}{40}$ 0 $\frac{\sqrt{2}}{40}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{40}$ 0 $\frac{\sqrt{30}}{40}$ $-\frac{\sqrt{5}i}{10}$ 0	
	$-\frac{\sqrt{2}i}{40}$ 0 $-\frac{\sqrt{2}}{40}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{40}$ 0 $-\frac{\sqrt{30}}{40}$ 0 0 $\frac{\sqrt{5}i}{10}$	
	0 0 $-\frac{3\sqrt{2}i}{40}$ 0 0 $-\frac{\sqrt{3}}{20}$ 0 $-\frac{\sqrt{3}i}{15}$ 0 0 0 $-\frac{\sqrt{30}i}{120}$ 0 0 $-\frac{\sqrt{5}}{20}$	
	0 0 0 $\frac{3\sqrt{2}i}{40}$ $\frac{\sqrt{3}}{20}$ 0 $-\frac{\sqrt{3}i}{15}$ 0 0 0 0 $\frac{\sqrt{30}i}{120}$ $\frac{\sqrt{5}}{20}$ 0	
	$\frac{3\sqrt{2}i}{40}$ 0 0 0 0 $\frac{\sqrt{3}i}{20}$ 0 $-\frac{\sqrt{3}}{15}$ $-\frac{\sqrt{30}i}{120}$ 0 0 0 0 $-\frac{\sqrt{5}i}{20}$	
	0 $-\frac{3\sqrt{2}i}{40}$ 0 0 $\frac{\sqrt{3}i}{20}$ 0 $\frac{\sqrt{3}}{15}$ 0 0 0 $\frac{\sqrt{30}i}{120}$ 0 0 $-\frac{\sqrt{5}i}{20}$ 0	
	0 $\frac{\sqrt{6}}{40}$ 0 $-\frac{\sqrt{6}i}{40}$ 0 0 $\frac{i}{5}$ 0 0 0 $\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0	
	$-\frac{\sqrt{6}}{40}$ 0 $-\frac{\sqrt{6}i}{40}$ 0 0 0 0 $-\frac{i}{5}$ $-\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0 0	
588	symmetry	$y$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_1^{(1,0;a)}(A)$	$x$	$\begin{bmatrix} \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & -\frac{3\sqrt{70}i}{140} & 0 & 0 \end{bmatrix}$
	$y$	
	$z$	
	$x$	
	$y$	
	$z$	
	$x$	
	$y$	
	$z$	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_1^{(1,0;a)}(B, 2)$	0	$-\frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0$
	$\frac{\sqrt{21}}{28}$	$0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{21}i}{28} \quad 0 \quad -\frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{21}i}{28}$	$0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0$
591	symmetry	$\sqrt{15}xyz$
$\mathbb{Q}_3^{(1,0;a)}(A, 1)$	0	$\frac{\sqrt{10}i}{48} \quad 0 \quad -\frac{\sqrt{10}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad 0 \quad -\frac{\sqrt{6}}{48} \quad -\frac{i}{6} \quad 0$
	$\frac{\sqrt{10}i}{48}$	$0 \quad \frac{\sqrt{10}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad 0 \quad \frac{\sqrt{6}}{48} \quad 0 \quad 0 \quad \frac{i}{6}$
	0	$\frac{\sqrt{10}}{48} \quad 0 \quad \frac{\sqrt{10}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{16} \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{10}}{48}$	$0 \quad \frac{\sqrt{10}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{10}i}{24}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad \frac{\sqrt{6}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{24}$
	0	$0 \quad -\frac{\sqrt{10}i}{24} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{24} \quad 0 \quad 0 \quad -\frac{i}{24} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{10}i}{24} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{24} \quad 0 \quad 0 \quad 0 \quad \frac{1}{24}$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{24} \quad \frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}i}{24} \quad -\frac{1}{24} \quad 0 \quad 0$
	0	$0 \quad \frac{\sqrt{30}i}{48} \quad 0 \quad \frac{\sqrt{30}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad \frac{\sqrt{2}}{16} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{30}i}{48}$	$0 \quad -\frac{\sqrt{30}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad -\frac{\sqrt{2}}{16} \quad 0 \quad 0 \quad 0$
592	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,0;a)}(A, 2)$	$\frac{\sqrt{6}i}{96}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad 0 \quad \frac{3\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24}$
	$0$	$-\frac{\sqrt{6}i}{96} \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0$
	$0$	$0 \quad \frac{\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0 \quad 0$
	$0$	$0 \quad 0 \quad -\frac{\sqrt{6}i}{96} \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{7\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0 \quad 0$
	$0$	$\frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad -\frac{3i}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{7\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{240} \quad 0$
	$\frac{5\sqrt{6}i}{96}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{3i}{16} \quad 0 \quad 0 \quad \frac{7\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{240}$
	$0$	$0 \quad 0 \quad \frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad \frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0 \quad 0$
	$0$	$0 \quad \frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{5\sqrt{2}i}{32}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20}$
	$0$	$-\frac{5\sqrt{2}i}{32} \quad 0 \quad \frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20} \quad 0$
593	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{Q}_3^{(1,0;a)}(A, 3)$	$-\frac{\sqrt{10}i}{96}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad \frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{24}$
	$0$	$\frac{\sqrt{10}i}{96} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad \frac{i}{24} \quad 0$
	$0$	$0 \quad 0 \quad -\frac{\sqrt{10}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{96} \quad 0 \quad 0 \quad \frac{1}{6}$
	$0$	$0 \quad 0 \quad \frac{\sqrt{10}i}{96} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}i}{96} \quad -\frac{1}{6} \quad 0$
	$0$	$0 \quad -\frac{\sqrt{10}i}{96} \quad 0 \quad -\frac{\sqrt{10}}{24} \quad -\frac{\sqrt{15}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{32} \quad 0 \quad -\frac{\sqrt{6}}{24} \quad \frac{i}{48} \quad 0$
	$-\frac{\sqrt{10}i}{96}$	$0 \quad \frac{\sqrt{10}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{48} \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{32} \quad 0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad -\frac{i}{48}$
	$0$	$\frac{\sqrt{10}}{24} \quad 0 \quad -\frac{\sqrt{10}i}{96} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{24} \quad 0 \quad -\frac{\sqrt{6}i}{96} \quad 0 \quad 0$
	$-\frac{\sqrt{10}}{24}$	$0 \quad -\frac{\sqrt{10}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad \frac{\sqrt{6}}{24} \quad 0 \quad -\frac{\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{30}i}{32}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{12}$
	$0$	$-\frac{\sqrt{30}i}{32} \quad 0 \quad -\frac{\sqrt{2}i}{32} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{12} \quad 0$
594	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,0;a)}(B, 1)$	0	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{96} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{160} & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{96} & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{160} & \frac{\sqrt{15}}{24} & 0 \\ \frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & \frac{7\sqrt{10}i}{160} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{7\sqrt{10}i}{160} & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & 0 & \frac{3\sqrt{10}}{160} & 0 & 0 & 0 & 0 \\ -\frac{5\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & -\frac{3\sqrt{10}}{160} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{6}}{96} & -\frac{3i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{7\sqrt{10}}{160} & \frac{\sqrt{15}i}{240} & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{6}}{96} & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 & \frac{7\sqrt{10}}{160} & 0 & 0 & -\frac{\sqrt{15}i}{240} \\ 0 & 0 & \frac{5\sqrt{2}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{160} & 0 & 0 & -\frac{\sqrt{5}}{20} \\ 0 & 0 & 0 & -\frac{5\sqrt{2}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{160} & \frac{\sqrt{5}}{20} & 0 \end{bmatrix}$
	595	symmetry $-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(B, 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 \\ -\frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 \\ \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{60} \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} \\ 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{40} & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 & 0 \end{bmatrix}$
	596	symmetry $\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,0;a)}(B, 3)$	0 0 $-\frac{\sqrt{10}i}{96}$ 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0 0 $-\frac{5\sqrt{6}i}{96}$ 0 0 $-\frac{1}{24}$	
	0 0 0 $\frac{\sqrt{10}i}{96}$ $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 $\frac{5\sqrt{6}i}{96}$ $\frac{1}{24}$ 0	
	$\frac{\sqrt{10}i}{96}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{6}i}{96}$ 0 0 0 0 $\frac{i}{6}$	
	0 $-\frac{\sqrt{10}i}{96}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{6}i}{96}$ 0 0 $\frac{i}{6}$ 0	
	0 $\frac{\sqrt{10}}{96}$ 0 $-\frac{\sqrt{10}i}{24}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{6}}{96}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0	
	$-\frac{\sqrt{10}}{96}$ 0 $-\frac{\sqrt{10}i}{24}$ 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ $\frac{\sqrt{6}}{96}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0	
	0 $\frac{\sqrt{10}i}{24}$ 0 $\frac{\sqrt{10}}{96}$ $\frac{\sqrt{15}i}{48}$ 0 0 0 0 $-\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{32}$ $\frac{i}{48}$ 0	
	$\frac{\sqrt{10}i}{24}$ 0 $-\frac{\sqrt{10}}{96}$ 0 0 $-\frac{\sqrt{15}i}{48}$ 0 0 $-\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{32}$ 0 0 $-\frac{i}{48}$	
	0 0 $-\frac{\sqrt{30}i}{32}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{32}$ 0 0 $-\frac{\sqrt{3}}{12}$	
	0 0 0 $\frac{\sqrt{30}i}{32}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{32}$ $\frac{\sqrt{3}}{12}$ 0	
597	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
$\mathbb{Q}_3^{(1,0;a)}(B, 4)$	0 $-\frac{\sqrt{10}}{48}$ 0 $-\frac{\sqrt{10}i}{48}$ 0 0 0 0 0 $\frac{\sqrt{6}}{16}$ 0 $-\frac{\sqrt{6}i}{16}$ 0 0	
	$\frac{\sqrt{10}}{48}$ 0 $-\frac{\sqrt{10}i}{48}$ 0 0 0 0 0 $-\frac{\sqrt{6}}{16}$ 0 $-\frac{\sqrt{6}i}{16}$ 0 0 0	
	0 $\frac{\sqrt{10}i}{48}$ 0 $-\frac{\sqrt{10}}{48}$ 0 0 0 0 0 $\frac{\sqrt{6}i}{48}$ 0 $\frac{\sqrt{6}}{48}$ $\frac{i}{6}$ 0	
	$\frac{\sqrt{10}i}{48}$ 0 $\frac{\sqrt{10}}{48}$ 0 0 0 0 0 $\frac{\sqrt{6}i}{48}$ 0 $-\frac{\sqrt{6}}{48}$ 0 0 $-\frac{i}{6}$	
	0 0 $-\frac{\sqrt{10}i}{24}$ 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{6}i}{24}$ 0 0 $\frac{1}{24}$	
	0 0 0 $\frac{\sqrt{10}i}{24}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 $\frac{\sqrt{6}i}{24}$ $-\frac{1}{24}$ 0	
	$\frac{\sqrt{10}i}{24}$ 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{6}i}{24}$ 0 0 0 0 $\frac{i}{24}$	
	0 $-\frac{\sqrt{10}i}{24}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{6}i}{24}$ 0 0 $\frac{i}{24}$ 0	
	0 $\frac{\sqrt{30}}{48}$ 0 $-\frac{\sqrt{30}i}{48}$ 0 0 0 0 0 $\frac{\sqrt{2}}{16}$ 0 $\frac{\sqrt{2}i}{16}$ 0 0 0	
	$-\frac{\sqrt{30}}{48}$ 0 $-\frac{\sqrt{30}i}{48}$ 0 0 0 0 0 $-\frac{\sqrt{2}}{16}$ 0 $\frac{\sqrt{2}i}{16}$ $\frac{\sqrt{3}}{12}$ 0	
598	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,0;a)}(A, 1)$	0	$-\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ $\frac{i}{5}$ 0 0 0 0 $-\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{40}$ 0 0
	$-\frac{\sqrt{6}i}{24}$	0 $\frac{\sqrt{6}}{24}$ 0 0 $-\frac{i}{5}$ 0 0 $-\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0 0
	0	$-\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 $-\frac{i}{5}$ 0 0 $\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0
	$\frac{\sqrt{6}}{24}$	0 $\frac{\sqrt{6}i}{24}$ 0 0 0 0 $\frac{i}{5}$ $-\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0 0
	$\frac{\sqrt{6}i}{15}$	0 0 0 0 $-\frac{i}{10}$ 0 $\frac{1}{10}$ 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{6}i}{15}$ 0 0 $-\frac{i}{10}$ 0 $-\frac{1}{10}$ 0 0 0 0 0 0 0 0
	0	0 $-\frac{\sqrt{6}i}{15}$ 0 0 $\frac{1}{10}$ 0 $\frac{i}{10}$ 0 0 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{6}i}{15}$ $-\frac{1}{10}$ 0 $\frac{i}{10}$ 0 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{2}i}{20}$ 0 $\frac{\sqrt{2}}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{2}i}{20}$	0 $-\frac{\sqrt{2}}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0 0
599	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
$\mathbb{Q}_5^{(1,0;a)}(A, 2)$	0	$\frac{\sqrt{2}i}{120}$ 0 $-\frac{\sqrt{2}}{120}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{120}$ 0 $\frac{\sqrt{30}}{120}$ $-\frac{\sqrt{5}i}{30}$ 0
	$\frac{\sqrt{2}i}{120}$	0 $\frac{\sqrt{2}}{120}$ 0 0 0 0 0 0 $\frac{\sqrt{30}i}{120}$ 0 $-\frac{\sqrt{30}}{120}$ 0 0 $\frac{\sqrt{5}i}{30}$
	0	$\frac{\sqrt{2}}{120}$ 0 $\frac{\sqrt{2}i}{120}$ 0 0 0 0 0 $\frac{\sqrt{30}}{40}$ 0 $-\frac{\sqrt{30}i}{40}$ 0 0 0
	$-\frac{\sqrt{2}}{120}$	0 $\frac{\sqrt{2}i}{120}$ 0 0 0 0 0 0 $-\frac{\sqrt{30}}{40}$ 0 $-\frac{\sqrt{30}i}{40}$ 0 0 0
	$\frac{\sqrt{2}i}{60}$	0 0 0 0 $\frac{\sqrt{3}i}{30}$ 0 $\frac{\sqrt{3}}{10}$ $-\frac{\sqrt{30}i}{60}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{15}$
	0	$-\frac{\sqrt{2}i}{60}$ 0 0 $\frac{\sqrt{3}i}{30}$ 0 $-\frac{\sqrt{3}}{10}$ 0 0 $\frac{\sqrt{30}i}{60}$ 0 0 0 $\frac{\sqrt{5}i}{15}$ 0
	0	0 $\frac{\sqrt{2}i}{60}$ 0 0 $\frac{\sqrt{3}}{30}$ 0 $-\frac{\sqrt{3}i}{10}$ 0 0 0 $\frac{\sqrt{30}i}{60}$ 0 0 $-\frac{\sqrt{5}}{15}$
	0	0 0 0 $-\frac{\sqrt{2}i}{60}$ $-\frac{\sqrt{3}}{30}$ 0 $-\frac{\sqrt{3}i}{10}$ 0 0 0 0 $-\frac{\sqrt{30}i}{60}$ $\frac{\sqrt{5}}{15}$ 0
	0	$\frac{\sqrt{6}i}{30}$ 0 $\frac{\sqrt{6}}{30}$ $-\frac{i}{10}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0
	$\frac{\sqrt{6}i}{30}$	0 $-\frac{\sqrt{6}}{30}$ 0 0 $\frac{i}{10}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0
600	symmetry	$\frac{y(15x^4-40x^2y^2+30x^2z^2+8y^4-40y^2z^2+15z^4)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,0;a)}(A, 3)$	$\frac{53\sqrt{210}i}{3360} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{35}i}{560} \quad 0 \quad 0 \quad \frac{3\sqrt{14}i}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{48}$	
	$0 \quad -\frac{53\sqrt{210}i}{3360} \quad 0 \quad 0 \quad -\frac{13\sqrt{35}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}i}{224} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{48} \quad 0$	
	$0 \quad 0 \quad -\frac{13\sqrt{210}i}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{13\sqrt{210}i}{840} \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{210}i}{240} \quad 0 \quad 0 \quad \frac{3\sqrt{35}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{112} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{168} \quad 0$	
	$-\frac{\sqrt{210}i}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{35}i}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{168}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{210}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{70}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{7}i}{112}$	
	$0 \quad -\frac{\sqrt{70}i}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{224} \quad 0 \quad 0 \quad -\frac{5\sqrt{7}i}{112} \quad 0$	
601	symmetry	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
$\mathbb{Q}_5^{(1,0;a)}(A, 4)$	$\frac{13\sqrt{6}i}{480} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3i}{80} \quad 0 \quad \frac{1}{10} \quad -\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{240}$	
	$0 \quad -\frac{13\sqrt{6}i}{480} \quad 0 \quad 0 \quad \frac{3i}{80} \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{240} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{6}i}{40} \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{30}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{6}i}{40} \quad -\frac{1}{10} \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{40} \quad \frac{\sqrt{15}}{30} \quad 0$	
	$0 \quad \frac{\sqrt{6}i}{48} \quad 0 \quad \frac{\sqrt{6}}{20} \quad -\frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{10}i}{80} \quad 0 \quad -\frac{\sqrt{10}}{20} \quad \frac{\sqrt{15}i}{120} \quad 0$	
	$\frac{\sqrt{6}i}{48} \quad 0 \quad -\frac{\sqrt{6}}{20} \quad 0 \quad 0 \quad \frac{i}{8} \quad 0 \quad 0 \quad \frac{3\sqrt{10}i}{80} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{120}$	
	$0 \quad \frac{\sqrt{6}}{60} \quad 0 \quad -\frac{\sqrt{6}i}{40} \quad 0 \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{20} \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad 0$	
	$-\frac{\sqrt{6}}{60} \quad 0 \quad -\frac{\sqrt{6}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{10} \quad \frac{\sqrt{10}}{20} \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0$	
	$-\frac{9\sqrt{2}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{80} \quad 0 \quad -\frac{\sqrt{3}}{10} \quad \frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{16}$	
	$0 \quad \frac{9\sqrt{2}i}{160} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{80} \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{16} \quad 0$	
602	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,0;a)}(A, 5)$	$\frac{37\sqrt{2}i}{240}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{120} \quad 0 \quad \frac{\sqrt{3}}{20} \quad -\frac{\sqrt{30}i}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{24}$
	$0 \quad -\frac{37\sqrt{2}i}{240}$	$0 \quad 0 \quad \frac{\sqrt{3}i}{120} \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{240} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{24} \quad 0$
	$0 \quad 0 \quad -\frac{19\sqrt{2}i}{120}$	$0 \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{60}$
	$0 \quad 0 \quad 0 \quad \frac{19\sqrt{2}i}{120}$	$-\frac{\sqrt{3}}{20} \quad 0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad -\frac{\sqrt{5}}{60} \quad 0$
	$0 \quad -\frac{\sqrt{2}i}{30}$	$0 \quad \frac{\sqrt{2}}{24} \quad -\frac{\sqrt{3}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad -\frac{\sqrt{5}i}{60} \quad 0$
	$-\frac{\sqrt{2}i}{30}$	$0 \quad -\frac{\sqrt{2}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60}$
	$0 \quad \frac{7\sqrt{2}}{120}$	$0 \quad -\frac{\sqrt{2}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad -\frac{\sqrt{30}i}{24} \quad 0 \quad 0$
	$-\frac{7\sqrt{2}}{120}$	$0 \quad -\frac{\sqrt{2}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{30} \quad -\frac{\sqrt{30}}{120} \quad 0 \quad -\frac{\sqrt{30}i}{24} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{6}i}{80}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{8} \quad 0 \quad \frac{1}{20} \quad -\frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24}$
	$0 \quad \frac{\sqrt{6}i}{80}$	$0 \quad 0 \quad \frac{i}{8} \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0$
603	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
$\mathbb{Q}_5^{(1,0;a)}(B, 1)$	$0 \quad 0 \quad -\frac{53\sqrt{210}i}{3360} \quad 0 \quad 0 \quad \frac{13\sqrt{35}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{14}i}{224} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{48}$	
	$0 \quad 0 \quad 0 \quad \frac{53\sqrt{210}i}{3360} \quad -\frac{13\sqrt{35}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}i}{224} \quad \frac{\sqrt{21}}{48} \quad 0$	
	$-\frac{13\sqrt{210}i}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad \frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{13\sqrt{210}i}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{210}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad -\frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{210}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad \frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{240} \quad \frac{3\sqrt{35}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{112} \quad -\frac{\sqrt{21}i}{168} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{210}}{240} \quad 0 \quad 0 \quad -\frac{3\sqrt{35}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{168}$	
	$0 \quad 0 \quad \frac{\sqrt{70}i}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{224} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{112}$	
604	symmetry	$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,0;a)}(B, 2)$	0	$-\frac{\sqrt{210}}{840} \quad 0 \quad \frac{\sqrt{210}i}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad 0$
	$\frac{\sqrt{210}}{840}$	$0 \quad \frac{\sqrt{210}i}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{210}i}{840} \quad 0 \quad -\frac{\sqrt{210}}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0$
	$-\frac{\sqrt{210}i}{840}$	$0 \quad \frac{\sqrt{210}}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{21}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{21} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{21}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{21}$
	0	$0 \quad 0 \quad -\frac{\sqrt{42}}{28} \quad 0 \quad \frac{\sqrt{42}i}{28} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{42}}{28} \quad 0 \quad \frac{\sqrt{42}i}{28} \quad 0 \quad 0 \quad 0$
605	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$
$\mathbb{Q}_5^{(1,0;a)}(B, 3)$	0	$0 \quad 0 \quad -\frac{13\sqrt{6}i}{480} \quad 0 \quad 0 \quad -\frac{3}{80} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{240}$
	0	$0 \quad 0 \quad 0 \quad \frac{13\sqrt{6}i}{480} \quad \frac{3}{80} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{32} \quad -\frac{\sqrt{15}}{240} \quad 0$
	$-\frac{\sqrt{6}i}{40}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad 0 \quad \frac{1}{10} \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30}$
	0	$\frac{\sqrt{6}i}{40} \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30}$
	0	$0 \quad -\frac{\sqrt{6}}{40} \quad 0 \quad \frac{\sqrt{6}i}{60} \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad 0$
	$\frac{\sqrt{6}}{40}$	$0 \quad \frac{\sqrt{6}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad \frac{\sqrt{10}}{40} \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{6}i}{20} \quad 0 \quad \frac{\sqrt{6}}{48} \quad -\frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad -\frac{3\sqrt{10}}{80} \quad -\frac{\sqrt{15}i}{120} \quad 0$
	$\frac{\sqrt{6}i}{20}$	$0 \quad -\frac{\sqrt{6}}{48} \quad 0 \quad 0 \quad \frac{i}{8} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad \frac{3\sqrt{10}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{120}$
	0	$0 \quad 0 \quad -\frac{9\sqrt{2}i}{160} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{80} \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{16}$
	0	$0 \quad 0 \quad 0 \quad \frac{9\sqrt{2}i}{160} \quad -\frac{\sqrt{3}}{80} \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{160} \quad -\frac{\sqrt{5}}{16} \quad 0$
606	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{Q}_5^{(1,0;a)}(B, 4)$	$\begin{bmatrix} 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & -\frac{i}{5} & 0 & 0 & \frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 \\ \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & \frac{i}{5} & -\frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & -\frac{i}{5} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{40} & 0 & -\frac{\sqrt{10}}{40} & 0 & 0 \\ \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & \frac{i}{5} & 0 & 0 & \frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{40} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{15} & 0 & 0 & 0 & \frac{1}{10} & 0 & \frac{i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{15} & -\frac{1}{10} & 0 & \frac{i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{15} & 0 & 0 & 0 & 0 & \frac{i}{10} & 0 & -\frac{1}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{15} & 0 & 0 & \frac{i}{10} & 0 & \frac{1}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{20} & 0 & \frac{\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{20} & 0 & \frac{\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
607	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$ $\begin{bmatrix} 0 & 0 & \frac{37\sqrt{2}i}{240} & 0 & 0 & \frac{\sqrt{3}}{120} & 0 & -\frac{\sqrt{3}i}{20} & 0 & 0 & \frac{\sqrt{30}i}{240} & 0 & 0 & -\frac{\sqrt{5}}{24} \\ 0 & 0 & 0 & -\frac{37\sqrt{2}i}{240} & -\frac{\sqrt{3}}{120} & 0 & -\frac{\sqrt{3}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{240} & \frac{\sqrt{5}}{24} & 0 \\ \frac{19\sqrt{2}i}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{20} & 0 & \frac{\sqrt{3}}{30} & \frac{\sqrt{30}i}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{60} \\ 0 & -\frac{19\sqrt{2}i}{120} & 0 & 0 & -\frac{\sqrt{3}i}{20} & 0 & -\frac{\sqrt{3}}{30} & 0 & 0 & -\frac{\sqrt{30}i}{120} & 0 & 0 & \frac{\sqrt{5}i}{60} & 0 \\ 0 & \frac{\sqrt{2}}{120} & 0 & -\frac{7\sqrt{2}i}{120} & 0 & 0 & \frac{\sqrt{3}i}{30} & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{30}i}{120} & 0 & 0 \\ -\frac{\sqrt{2}}{120} & 0 & -\frac{7\sqrt{2}i}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{30} & \frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{24} & 0 & \frac{\sqrt{2}}{30} & \frac{\sqrt{3}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & -\frac{\sqrt{5}i}{60} & 0 \\ -\frac{\sqrt{2}i}{24} & 0 & -\frac{\sqrt{2}}{30} & 0 & 0 & -\frac{\sqrt{3}i}{60} & 0 & 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{60} \\ 0 & 0 & \frac{\sqrt{6}i}{80} & 0 & 0 & -\frac{1}{8} & 0 & \frac{i}{20} & 0 & 0 & -\frac{\sqrt{10}i}{80} & 0 & 0 & \frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{80} & \frac{1}{8} & 0 & \frac{i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{80} & -\frac{\sqrt{15}}{24} & 0 \end{bmatrix}$
608	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,0;a)}(B, 6)$	0	$\frac{\sqrt{2}}{120} \quad 0 \quad \frac{\sqrt{2}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{40} \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{2}}{120}$	$0 \quad \frac{\sqrt{2}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{40} \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad 0 \quad 0$
	0	$- \frac{\sqrt{2}i}{120} \quad 0 \quad \frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad \frac{\sqrt{30}}{120} \quad -\frac{\sqrt{5}i}{30} \quad 0$
	$-\frac{\sqrt{2}i}{120}$	$0 \quad -\frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad -\frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{30}$
	0	$0 \quad \frac{\sqrt{2}i}{60} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{10} \quad 0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{60} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{15}$
	0	$0 \quad 0 \quad -\frac{\sqrt{2}i}{60} \quad \frac{\sqrt{3}}{10} \quad 0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{60} \quad -\frac{\sqrt{5}}{15} \quad 0$
	$-\frac{\sqrt{2}i}{60}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad \frac{\sqrt{3}}{30} \quad -\frac{\sqrt{30}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{15}$
	0	$\frac{\sqrt{2}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad -\frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{15} \quad 0$
	0	$0 \quad -\frac{\sqrt{6}}{30} \quad 0 \quad \frac{\sqrt{6}i}{30} \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad 0$
	$\frac{\sqrt{6}}{30}$	$0 \quad \frac{\sqrt{6}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad -\frac{\sqrt{10}}{20} \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0$
609	symmetry	$y$
$\mathbb{Q}_1^{(1,1;a)}(A)$	$\frac{\sqrt{42}i}{56}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140}$
	0	$-\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140}$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad \frac{\sqrt{105}}{140} \quad 0$
	0	$-\frac{\sqrt{42}i}{56} \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad \frac{\sqrt{70}}{56} \quad \frac{\sqrt{105}i}{70} \quad 0$
	$-\frac{\sqrt{42}i}{56}$	$0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70}$
	0	$\frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad 0$
	$-\frac{\sqrt{42}}{56}$	$0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{280} \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad -\frac{\sqrt{21}}{28} \quad -\frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0 \quad 0$
610	symmetry	$x$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_1^{(1,1;a)}(B, 1)$	$0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad \frac{\sqrt{105}}{140} \quad 0 \quad 0$	
	$\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140}$	
	$0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0$	
	$0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad 0$	
	$\frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad -\frac{\sqrt{105}i}{70} \quad 0$	
	$-\frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{70}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0$	
611	symmetry	$z$
$\mathbb{Q}_1^{(1,1;a)}(B, 2)$	$0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad 0$	
	$-\frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0$	
	$\frac{\sqrt{42}i}{56} \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70}$	
	$0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad -\frac{\sqrt{105}}{70} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70}$	
	$0 \quad 0 \quad -\frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70}$	
	$0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0$	
612	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,1;a)}(A, 1)$	$\frac{\sqrt{70}i}{560}$	$0 \quad \frac{\sqrt{70}i}{560} \quad 0 \quad -\frac{\sqrt{70}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{42}i}{112} \quad 0 \quad \frac{3\sqrt{42}}{112} \quad \frac{\sqrt{7}i}{14} \quad 0$
	$\frac{\sqrt{70}i}{560}$	$0 \quad 0 \quad \frac{\sqrt{70}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{42}i}{112} \quad 0 \quad -\frac{3\sqrt{42}}{112} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14}$
	$0 \quad \frac{\sqrt{70}}{560}$	$0 \quad 0 \quad \frac{\sqrt{70}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{42}}{336} \quad 0 \quad -\frac{5\sqrt{42}i}{336} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{70}}{560}$	$0 \quad 0 \quad \frac{\sqrt{70}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{42}}{336} \quad 0 \quad -\frac{5\sqrt{42}i}{336} \quad 0 \quad 0 \quad 0$
	$\frac{3\sqrt{70}i}{280}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{56}$
	$0 \quad -\frac{3\sqrt{70}i}{280}$	$0 \quad 0 \quad -\frac{\sqrt{105}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{168} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{56} \quad 0$
	$0 \quad 0 \quad \frac{3\sqrt{70}i}{280}$	$0 \quad 0 \quad -\frac{\sqrt{105}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{168} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{56}$
	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280}$	$\frac{\sqrt{105}}{120} \quad 0 \quad \frac{\sqrt{42}i}{168} \quad -\frac{\sqrt{7}}{56} \quad 0$
	$0 \quad -\frac{\sqrt{210}i}{80}$	$0 \quad -\frac{\sqrt{210}}{80} \quad -\frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{112} \quad 0 \quad -\frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{210}i}{80}$	$0 \quad \frac{\sqrt{210}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{112} \quad 0 \quad \frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad 0$
613	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
$\mathbb{Q}_3^{(1,1;a)}(A, 2)$	$\frac{\sqrt{42}i}{224}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{24} \quad 0 \quad -\frac{\sqrt{7}}{42} \quad -\frac{\sqrt{70}i}{672} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168}$
	$0 \quad -\frac{\sqrt{42}i}{224}$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{24} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{672} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad 0$
	$0 \quad 0 \quad \frac{\sqrt{42}i}{224}$	$0 \quad 0 \quad -\frac{5\sqrt{7}}{84} \quad 0 \quad \frac{\sqrt{7}i}{24} \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{70}i}{672} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{84}$
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{224}$	$\frac{5\sqrt{7}}{84} \quad 0 \quad \frac{\sqrt{7}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{70}i}{672} \quad \frac{\sqrt{105}}{84} \quad 0 \quad 0$
	$0 \quad \frac{11\sqrt{42}i}{672}$	$0 \quad \frac{\sqrt{42}}{84} \quad -\frac{\sqrt{7}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{672} \quad 0 \quad -\frac{\sqrt{70}}{84} \quad -\frac{\sqrt{105}i}{112} \quad 0$
	$\frac{11\sqrt{42}i}{672}$	$0 \quad -\frac{\sqrt{42}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{48} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{672} \quad 0 \quad \frac{\sqrt{70}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{112}$
	$0 \quad \frac{5\sqrt{42}}{168}$	$0 \quad -\frac{17\sqrt{42}i}{672} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{24} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{168} \quad 0 \quad \frac{\sqrt{70}i}{672} \quad 0 \quad 0 \quad 0$
	$-\frac{5\sqrt{42}}{168}$	$0 \quad -\frac{17\sqrt{42}i}{672} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{24} \quad -\frac{\sqrt{70}}{168} \quad 0 \quad \frac{\sqrt{70}i}{672} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{14}i}{32}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{84} \quad 0 \quad \frac{\sqrt{21}}{42} \quad \frac{\sqrt{210}i}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{14}i}{32}$	$0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{84} \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
614	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,1;a)}(A, 3)$	$\begin{bmatrix} -\frac{\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{120} & 0 & -\frac{\sqrt{105}}{70} & -\frac{17\sqrt{42}i}{672} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} \\ 0 & \frac{\sqrt{70}i}{224} & 0 & 0 & -\frac{\sqrt{105}i}{120} & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & \frac{17\sqrt{42}i}{672} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 \\ 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & 0 & -\frac{\sqrt{105}}{420} & 0 & \frac{\sqrt{105}i}{120} & 0 & 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}}{28} \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{224} & \frac{\sqrt{105}}{420} & 0 & \frac{\sqrt{105}i}{120} & 0 & 0 & 0 & \frac{\sqrt{42}i}{224} & -\frac{\sqrt{7}}{28} & 0 \\ 0 & \frac{23\sqrt{70}i}{1120} & 0 & \frac{\sqrt{70}}{56} & \frac{\sqrt{105}i}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{224} & 0 & \frac{\sqrt{42}}{56} & \frac{5\sqrt{7}i}{112} & 0 \\ \frac{23\sqrt{70}i}{1120} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{80} & 0 & 0 & \frac{\sqrt{42}i}{224} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{5\sqrt{7}i}{112} \\ 0 & \frac{\sqrt{70}}{140} & 0 & -\frac{\sqrt{70}i}{224} & 0 & 0 & \frac{\sqrt{105}i}{120} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 \\ -\frac{\sqrt{70}}{140} & 0 & -\frac{\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{120} & \frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 & 0 \\ \frac{\sqrt{210}i}{160} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{70} & -\frac{5\sqrt{14}i}{224} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{160} & 0 & 0 & -\frac{3\sqrt{35}i}{140} & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & \frac{5\sqrt{14}i}{224} & 0 & 0 & 0 & 0 \end{bmatrix}$	
	$\frac{x(2x^2-3y^2-3z^2)}{2}$	
	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}}{24} & 0 & -\frac{\sqrt{7}i}{42} & 0 & 0 & -\frac{\sqrt{70}i}{672} & 0 & 0 & -\frac{\sqrt{105}}{168} \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{224} & -\frac{\sqrt{7}}{24} & 0 & -\frac{\sqrt{7}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{672} & \frac{\sqrt{105}}{168} & 0 \\ \frac{\sqrt{42}i}{224} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{24} & -\frac{13\sqrt{70}i}{672} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} \\ 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & \frac{\sqrt{7}}{24} & 0 & 0 & \frac{13\sqrt{70}i}{672} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 \\ 0 & -\frac{17\sqrt{42}}{672} & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & \frac{\sqrt{7}i}{24} & 0 & 0 & -\frac{\sqrt{70}}{672} & 0 & -\frac{\sqrt{70}i}{168} & 0 & 0 \\ \frac{17\sqrt{42}}{672} & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{24} & \frac{\sqrt{70}}{672} & 0 & -\frac{\sqrt{70}i}{168} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{84} & 0 & \frac{11\sqrt{42}}{672} & -\frac{\sqrt{7}i}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{672} & \frac{\sqrt{105}i}{112} & 0 \\ \frac{\sqrt{42}i}{84} & 0 & -\frac{11\sqrt{42}}{672} & 0 & 0 & \frac{\sqrt{7}i}{48} & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{672} & 0 & 0 & -\frac{\sqrt{105}i}{112} \\ 0 & 0 & \frac{\sqrt{14}i}{32} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{210}i}{224} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{32} & -\frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & \frac{\sqrt{210}i}{224} & 0 & 0 & 0 \end{bmatrix}$	
	$\frac{-z(3x^2+3y^2-2z^2)}{2}$	
615	symmetry	
$\mathbb{Q}_3^{(1,1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}}{24} & 0 & -\frac{\sqrt{7}i}{42} & 0 & 0 & -\frac{\sqrt{70}i}{672} & 0 & 0 & -\frac{\sqrt{105}}{168} \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{224} & -\frac{\sqrt{7}}{24} & 0 & -\frac{\sqrt{7}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{672} & \frac{\sqrt{105}}{168} & 0 \\ \frac{\sqrt{42}i}{224} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{24} & -\frac{13\sqrt{70}i}{672} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} \\ 0 & -\frac{\sqrt{42}i}{224} & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & \frac{\sqrt{7}}{24} & 0 & 0 & \frac{13\sqrt{70}i}{672} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 \\ 0 & -\frac{17\sqrt{42}}{672} & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & \frac{\sqrt{7}i}{24} & 0 & 0 & -\frac{\sqrt{70}}{672} & 0 & -\frac{\sqrt{70}i}{168} & 0 & 0 \\ \frac{17\sqrt{42}}{672} & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{24} & \frac{\sqrt{70}}{672} & 0 & -\frac{\sqrt{70}i}{168} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{84} & 0 & \frac{11\sqrt{42}}{672} & -\frac{\sqrt{7}i}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{672} & \frac{\sqrt{105}i}{112} & 0 \\ \frac{\sqrt{42}i}{84} & 0 & -\frac{11\sqrt{42}}{672} & 0 & 0 & \frac{\sqrt{7}i}{48} & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{672} & 0 & 0 & -\frac{\sqrt{105}i}{112} \\ 0 & 0 & \frac{\sqrt{14}i}{32} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{210}i}{224} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{32} & -\frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & \frac{\sqrt{210}i}{224} & 0 & 0 & 0 \end{bmatrix}$	
616	symmetry	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,1;a)}(B, 2)$	0	$-\frac{\sqrt{42}}{168} \quad 0 \quad \frac{\sqrt{42}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{84} \quad 0 \quad -\frac{\sqrt{70}i}{84} \quad 0 \quad 0$
	$\frac{\sqrt{42}}{168}$	$0 \quad \frac{\sqrt{42}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{21} \quad \frac{\sqrt{70}}{84} \quad 0 \quad -\frac{\sqrt{70}i}{84} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{42}i}{168} \quad 0 \quad -\frac{\sqrt{42}}{168} \quad -\frac{\sqrt{7}i}{21} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{84} \quad 0 \quad -\frac{\sqrt{70}}{84} \quad 0 \quad 0$
	$-\frac{\sqrt{42}i}{168}$	$0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{21} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{84} \quad 0 \quad \frac{\sqrt{70}}{84} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{24} \quad 0 \quad -\frac{\sqrt{7}i}{24} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{24} \quad 0 \quad -\frac{\sqrt{7}i}{24} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{42} \quad -\frac{\sqrt{105}}{84} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{24} \quad 0 \quad \frac{\sqrt{7}}{24} \quad \frac{\sqrt{70}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{84}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{24} \quad 0 \quad -\frac{\sqrt{7}}{24} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0$
617	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
$\mathbb{Q}_3^{(1,1;a)}(B, 3)$	0	$0 \quad 0 \quad -\frac{\sqrt{70}i}{224} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{120} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad \frac{17\sqrt{42}i}{672} \quad 0 \quad 0 \quad -\frac{3\sqrt{7}}{56}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{224} \quad \frac{\sqrt{105}}{120} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{17\sqrt{42}i}{672} \quad \frac{3\sqrt{7}}{56} \quad 0$
	$\frac{\sqrt{70}i}{224}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{420} \quad 0 \quad \frac{\sqrt{105}}{120} \quad -\frac{\sqrt{42}i}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28}$
	0	$-\frac{\sqrt{70}i}{224} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{420} \quad 0 \quad -\frac{\sqrt{105}}{120} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{224} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0$
	0	$\frac{\sqrt{70}}{224} \quad 0 \quad -\frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{224} \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{70}}{224}$	$0 \quad -\frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{120} \quad \frac{\sqrt{42}}{224} \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{70}i}{56} \quad 0 \quad -\frac{23\sqrt{70}}{1120} \quad -\frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{224} \quad \frac{5\sqrt{7}i}{112} \quad 0$
	$-\frac{\sqrt{70}i}{56}$	$0 \quad \frac{23\sqrt{70}}{1120} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad -\frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad -\frac{5\sqrt{7}i}{112}$
	0	$0 \quad 0 \quad -\frac{\sqrt{210}i}{160} \quad 0 \quad 0 \quad \frac{3\sqrt{35}}{140} \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad -\frac{5\sqrt{14}i}{224} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{160} \quad -\frac{3\sqrt{35}}{140} \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{14}i}{224} \quad 0 \quad 0 \quad 0$
618	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,1;a)}(B, 4)$	$0 - \frac{\sqrt{70}}{560} 0 - \frac{\sqrt{70}i}{560} 0 0 0 0 0 0 \frac{5\sqrt{42}}{336} 0 - \frac{5\sqrt{42}i}{336} 0 0$	
	$\frac{\sqrt{70}}{560} 0 - \frac{\sqrt{70}i}{560} 0 0 0 0 0 - \frac{5\sqrt{42}}{336} 0 - \frac{5\sqrt{42}i}{336} 0 0 0$	
	$0 \frac{\sqrt{70}i}{560} 0 - \frac{\sqrt{70}}{560} 0 0 0 0 0 - \frac{3\sqrt{42}i}{112} 0 - \frac{3\sqrt{42}}{112} - \frac{\sqrt{7}i}{14} 0$	
	$\frac{\sqrt{70}i}{560} 0 \frac{\sqrt{70}}{560} 0 0 0 0 0 - \frac{3\sqrt{42}i}{112} 0 \frac{3\sqrt{42}}{112} 0 0 \frac{\sqrt{7}i}{14}$	
	$0 0 - \frac{3\sqrt{70}i}{280} 0 0 0 0 \frac{\sqrt{105}i}{120} 0 0 - \frac{\sqrt{42}i}{168} 0 0 \frac{\sqrt{7}}{56}$	
	$0 0 0 \frac{3\sqrt{70}i}{280} 0 0 \frac{\sqrt{105}i}{120} 0 0 0 \frac{\sqrt{42}i}{168} - \frac{\sqrt{7}}{56} 0$	
	$\frac{3\sqrt{70}i}{280} 0 0 0 0 0 0 \frac{\sqrt{105}}{120} - \frac{\sqrt{42}i}{168} 0 0 0 0 \frac{\sqrt{7}i}{56}$	
	$0 - \frac{3\sqrt{70}i}{280} 0 0 0 0 - \frac{\sqrt{105}}{120} 0 0 \frac{\sqrt{42}i}{168} 0 0 \frac{\sqrt{7}i}{56} 0$	
	$0 - \frac{\sqrt{210}}{80} 0 \frac{\sqrt{210}i}{80} 0 0 \frac{\sqrt{35}i}{35} 0 0 - \frac{\sqrt{14}}{112} 0 - \frac{\sqrt{14}i}{112} 0 0 0$	
619 symmetry	$\frac{\sqrt{210}}{80} 0 \frac{\sqrt{210}i}{80} 0 0 0 0 - \frac{\sqrt{35}i}{35} \frac{\sqrt{14}}{112} 0 - \frac{\sqrt{14}i}{112} 0 0 0 0$	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$0 0 0 0 0 0 0 \frac{\sqrt{70}}{28} 0 0 0 0 0 0 0 0$	
	$0 0 0 0 0 0 0 0 \frac{\sqrt{70}}{28} 0 0 0 0 0 0 0$	
	$0 0 0 0 - \frac{\sqrt{70}}{28} 0 0 0 0 0 0 0 0 0 0 0$	
	$0 0 0 0 0 - \frac{\sqrt{70}}{28} 0 0 0 0 0 0 0 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 0 0 \frac{\sqrt{7}}{14} 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 0 0 0 \frac{\sqrt{7}}{14} 0 0$	
	$0 0 0 0 0 0 0 0 0 - \frac{\sqrt{7}}{14} 0 0 0 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 0 0 - \frac{\sqrt{7}}{14} 0 0 0 0$	
620 symmetry	$0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0$	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(a)}(A, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} \\ 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 \\ \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		621 symmetry
		$\sqrt{3}xz$
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 \\ -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 \end{bmatrix}$
		622 symmetry
		$\sqrt{3}yz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(a)}(B, 1)$	$\sqrt{3}xy$	$\begin{bmatrix} -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\sqrt{3}xy$	
623	symmetry	$\sqrt{3}xy$
$\mathbb{G}_2^{(a)}(B, 2)$	$\sqrt{3}xy$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\sqrt{3}xy$	
624	symmetry	$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(a)}(A, 1)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
625	symmetry	
$\mathbb{G}_4^{(a)}(A, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{210} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{210} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{168} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{168} & 0 & 0 & 0 \\ \frac{\sqrt{70}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{168} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\frac{\sqrt{5}(x-y)(x+y)(x^2 + y^2 - 6z^2)}{4}$
626	symmetry	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(a)}(A, 3)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} \\ 0 & 0 & -\frac{3\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 \\ \frac{3\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	627 symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 \\ \frac{\sqrt{30}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} \\ 0 & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 \end{bmatrix}$	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
	628 symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(a)}(A, 5)$	0 0 $\frac{\sqrt{210}}{560}$ 0 0 0 0 0 0 0 $-\frac{9\sqrt{14}}{112}$ 0 0 0	
	0 0 0 $\frac{\sqrt{210}}{560}$ 0 0 0 0 0 0 0 $-\frac{9\sqrt{14}}{112}$ 0 0 0	
	$-\frac{\sqrt{210}}{560}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{14}}{112}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{210}}{560}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{14}}{112}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{35}}{40}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{56}$ 0	
	0 0 0 0 $\frac{\sqrt{35}}{40}$ 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{56}$	
	0 0 $\frac{3\sqrt{70}}{80}$ 0 0 0 0 0 0 0 $\frac{\sqrt{42}}{112}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{70}}{80}$ 0 0 0 0 0 0 0 $\frac{\sqrt{42}}{112}$ 0 0 0	
629	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{G}_4^{(a)}(B, 1)$	$-\frac{\sqrt{30}}{80}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}}{16}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{30}}{80}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}}{16}$ 0 0 0 0 0	
	0 0 $-\frac{\sqrt{30}}{80}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{2}}{16}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{30}}{80}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{2}}{16}$ 0 0	
	0 0 0 0 $\frac{3\sqrt{5}}{40}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{8}$ 0	
	0 0 0 0 0 $\frac{3\sqrt{5}}{40}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{8}$	
	0 0 0 0 0 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 0 0	
	$-\frac{3\sqrt{10}}{80}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{16}$ 0 0 0 0 0	
630	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_4^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
631	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{14}}{112} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{14}}{112} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{112} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{70}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{70}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
632	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(a)}(B, 4)$	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}}{14} \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}}{14}$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	$-\frac{3\sqrt{210}}{280}$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{14}}{56} \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$-\frac{3\sqrt{210}}{280} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{14}}{56} \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ -\frac{3\sqrt{210}}{280} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ -\frac{3\sqrt{210}}{280} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}}{35} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}}{35} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
633	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{G}_2^{(1,-1;a)}(A, 1)$	0	$-\frac{\sqrt{7}i}{28} \ 0 \ -\frac{\sqrt{7}}{28} \ \frac{\sqrt{42}i}{42} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}i}{420} \ 0 \ -\frac{\sqrt{105}}{420} \ 0 \ 0$
	$-\frac{\sqrt{7}i}{28}$	$0 \ \frac{\sqrt{7}}{28} \ 0 \ 0 \ -\frac{\sqrt{42}i}{42} \ 0 \ 0 \ \frac{\sqrt{105}i}{420} \ 0 \ \frac{\sqrt{105}}{420} \ 0 \ 0 \ 0$
	0	$\frac{\sqrt{7}}{28} \ 0 \ -\frac{\sqrt{7}i}{28} \ 0 \ 0 \ \frac{\sqrt{42}i}{42} \ 0 \ 0 \ \frac{\sqrt{105}}{420} \ 0 \ \frac{\sqrt{105}i}{420} \ 0 \ 0$
	$-\frac{\sqrt{7}}{28}$	$0 \ -\frac{\sqrt{7}i}{28} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}i}{42} \ -\frac{\sqrt{105}}{420} \ 0 \ \frac{\sqrt{105}i}{420} \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ -\frac{\sqrt{42}}{84} \ \frac{2\sqrt{105}i}{105} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{70}i}{140}$
	0	$0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ \frac{\sqrt{42}}{84} \ 0 \ 0 \ -\frac{2\sqrt{105}i}{105} \ 0 \ 0 \ \frac{\sqrt{70}i}{140} \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{42}}{84} \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ 0 \ \frac{2\sqrt{105}i}{105} \ 0 \ 0 \ \frac{\sqrt{70}}{140}$
	0	$0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}}{84} \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ 0 \ 0 \ 0 \ -\frac{2\sqrt{105}i}{105} \ -\frac{\sqrt{70}}{140} \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{70} \ 0 \ -\frac{\sqrt{35}}{70} \ \frac{\sqrt{210}i}{70} \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{70} \ 0 \ \frac{\sqrt{35}}{70} \ 0 \ 0 \ -\frac{\sqrt{210}i}{70}$
634	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,-1;a)}(A, 2)$		$\begin{bmatrix} 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 \\ \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & \frac{\sqrt{35}}{140} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 \\ -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & 0 \end{bmatrix}$
		635 symmetry
		$\sqrt{3}xz$
		$\begin{bmatrix} \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{140} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & 0 & \frac{3\sqrt{70}i}{140} & 0 \end{bmatrix}$
		636 symmetry
		$\sqrt{3}yz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,-1;a)}(B, 1)$	0 0 $\frac{\sqrt{21}i}{28}$ 0 0 $\frac{\sqrt{14}}{28}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{140}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{21}i}{28}$ $-\frac{\sqrt{14}}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{35}i}{140}$ 0 0 0	
	$-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ $-\frac{\sqrt{35}i}{140}$ 0 0 0 0 0 0	
	0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 0 0 $\frac{\sqrt{35}i}{140}$ 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 0 $\frac{\sqrt{35}}{35}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ $-\frac{\sqrt{35}}{35}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 0 $\frac{\sqrt{35}}{35}$ $-\frac{\sqrt{210}i}{140}$ 0	
	0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 0 $\frac{\sqrt{210}i}{140}$	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{70}$ 0 0 $\frac{3\sqrt{70}}{140}$	
	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{70}$ $-\frac{3\sqrt{70}}{140}$ 0	
637	symmetry	$\sqrt{3}xy$
$\mathbb{G}_2^{(1,-1;a)}(B, 2)$	0 $\frac{\sqrt{21}}{28}$ 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 $-\frac{\sqrt{35}}{140}$ 0 $\frac{\sqrt{35}i}{140}$ 0 0 0	
	$-\frac{\sqrt{21}}{28}$ 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{35}}{140}$ 0 $\frac{\sqrt{35}i}{140}$ 0 0 0 0	
	0 $-\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{140}$ 0 $-\frac{\sqrt{35}}{140}$ 0 0 0	
	$-\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{21}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{140}$ 0 $\frac{\sqrt{35}}{140}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 0 $-\frac{\sqrt{210}}{140}$	
	0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 0 $\frac{\sqrt{210}}{140}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{14}}{28}$ 0 0 0 0 0 0 $-\frac{\sqrt{210}i}{140}$	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{105}}{70}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ $-\frac{3\sqrt{70}}{140}$ 0	
638	symmetry	$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,-1;a)}(A, 1)$	0	$\frac{\sqrt{6}i}{48} \quad 0 \quad \frac{\sqrt{6}}{48} \quad -\frac{i}{6} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{11\sqrt{10}i}{240} \quad 0 \quad \frac{11\sqrt{10}}{240} \quad 0 \quad 0$
	$\frac{\sqrt{6}i}{48}$	$0 \quad -\frac{\sqrt{6}}{48} \quad 0 \quad 0 \quad \frac{i}{6} \quad 0 \quad 0 \quad -\frac{11\sqrt{10}i}{240} \quad 0 \quad -\frac{11\sqrt{10}}{240} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{6}}{48} \quad 0 \quad \frac{\sqrt{6}i}{48} \quad 0 \quad 0 \quad -\frac{i}{6} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{240} \quad 0 \quad -\frac{\sqrt{10}i}{240} \quad 0 \quad 0$
	$\frac{\sqrt{6}}{48}$	$0 \quad \frac{\sqrt{6}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{6} \quad \frac{\sqrt{10}}{240} \quad 0 \quad -\frac{\sqrt{10}i}{240} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{24} \quad 0 \quad -\frac{1}{6} \quad \frac{\sqrt{10}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{120}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{24} \quad 0 \quad \frac{1}{6} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{60} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{120}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{24} \quad 0 \quad -\frac{i}{6} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{60} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{120}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{24} \quad 0 \quad -\frac{i}{6} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{60} \quad \frac{\sqrt{15}}{120} \quad 0$
	0	$0 \quad -\frac{5\sqrt{2}i}{48} \quad 0 \quad \frac{5\sqrt{2}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{80} \quad 0 \quad -\frac{\sqrt{30}}{80} \quad \frac{\sqrt{5}i}{15} \quad 0$
	$-\frac{5\sqrt{2}i}{48}$	$0 \quad -\frac{5\sqrt{2}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{80} \quad 0 \quad \frac{\sqrt{30}}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{15}$
$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$		
$\mathbb{G}_4^{(1,-1;a)}(A, 2)$	0	$\frac{\sqrt{210}i}{336} \quad 0 \quad \frac{\sqrt{210}}{336} \quad -\frac{\sqrt{35}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{336} \quad 0 \quad -\frac{\sqrt{14}}{336} \quad 0 \quad 0$
	$\frac{\sqrt{210}i}{336}$	$0 \quad -\frac{\sqrt{210}}{336} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{42} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{336} \quad 0 \quad \frac{\sqrt{14}}{336} \quad 0 \quad 0$
	0	$-\frac{\sqrt{210}}{336} \quad 0 \quad \frac{\sqrt{210}i}{336} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{42} \quad 0 \quad 0 \quad -\frac{13\sqrt{14}}{336} \quad 0 \quad -\frac{13\sqrt{14}i}{336} \quad 0 \quad 0$
	$\frac{\sqrt{210}}{336}$	$0 \quad \frac{\sqrt{210}i}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{42} \quad \frac{13\sqrt{14}}{336} \quad 0 \quad -\frac{13\sqrt{14}i}{336} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{35}i}{168} \quad 0 \quad \frac{\sqrt{35}}{84} \quad \frac{\sqrt{14}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{168}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{35}i}{168} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{168}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{35}}{168} \quad 0 \quad \frac{\sqrt{35}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{168}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{35}}{168} \quad 0 \quad \frac{\sqrt{35}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{84} \quad \frac{\sqrt{21}}{168} \quad 0$
	0	$0 \quad \frac{\sqrt{70}i}{48} \quad 0 \quad -\frac{\sqrt{70}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{112} \quad 0 \quad -\frac{\sqrt{42}}{112} \quad \frac{\sqrt{7}i}{21} \quad 0$
	$\frac{\sqrt{70}i}{48}$	$0 \quad \frac{\sqrt{70}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{112} \quad 0 \quad \frac{\sqrt{42}}{112} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{21}$
$\frac{\sqrt{5}(x-y)(x+y)(x^2 + y^2 - 6z^2)}{4}$		

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,-1;a)}(A, 3)$	$0 \quad \frac{\sqrt{70}i}{112} \quad 0 \quad -\frac{\sqrt{70}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{48} \quad 0 \quad -\frac{\sqrt{42}}{48} \quad \frac{\sqrt{7}i}{14} \quad 0$	
	$\frac{\sqrt{70}i}{112} \quad 0 \quad \frac{\sqrt{70}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{48} \quad 0 \quad \frac{\sqrt{42}}{48} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14}$	
	$0 \quad \frac{\sqrt{70}}{112} \quad 0 \quad \frac{\sqrt{70}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{42}}{336} \quad 0 \quad -\frac{5\sqrt{42}i}{336} \quad 0 \quad 0$	
	$-\frac{\sqrt{70}}{112} \quad 0 \quad \frac{\sqrt{70}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{42}}{336} \quad 0 \quad -\frac{5\sqrt{42}i}{336} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad 0 \quad \frac{\sqrt{105}}{84} \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{56}$	
	$0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{56} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{168} \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{56}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{56} \quad \frac{\sqrt{105}}{168} \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad -\frac{\sqrt{7}}{56} \quad 0$	
	$0 \quad -\frac{\sqrt{210}i}{336} \quad 0 \quad -\frac{\sqrt{210}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}i}{112} \quad 0 \quad \frac{3\sqrt{14}}{112} \quad 0 \quad 0$	
	$-\frac{\sqrt{210}i}{336} \quad 0 \quad \frac{\sqrt{210}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}i}{112} \quad 0 \quad -\frac{3\sqrt{14}}{112} \quad 0 \quad 0 \quad 0$	
641	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{G}_4^{(1,-1;a)}(A, 4)$	$-\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad \frac{7\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{8}$	
	$0 \quad \frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad \frac{i}{8} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad \frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad \frac{i}{16} \quad 0$	
	$-\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{48} \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{16}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad \frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{30}i}{96} \quad 0 \quad \frac{3\sqrt{2}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{12}$	
	$0 \quad -\frac{\sqrt{30}i}{96} \quad 0 \quad -\frac{3\sqrt{2}i}{32} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{12} \quad 0$	
642	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,-1;a)}(A, 5)$	$\frac{\sqrt{70}i}{224}$ 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{42}i}{672}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$	
	0 $-\frac{\sqrt{70}i}{224}$ 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{42}i}{672}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0	
	0 0 $\frac{\sqrt{70}i}{224}$ 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 0 $-\frac{13\sqrt{42}i}{672}$ 0 0 $-\frac{\sqrt{7}}{14}$	
	0 0 0 $-\frac{\sqrt{70}i}{224}$ 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 0 0 $\frac{13\sqrt{42}i}{672}$ $\frac{\sqrt{7}}{14}$ 0	
	0 $-\frac{3\sqrt{70}i}{224}$ 0 $\frac{\sqrt{70}}{56}$ $-\frac{5\sqrt{105}i}{336}$ 0 0 0 0 $-\frac{11\sqrt{42}i}{672}$ 0 $\frac{\sqrt{42}}{56}$ $-\frac{\sqrt{7}i}{112}$ 0	
	$-\frac{3\sqrt{70}i}{224}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 $\frac{5\sqrt{105}i}{336}$ 0 0 0 $-\frac{11\sqrt{42}i}{672}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 $\frac{\sqrt{7}i}{112}$	
	0 $-\frac{\sqrt{70}}{56}$ 0 $-\frac{3\sqrt{70}i}{224}$ 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{96}$ 0 0 0	
	$\frac{\sqrt{70}}{56}$ 0 $-\frac{3\sqrt{70}i}{224}$ 0 0 0 0 $-\frac{\sqrt{105}i}{168}$ $-\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{96}$ 0 0 0	
	$\frac{\sqrt{210}i}{96}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{14}i}{224}$ 0 0 0 0 $-\frac{\sqrt{21}i}{84}$	
	0 $-\frac{\sqrt{210}i}{96}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{14}i}{224}$ 0 0 0 $-\frac{\sqrt{21}i}{84}$ 0	
643	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{G}_4^{(1,-1;a)}(B, 1)$	0 0 $\frac{\sqrt{10}i}{32}$ 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0 0 $\frac{7\sqrt{6}i}{96}$ 0 0 $\frac{1}{8}$	
	0 0 0 $-\frac{\sqrt{10}i}{32}$ $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 $-\frac{7\sqrt{6}i}{96}$ $-\frac{1}{8}$ 0	
	$-\frac{\sqrt{10}i}{32}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{5\sqrt{6}i}{96}$ 0 0 0 0 0	
	0 $\frac{\sqrt{10}i}{32}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{5\sqrt{6}i}{96}$ 0 0 0 0	
	0 $-\frac{\sqrt{10}}{32}$ 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{5\sqrt{6}}{96}$ 0 0 0 0	
	$\frac{\sqrt{10}}{32}$ 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ $\frac{5\sqrt{6}}{96}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{10}}{32}$ $\frac{\sqrt{15}i}{48}$ 0 0 0 0 0 0 $\frac{\sqrt{6}}{96}$ $-\frac{i}{16}$ 0	
	0 0 $\frac{\sqrt{10}}{32}$ 0 0 $-\frac{\sqrt{15}i}{48}$ 0 0 0 0 $-\frac{\sqrt{6}}{96}$ 0 0 $\frac{i}{16}$	
	0 0 $\frac{\sqrt{30}i}{96}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{2}i}{32}$ 0 0 $-\frac{\sqrt{3}}{12}$	
	0 0 0 $-\frac{\sqrt{30}i}{96}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{2}i}{32}$ $\frac{\sqrt{3}}{12}$ 0	
644	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,-1;a)}(B, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{24} & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}}{24} & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{70}i}{224} & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{672} & 0 & 0 & -\frac{3\sqrt{7}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{224} & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{672} & \frac{3\sqrt{7}}{56} & 0 \\ -\frac{\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & -\frac{13\sqrt{42}i}{672} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & \frac{\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & \frac{13\sqrt{42}i}{672} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 \\ 0 & \frac{3\sqrt{70}}{224} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & 0 & \frac{\sqrt{42}}{96} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 \\ -\frac{3\sqrt{70}}{224} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & -\frac{\sqrt{42}}{96} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{3\sqrt{70}}{224} & \frac{5\sqrt{105}i}{336} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{11\sqrt{42}}{672} & -\frac{\sqrt{7}i}{112} & 0 \\ -\frac{\sqrt{70}i}{56} & 0 & -\frac{3\sqrt{70}}{224} & 0 & 0 & -\frac{5\sqrt{105}i}{336} & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{11\sqrt{42}}{672} & 0 & 0 & \frac{\sqrt{7}i}{112} \\ 0 & 0 & -\frac{\sqrt{210}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{224} & 0 & 0 & -\frac{\sqrt{21}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}i}{224} & \frac{\sqrt{21}}{84} & 0 \end{bmatrix}$
		$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
645	symmetry	
646	symmetry	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,-1;a)}(B, 4)$	$0 - \frac{\sqrt{70}}{112} 0 - \frac{\sqrt{70}i}{112} 0 0 0 0 0 0 \frac{5\sqrt{42}}{336} 0 - \frac{5\sqrt{42}i}{336} 0 0 0$	
	$\frac{\sqrt{70}}{112} 0 - \frac{\sqrt{70}i}{112} 0 0 0 0 0 - \frac{5\sqrt{42}}{336} 0 - \frac{5\sqrt{42}i}{336} 0 0 0 0$	
	$0 \frac{\sqrt{70}i}{112} 0 - \frac{\sqrt{70}}{112} 0 0 0 0 0 \frac{\sqrt{42}i}{48} 0 \frac{\sqrt{42}}{48} - \frac{\sqrt{7}i}{14} 0$	
	$\frac{\sqrt{70}i}{112} 0 \frac{\sqrt{70}}{112} 0 0 0 0 0 \frac{\sqrt{42}i}{48} 0 - \frac{\sqrt{42}}{48} 0 0 \frac{\sqrt{7}i}{14}$	
	$0 0 \frac{\sqrt{70}i}{56} 0 0 \frac{\sqrt{105}}{84} 0 \frac{\sqrt{105}i}{168} 0 0 \frac{\sqrt{42}i}{56} 0 0 \frac{\sqrt{7}}{56}$	
	$0 0 0 - \frac{\sqrt{70}i}{56} - \frac{\sqrt{105}}{84} 0 \frac{\sqrt{105}i}{168} 0 0 0 0 - \frac{\sqrt{42}i}{56} - \frac{\sqrt{7}}{56} 0$	
	$-\frac{\sqrt{70}i}{56} 0 0 0 0 - \frac{\sqrt{105}i}{84} 0 \frac{\sqrt{105}}{168} \frac{\sqrt{42}i}{56} 0 0 0 0 \frac{\sqrt{7}i}{56}$	
	$0 \frac{\sqrt{70}i}{56} 0 0 - \frac{\sqrt{105}i}{84} 0 - \frac{\sqrt{105}}{168} 0 0 - \frac{\sqrt{42}i}{56} 0 0 \frac{\sqrt{7}i}{56} 0$	
	$0 - \frac{\sqrt{210}}{336} 0 \frac{\sqrt{210}i}{336} 0 0 0 0 0 \frac{3\sqrt{14}}{112} 0 \frac{3\sqrt{14}i}{112} 0 0 0$	
	$\frac{\sqrt{210}}{336} 0 \frac{\sqrt{210}i}{336} 0 0 0 0 0 - \frac{3\sqrt{14}}{112} 0 \frac{3\sqrt{14}i}{112} 0 0 0$	
647	symmetry	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$
$\mathbb{G}_6^{(1,-1;a)}(A, 1)$	$0 \frac{\sqrt{231}i}{616} 0 \frac{\sqrt{231}}{616} - \frac{3\sqrt{154}i}{308} 0 0 0 0 - \frac{3\sqrt{385}i}{616} 0 \frac{3\sqrt{385}}{616} 0 0 0$	
	$\frac{\sqrt{231}i}{616} 0 - \frac{\sqrt{231}}{616} 0 0 \frac{3\sqrt{154}i}{308} 0 0 0 - \frac{3\sqrt{385}i}{616} 0 - \frac{3\sqrt{385}}{616} 0 0 0$	
	$0 \frac{\sqrt{231}}{462} 0 - \frac{\sqrt{231}i}{462} 0 0 0 \frac{\sqrt{154}i}{77} 0 0 0 \frac{\sqrt{385}}{154} 0 \frac{\sqrt{385}i}{154} 0 0 0$	
	$-\frac{\sqrt{231}}{462} 0 - \frac{\sqrt{231}i}{462} 0 0 0 0 0 - \frac{\sqrt{154}i}{77} - \frac{\sqrt{385}}{154} 0 \frac{\sqrt{385}i}{154} 0 0 0$	
	$-\frac{\sqrt{231}i}{132} 0 0 0 0 - \frac{3\sqrt{154}i}{308} 0 \frac{\sqrt{154}}{77} - \frac{\sqrt{385}i}{308} 0 0 0 0 0 - \frac{\sqrt{2310}i}{924}$	
	$0 \frac{\sqrt{231}i}{132} 0 0 - \frac{3\sqrt{154}i}{308} 0 - \frac{\sqrt{154}}{77} 0 0 0 \frac{\sqrt{385}i}{308} 0 0 0 - \frac{\sqrt{2310}i}{924}$	
	$0 0 \frac{\sqrt{231}i}{132} 0 0 \frac{3\sqrt{154}}{308} 0 \frac{\sqrt{154}i}{77} 0 0 0 - \frac{\sqrt{385}i}{308} 0 0 0 - \frac{\sqrt{2310}}{924}$	
	$0 0 0 - \frac{\sqrt{231}i}{132} - \frac{3\sqrt{154}}{308} 0 \frac{\sqrt{154}i}{77} 0 0 0 0 \frac{\sqrt{385}i}{308} \frac{\sqrt{2310}}{924} 0$	
	$0 - \frac{\sqrt{77}i}{88} 0 \frac{\sqrt{77}}{88} 0 0 0 0 0 - \frac{\sqrt{1155}i}{616} 0 - \frac{\sqrt{1155}}{616} \frac{\sqrt{770}i}{308} 0 0$	
	$-\frac{\sqrt{77}i}{88} 0 - \frac{\sqrt{77}}{88} 0 0 0 0 0 - \frac{\sqrt{1155}i}{616} 0 \frac{\sqrt{1155}}{616} 0 0 0 - \frac{\sqrt{770}i}{308}$	
648	symmetry	$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_6^{(1,-1;a)}(A, 2)$	0	$\begin{bmatrix} 0 & \frac{7\sqrt{5}i}{120} & 0 & -\frac{7\sqrt{5}}{120} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & \frac{\sqrt{3}}{24} & -\frac{\sqrt{2}i}{12} & 0 \\ \frac{7\sqrt{5}i}{120} & 0 & \frac{7\sqrt{5}}{120} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & \frac{\sqrt{2}i}{12} \\ 0 & -\frac{\sqrt{5}}{15} & 0 & -\frac{\sqrt{5}i}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{15} & 0 & -\frac{\sqrt{5}i}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} \\ 0 & -\frac{\sqrt{5}i}{60} & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{60} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & \frac{\sqrt{2}}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{60} & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & -\frac{\sqrt{2}}{12} & 0 \\ 0 & \frac{\sqrt{15}i}{120} & 0 & \frac{\sqrt{15}}{120} & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{120} & 0 & -\frac{\sqrt{15}}{120} & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{i}{8} & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
	649	$\text{symmetry}$
		$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$
	$\mathbb{G}_6^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{33}i}{264} & 0 & -\frac{\sqrt{33}}{264} & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{88} & 0 & -\frac{\sqrt{55}}{88} & 0 & 0 \\ -\frac{\sqrt{33}i}{264} & 0 & \frac{\sqrt{33}}{264} & 0 & 0 & -\frac{\sqrt{22}i}{44} & 0 & 0 & \frac{\sqrt{55}i}{88} & 0 & \frac{\sqrt{55}}{88} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{33}i}{132} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & -\frac{\sqrt{55}i}{44} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} \\ 0 & -\frac{\sqrt{33}i}{132} & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{44} & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 \\ 0 & 0 & -\frac{\sqrt{33}i}{132} & 0 & 0 & -\frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{44} & 0 & 0 & 0 & -\frac{\sqrt{330}}{132} \\ 0 & 0 & 0 & \frac{\sqrt{33}i}{132} & \frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{44} & \frac{\sqrt{330}}{132} & 0 \\ 0 & \frac{\sqrt{11}i}{88} & 0 & -\frac{\sqrt{11}}{88} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{88} & 0 & -\frac{\sqrt{165}}{88} & \frac{\sqrt{110}i}{44} & 0 \\ \frac{\sqrt{11}i}{88} & 0 & \frac{\sqrt{11}}{88} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{88} & 0 & \frac{\sqrt{165}}{88} & 0 & 0 & -\frac{\sqrt{110}i}{44} \end{bmatrix}$
		$\frac{\sqrt{42}(x-y)(x+y)(x^4 - 9x^2y^2 - 5x^2z^2 + y^4 - 5y^2z^2 + 5z^4)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_6^{(1,-1;a)}(A, 4)$	$0 \quad \frac{17\sqrt{11}i}{264} \quad 0 \quad -\frac{17\sqrt{11}}{264} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{264} \quad 0 \quad -\frac{\sqrt{165}}{264} \quad \frac{\sqrt{110}i}{132} \quad 0$	
	$\frac{17\sqrt{11}i}{264} \quad 0 \quad \frac{17\sqrt{11}}{264} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{264} \quad 0 \quad \frac{\sqrt{165}}{264} \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{132}$	
	$0 \quad -\frac{2\sqrt{11}}{33} \quad 0 \quad -\frac{2\sqrt{11}i}{33} \quad 0 \quad 0$	
	$\frac{2\sqrt{11}}{33} \quad 0 \quad -\frac{2\sqrt{11}i}{33} \quad 0 \quad 0$	
	$-\frac{\sqrt{11}i}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{66}i}{132} \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{132}$	
	$0 \quad \frac{\sqrt{11}i}{132} \quad 0 \quad 0 \quad -\frac{\sqrt{66}i}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{132} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{132} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{11}i}{132} \quad 0 \quad 0 \quad -\frac{\sqrt{66}}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{132} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}}{132}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{132} \quad \frac{\sqrt{66}}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{132} \quad \frac{\sqrt{110}}{132} \quad 0$	
	$0 \quad -\frac{\sqrt{33}i}{264} \quad 0 \quad -\frac{\sqrt{33}}{264} \quad \frac{\sqrt{22}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{55}i}{88} \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0 \quad 0$	
	$-\frac{\sqrt{33}i}{264} \quad 0 \quad \frac{\sqrt{33}}{264} \quad 0 \quad 0 \quad -\frac{\sqrt{22}i}{44} \quad 0 \quad 0 \quad \frac{\sqrt{55}i}{88} \quad 0 \quad \frac{\sqrt{55}}{88} \quad 0 \quad 0 \quad 0$	
651	symmetry	$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$
$\mathbb{G}_6^{(1,-1;a)}(A, 5)$	$\frac{5\sqrt{66}i}{528} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}i}{88} \quad 0 \quad -\frac{\sqrt{11}}{44} \quad -\frac{\sqrt{110}i}{176} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{264}$	
	$0 \quad -\frac{5\sqrt{66}i}{528} \quad 0 \quad 0 \quad \frac{3\sqrt{11}i}{88} \quad 0 \quad \frac{\sqrt{11}}{44} \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{176} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{264} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{66}i}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{44} \quad 0 \quad -\frac{\sqrt{11}i}{22} \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{132}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{88} \quad \frac{\sqrt{11}}{44} \quad 0 \quad -\frac{\sqrt{11}i}{22} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{88} \quad -\frac{\sqrt{165}}{132} \quad 0$	
	$0 \quad \frac{\sqrt{66}i}{66} \quad 0 \quad -\frac{\sqrt{66}}{88} \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}}{88} \quad -\frac{\sqrt{165}i}{132} \quad 0$	
	$\frac{\sqrt{66}i}{66} \quad 0 \quad \frac{\sqrt{66}}{88} \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}}{88} \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{132}$	
	$0 \quad -\frac{\sqrt{66}}{264} \quad 0 \quad -\frac{\sqrt{66}i}{88} \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{22} \quad 0 \quad 0 \quad \frac{\sqrt{110}}{88} \quad 0 \quad \frac{\sqrt{110}i}{88} \quad 0 \quad 0$	
	$\frac{\sqrt{66}}{264} \quad 0 \quad -\frac{\sqrt{66}i}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{22} \quad -\frac{\sqrt{110}}{88} \quad 0 \quad \frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{22}i}{176} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{33}i}{88} \quad 0 \quad \frac{\sqrt{33}}{44} \quad -\frac{\sqrt{330}i}{176} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{55}i}{88}$	
652	symmetry	$\frac{\sqrt{462}xz(x^2-3z^2)(3x^2-z^2)}{16}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_6^{(1,-1;a)}(A, 6)$	$\begin{bmatrix} \frac{i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{\sqrt{15}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} \\ 0 & -\frac{i}{32} & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{32} & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{16} & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 & 0 & \frac{\sqrt{10}i}{16} & 0 \\ \frac{i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{32} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{32} & 0 & 0 & \frac{3\sqrt{5}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{32} \\ 0 & \frac{\sqrt{3}i}{32} & 0 & 0 & -\frac{3\sqrt{2}i}{32} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{32} & 0 & 0 & \frac{\sqrt{30}i}{32} & 0 \end{bmatrix}$
653	symmetry	$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$ $\begin{bmatrix} \frac{17\sqrt{55}i}{1056} & 0 & 0 & 0 & 0 & \frac{37\sqrt{330}i}{5280} & 0 & -\frac{\sqrt{330}}{110} & \frac{\sqrt{33}i}{96} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{96} \\ 0 & -\frac{17\sqrt{55}i}{1056} & 0 & 0 & 0 & \frac{37\sqrt{330}i}{5280} & 0 & \frac{\sqrt{330}}{110} & 0 & 0 & -\frac{\sqrt{33}i}{96} & 0 & 0 & \frac{\sqrt{22}i}{96} & 0 \\ 0 & 0 & -\frac{\sqrt{55}i}{66} & 0 & 0 & -\frac{\sqrt{330}}{110} & 0 & -\frac{\sqrt{330}i}{165} & 0 & 0 & -\frac{\sqrt{33}i}{66} & 0 & 0 & -\frac{\sqrt{22}}{66} & \\ 0 & 0 & 0 & \frac{\sqrt{55}i}{66} & \frac{\sqrt{330}}{110} & 0 & -\frac{\sqrt{330}i}{165} & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{66} & \frac{\sqrt{22}}{66} & 0 & \\ 0 & \frac{29\sqrt{55}i}{2640} & 0 & -\frac{\sqrt{55}}{66} & \frac{\sqrt{330}i}{240} & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{176} & 0 & -\frac{\sqrt{33}}{66} & \frac{5\sqrt{22}i}{528} & 0 & \\ \frac{29\sqrt{55}i}{2640} & 0 & \frac{\sqrt{55}}{66} & 0 & 0 & -\frac{\sqrt{330}i}{240} & 0 & 0 & \frac{\sqrt{33}i}{176} & 0 & \frac{\sqrt{33}}{66} & 0 & 0 & -\frac{5\sqrt{22}i}{528} \\ 0 & -\frac{7\sqrt{55}}{330} & 0 & -\frac{\sqrt{55}i}{66} & 0 & 0 & -\frac{\sqrt{330}i}{165} & 0 & 0 & -\frac{\sqrt{33}}{66} & 0 & -\frac{\sqrt{33}i}{66} & 0 & 0 \\ \frac{7\sqrt{55}}{330} & 0 & -\frac{\sqrt{55}i}{66} & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{165} & \frac{\sqrt{33}}{66} & 0 & -\frac{\sqrt{33}i}{66} & 0 & 0 & 0 \\ \frac{9\sqrt{165}i}{1760} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}i}{160} & 0 & -\frac{\sqrt{110}}{110} & \frac{5\sqrt{11}i}{352} & 0 & 0 & 0 & 0 & \frac{5\sqrt{66}i}{1056} \\ 0 & -\frac{9\sqrt{165}i}{1760} & 0 & 0 & \frac{\sqrt{110}i}{160} & 0 & \frac{\sqrt{110}}{110} & 0 & 0 & -\frac{5\sqrt{11}i}{352} & 0 & 0 & \frac{5\sqrt{66}i}{1056} & 0 \end{bmatrix}$
654	symmetry	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2 - y^2 - z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_6^{(1,-1;a)}(B, 1)$	0 0 $-\frac{5\sqrt{66}i}{528}$ 0 0 $-\frac{3\sqrt{11}}{88}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{110}i}{176}$ 0 0 $-\frac{\sqrt{165}}{264}$	
	0 0 0 $\frac{5\sqrt{66}i}{528}$ $\frac{3\sqrt{11}}{88}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0 0 0 $\frac{\sqrt{110}i}{176}$ $\frac{\sqrt{165}}{264}$ 0	
	$-\frac{\sqrt{66}i}{88}$ 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 $\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{110}i}{88}$ 0 0 0 0 $-\frac{\sqrt{165}i}{132}$	
	0 $\frac{\sqrt{66}i}{88}$ 0 0 $-\frac{\sqrt{11}i}{44}$ 0 $-\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{110}i}{88}$ 0 0 $-\frac{\sqrt{165}i}{132}$ 0	
	0 $-\frac{\sqrt{66}}{88}$ 0 $-\frac{\sqrt{66}i}{264}$ 0 0 $-\frac{\sqrt{11}i}{22}$ 0 0 $-\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ 0 0	
	$\frac{\sqrt{66}}{88}$ 0 $-\frac{\sqrt{66}i}{264}$ 0 0 0 0 $\frac{\sqrt{11}i}{22}$ $\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ 0 0 0	
	0 $-\frac{\sqrt{66}i}{88}$ 0 $\frac{\sqrt{66}}{66}$ $-\frac{\sqrt{11}i}{44}$ 0 0 0 0 $-\frac{\sqrt{110}i}{88}$ 0 0 0 $\frac{\sqrt{165}i}{132}$ 0	
	$-\frac{\sqrt{66}i}{88}$ 0 $-\frac{\sqrt{66}}{66}$ 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{110}i}{88}$ 0 0 0 0 $-\frac{\sqrt{165}i}{132}$	
	0 0 $-\frac{3\sqrt{22}i}{176}$ 0 0 $-\frac{\sqrt{33}}{88}$ 0 $-\frac{\sqrt{33}i}{44}$ 0 0 $\frac{\sqrt{330}i}{176}$ 0 0 $\frac{\sqrt{55}}{88}$	
	0 0 0 $\frac{3\sqrt{22}i}{176}$ $\frac{\sqrt{33}}{88}$ 0 $-\frac{\sqrt{33}i}{44}$ 0 0 0 0 $-\frac{\sqrt{330}i}{176}$ $-\frac{\sqrt{55}}{88}$ 0	
$\mathbb{G}_6^{(1,-1;a)}(B, 2)$	$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$	
	0 $\frac{\sqrt{66}}{264}$ 0 $-\frac{\sqrt{66}i}{264}$ 0 0 0 $\frac{\sqrt{11}i}{22}$ 0 0 $\frac{\sqrt{110}}{88}$ 0 $\frac{\sqrt{110}i}{88}$ 0 0	
	$-\frac{\sqrt{66}}{264}$ 0 $-\frac{\sqrt{66}i}{264}$ 0 0 0 0 $-\frac{\sqrt{11}i}{22}$ $-\frac{\sqrt{110}}{88}$ 0 $\frac{\sqrt{110}i}{88}$ 0 0 0	
	0 $-\frac{\sqrt{66}i}{264}$ 0 $-\frac{\sqrt{66}}{264}$ $\frac{\sqrt{11}i}{22}$ 0 0 0 0 $\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0	
	$-\frac{\sqrt{66}i}{264}$ 0 $\frac{\sqrt{66}}{264}$ 0 0 $-\frac{\sqrt{11}i}{22}$ 0 0 $\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 0	
	0 0 $\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 $\frac{\sqrt{11}i}{22}$ 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{66}i}{66}$ $-\frac{\sqrt{11}}{22}$ 0 $\frac{\sqrt{11}i}{22}$ 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{66}i}{66}$ 0 0 0 0 $\frac{\sqrt{11}i}{22}$ 0 $-\frac{\sqrt{11}}{22}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{22}$ 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ 0 0 0 0 0 0 0 0 0 0 0	
	$-\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0	
656	$\frac{\sqrt{462}yz(y^2-3z^2)(3y^2-z^2)}{16}$	
	symmetry	

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_6^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & \frac{i}{32} & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{32} & 0 & 0 & \frac{\sqrt{10}}{32} \\ 0 & 0 & 0 & -\frac{i}{32} & -\frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{32} & -\frac{\sqrt{10}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{16} & \frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{16} & \frac{\sqrt{10}i}{16} & 0 \\ 0 & 0 & \frac{1}{16} & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{16} \\ 0 & 0 & \frac{\sqrt{3}i}{32} & 0 & 0 & \frac{3\sqrt{2}}{32} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{32} & 0 & 0 & \frac{\sqrt{30}}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{32} & -\frac{3\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{32} & -\frac{\sqrt{30}}{32} & 0 \end{bmatrix}$
657	symmetry	$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$
	$\mathbb{G}_6^{(1,-1;a)}(B, 4)$	$\begin{bmatrix} 0 & \frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{4} & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
658	symmetry	$\frac{\sqrt{210}yz(16x^4-16x^2y^2-16x^2z^2+y^4+2y^2z^2+z^4)}{16}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_6^{(1,-1;a)}(B, 5)$	0 0 $\frac{17\sqrt{55}i}{1056}$ 0 0 $\frac{37\sqrt{330}}{5280}$ 0 $\frac{\sqrt{330}i}{110}$ 0 0 - $\frac{\sqrt{33}i}{96}$ 0 0 - $\frac{\sqrt{22}}{96}$	
	0 0 0 - $\frac{17\sqrt{55}i}{1056}$ - $\frac{37\sqrt{330}}{5280}$ 0 $\frac{\sqrt{330}i}{110}$ 0 0 0 0 $\frac{\sqrt{33}i}{96}$ $\frac{\sqrt{22}}{96}$ 0	
	$\frac{\sqrt{55}i}{66}$ 0 0 0 0 $\frac{\sqrt{330}i}{110}$ 0 - $\frac{\sqrt{330}}{165}$ - $\frac{\sqrt{33}i}{66}$ 0 0 0 0 - $\frac{\sqrt{22}i}{66}$	
	0 - $\frac{\sqrt{55}i}{66}$ 0 0 $\frac{\sqrt{330}i}{110}$ 0 $\frac{\sqrt{330}}{165}$ 0 0 $\frac{\sqrt{33}i}{66}$ 0 0 - $\frac{\sqrt{22}i}{66}$ 0	
	0 $\frac{\sqrt{55}}{66}$ 0 $\frac{7\sqrt{55}i}{330}$ 0 0 - $\frac{\sqrt{330}i}{165}$ 0 0 - $\frac{\sqrt{33}}{66}$ 0 - $\frac{\sqrt{33}i}{66}$ 0 0	
	- $\frac{\sqrt{55}}{66}$ 0 $\frac{7\sqrt{55}i}{330}$ 0 0 0 0 $\frac{\sqrt{330}i}{165}$ $\frac{\sqrt{33}}{66}$ 0 - $\frac{\sqrt{33}i}{66}$ 0 0 0	
	0 $\frac{\sqrt{55}i}{66}$ 0 - $\frac{29\sqrt{55}}{2640}$ - $\frac{\sqrt{330}i}{240}$ 0 0 0 0 - $\frac{\sqrt{33}i}{66}$ 0 $\frac{\sqrt{33}}{176}$ $\frac{5\sqrt{22}i}{528}$ 0	
	$\frac{\sqrt{55}i}{66}$ 0 $\frac{29\sqrt{55}}{2640}$ 0 0 $\frac{\sqrt{330}i}{240}$ 0 0 - $\frac{\sqrt{33}i}{66}$ 0 - $\frac{\sqrt{33}}{176}$ 0 0 - $\frac{5\sqrt{22}i}{528}$	
	0 0 - $\frac{9\sqrt{165}i}{1760}$ 0 0 - $\frac{\sqrt{110}}{160}$ 0 - $\frac{\sqrt{110}i}{110}$ 0 0 $\frac{5\sqrt{11}i}{352}$ 0 0 $\frac{5\sqrt{66}}{1056}$	
	0 0 0 $\frac{9\sqrt{165}i}{1760}$ $\frac{\sqrt{110}}{160}$ 0 - $\frac{\sqrt{110}i}{110}$ 0 0 0 0 - $\frac{5\sqrt{11}i}{352}$ - $\frac{5\sqrt{66}}{1056}$ 0	
659	symmetry	$\frac{\sqrt{210}xy(x^4+2x^2y^2-16x^2z^2+y^4-16y^2z^2+16z^4)}{16}$
$\mathbb{G}_6^{(1,-1;a)}(B, 6)$	0 $\frac{\sqrt{55}}{660}$ 0 $\frac{\sqrt{55}i}{660}$ 0 0 0 0 0 0 0 0 0 0	
	- $\frac{\sqrt{55}}{660}$ 0 $\frac{\sqrt{55}i}{660}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 - $\frac{\sqrt{55}i}{660}$ 0 $\frac{\sqrt{55}}{660}$ 0 0 0 0 0 - $\frac{\sqrt{33}i}{66}$ 0 - $\frac{\sqrt{33}}{66}$ $\frac{\sqrt{22}i}{33}$ 0	
	- $\frac{\sqrt{55}i}{660}$ 0 - $\frac{\sqrt{55}}{660}$ 0 0 0 0 0 - $\frac{\sqrt{33}i}{66}$ 0 $\frac{\sqrt{33}}{66}$ 0 0 - $\frac{\sqrt{22}i}{33}$	
	0 0 - $\frac{\sqrt{55}i}{165}$ 0 0 0 0 - $\frac{\sqrt{330}i}{165}$ 0 0 $\frac{\sqrt{33}i}{33}$ 0 0 $\frac{\sqrt{22}}{33}$	
	0 0 0 $\frac{\sqrt{55}i}{165}$ 0 0 - $\frac{\sqrt{330}i}{165}$ 0 0 0 0 - $\frac{\sqrt{33}i}{33}$ - $\frac{\sqrt{22}}{33}$ 0	
	$\frac{\sqrt{55}i}{165}$ 0 0 0 0 0 - $\frac{\sqrt{330}}{165}$ $\frac{\sqrt{33}i}{33}$ 0 0 0 0 $\frac{\sqrt{22}i}{33}$	
	0 - $\frac{\sqrt{55}i}{165}$ 0 0 0 0 $\frac{\sqrt{330}}{165}$ 0 0 - $\frac{\sqrt{33}i}{33}$ 0 0 $\frac{\sqrt{22}i}{33}$ 0	
	0 $\frac{\sqrt{165}}{330}$ 0 - $\frac{\sqrt{165}i}{330}$ 0 0 $\frac{\sqrt{110}i}{55}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 $\frac{\sqrt{11}i}{22}$ 0 0	
	- $\frac{\sqrt{165}}{330}$ 0 - $\frac{\sqrt{165}i}{330}$ 0 0 0 0 - $\frac{\sqrt{110}i}{55}$ - $\frac{\sqrt{11}}{22}$ 0 $\frac{\sqrt{11}i}{22}$ 0 0 0	
660	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_2^{(1,0;a)}(A, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 \\ \frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 \\ \frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 \end{bmatrix}$
661	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{14}}{56} & \frac{\sqrt{21}i}{42} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & \frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 \\ -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} \\ 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{21}}{42} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & \frac{\sqrt{42}}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 \end{bmatrix}$
662	symmetry	$\sqrt{3}xz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,0;a)}(A, 3)$	$\sqrt{3}yz$	$\begin{bmatrix} -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} \\ 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & -\frac{\sqrt{21}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & \frac{\sqrt{21}}{84} & 0 \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & -\frac{\sqrt{21}i}{42} & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & \frac{\sqrt{21}i}{42} \\ 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	663 symmetry	$\sqrt{3}yz$
	$\mathbb{G}_2^{(1,0;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & \frac{\sqrt{21}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & -\frac{\sqrt{21}}{84} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 \\ 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{14}}{56} & -\frac{\sqrt{21}i}{42} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & \frac{\sqrt{21}i}{42} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 \end{bmatrix}$
664	symmetry	$\sqrt{3}xy$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,0;a)}(B, 2)$	0	$\frac{\sqrt{210}}{168} \quad 0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad 0$
	$-\frac{\sqrt{210}}{168}$	$0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{210}i}{168} \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad \frac{\sqrt{21}i}{42} \quad 0$
	$-\frac{\sqrt{210}i}{168}$	$0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42}$
	0	$0 \quad 0 \quad \frac{\sqrt{210}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42}$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad -\frac{\sqrt{21}}{42} \quad 0$
	$-\frac{\sqrt{210}i}{84}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42}$
	0	$0 \quad \frac{\sqrt{210}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{84} \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{42} \quad \frac{\sqrt{42}}{84} \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad 0$
665	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{G}_4^{(1,0;a)}(A, 1)$	0	$-\frac{\sqrt{10}i}{80} \quad 0 \quad -\frac{\sqrt{10}}{80} \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad 0 \quad \frac{\sqrt{6}}{48} \quad 0 \quad 0$
	$-\frac{\sqrt{10}i}{80}$	$0 \quad \frac{\sqrt{10}}{80} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad 0 \quad -\frac{\sqrt{6}}{48} \quad 0 \quad 0$
	0	$\frac{\sqrt{10}}{80} \quad 0 \quad -\frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0$
	$-\frac{\sqrt{10}}{80}$	$0 \quad -\frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad \frac{\sqrt{6}}{16} \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad 0$
	$\frac{\sqrt{10}i}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40} \quad 0 \quad \frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{8}$
	0	$-\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40} \quad 0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{8}$
	0	$0 \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{8}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad \frac{\sqrt{15}}{40} \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{8}$
	0	$-\frac{\sqrt{30}i}{80} \quad 0 \quad \frac{\sqrt{30}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad -\frac{\sqrt{2}}{16} \quad 0 \quad 0$
	$-\frac{\sqrt{30}i}{80}$	$0 \quad -\frac{\sqrt{30}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad \frac{\sqrt{2}}{16} \quad 0 \quad 0 \quad 0$
666	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,0;a)}(A, 2)$	$0 - \frac{\sqrt{14}i}{112} 0 - \frac{\sqrt{14}}{112} \frac{\sqrt{21}i}{30} 0 0 0 0 - \frac{17\sqrt{210}i}{1680} 0 \frac{17\sqrt{210}}{1680} 0 0$	
	$- \frac{\sqrt{14}i}{112} 0 \frac{\sqrt{14}}{112} 0 0 - \frac{\sqrt{21}i}{30} 0 0 - \frac{17\sqrt{210}i}{1680} 0 - \frac{17\sqrt{210}}{1680} 0 0 0$	
	$0 \frac{\sqrt{14}}{112} 0 - \frac{\sqrt{14}i}{112} 0 0 - \frac{\sqrt{21}i}{30} 0 0 - \frac{\sqrt{210}}{560} 0 - \frac{\sqrt{210}i}{560} 0 0 0$	
	$- \frac{\sqrt{14}}{112} 0 - \frac{\sqrt{14}i}{112} 0 0 0 0 \frac{\sqrt{21}i}{30} \frac{\sqrt{210}}{560} 0 - \frac{\sqrt{210}i}{560} 0 0 0$	
	$- \frac{\sqrt{14}i}{20} 0 0 0 0 \frac{\sqrt{21}i}{40} 0 \frac{\sqrt{21}}{60} 0 0 0 0 0 \frac{\sqrt{35}i}{56}$	
	$0 \frac{\sqrt{14}i}{20} 0 0 \frac{\sqrt{21}i}{40} 0 - \frac{\sqrt{21}}{60} 0 0 0 0 0 \frac{\sqrt{35}i}{56} 0$	
	$0 0 \frac{\sqrt{14}i}{20} 0 0 - \frac{\sqrt{21}}{40} 0 \frac{\sqrt{21}i}{60} 0 0 0 0 0 \frac{\sqrt{35}}{56}$	
	$0 0 0 - \frac{\sqrt{14}i}{20} \frac{\sqrt{21}}{40} 0 \frac{\sqrt{21}i}{60} 0 0 0 0 0 - \frac{\sqrt{35}}{56} 0$	
	$0 \frac{\sqrt{42}i}{80} 0 - \frac{\sqrt{42}}{80} 0 0 0 0 - \frac{\sqrt{70}i}{112} 0 - \frac{\sqrt{70}}{112} 0 - \frac{\sqrt{70}}{112} 0 0$	
	$\frac{\sqrt{42}i}{80} 0 \frac{\sqrt{42}}{80} 0 0 0 0 0 - \frac{\sqrt{70}i}{112} 0 \frac{\sqrt{70}}{112} 0 0 0$	
667	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
$\mathbb{G}_4^{(1,0;a)}(A, 3)$	$0 \frac{3\sqrt{42}i}{560} 0 - \frac{3\sqrt{42}}{560} 0 0 0 0 0 - \frac{\sqrt{70}i}{560} 0 - \frac{\sqrt{70}}{560} \frac{\sqrt{105}i}{70} 0$	
	$\frac{3\sqrt{42}i}{560} 0 \frac{3\sqrt{42}}{560} 0 0 0 0 0 - \frac{\sqrt{70}i}{560} 0 \frac{\sqrt{70}}{560} 0 0 - \frac{\sqrt{105}i}{70}$	
	$0 \frac{3\sqrt{42}}{560} 0 \frac{3\sqrt{42}i}{560} 0 0 0 0 0 - \frac{13\sqrt{70}}{560} 0 \frac{13\sqrt{70}i}{560} 0 0 0$	
	$- \frac{3\sqrt{42}}{560} 0 \frac{3\sqrt{42}i}{560} 0 0 0 0 0 \frac{13\sqrt{70}}{560} 0 \frac{13\sqrt{70}i}{560} 0 0 0$	
	$\frac{3\sqrt{42}i}{280} 0 0 0 0 - \frac{\sqrt{7}i}{40} 0 \frac{\sqrt{7}}{20} \frac{\sqrt{70}i}{280} 0 0 0 0 - \frac{3\sqrt{105}i}{280}$	
	$0 - \frac{3\sqrt{42}i}{280} 0 0 - \frac{\sqrt{7}i}{40} 0 - \frac{\sqrt{7}}{20} 0 0 - \frac{\sqrt{70}i}{280} 0 0 0 - \frac{3\sqrt{105}i}{280}$	
	$0 0 \frac{3\sqrt{42}i}{280} 0 0 - \frac{\sqrt{7}}{40} 0 - \frac{\sqrt{7}i}{20} 0 0 - \frac{\sqrt{70}i}{280} 0 0 0 \frac{3\sqrt{105}}{280}$	
	$0 0 0 - \frac{3\sqrt{42}i}{280} \frac{\sqrt{7}}{40} 0 - \frac{\sqrt{7}i}{20} 0 0 0 0 \frac{\sqrt{70}i}{280} - \frac{3\sqrt{105}}{280} 0$	
	$0 \frac{3\sqrt{14}i}{80} 0 \frac{3\sqrt{14}}{80} - \frac{\sqrt{21}i}{35} 0 0 0 0 \frac{3\sqrt{210}i}{560} 0 - \frac{3\sqrt{210}}{560} 0 0$	
	$\frac{3\sqrt{14}i}{80} 0 - \frac{3\sqrt{14}}{80} 0 0 \frac{\sqrt{21}i}{35} 0 0 0 \frac{3\sqrt{210}i}{560} 0 \frac{3\sqrt{210}}{560} 0 0$	
668	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,0;a)}(A, 4)$	$\frac{\sqrt{6}i}{160}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{40} \quad 0 \quad \frac{1}{10} \quad \frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40}$
	$0$	$-\frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad -\frac{i}{40} \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40} \quad 0$
	$0$	$0 \quad \frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad -\frac{3}{20} \quad 0 \quad \frac{i}{40} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{160} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20}$
	$0$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{160} \quad \frac{3}{20} \quad 0 \quad \frac{i}{40} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{160} \quad -\frac{\sqrt{15}}{20} \quad 0$
	$0$	$\frac{\sqrt{6}i}{32} \quad 0 \quad \frac{\sqrt{6}}{20} \quad -\frac{i}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{160} \quad 0 \quad -\frac{\sqrt{10}}{20} \quad -\frac{\sqrt{15}i}{80} \quad 0$
	$\frac{\sqrt{6}i}{32}$	$0 \quad -\frac{\sqrt{6}}{20} \quad 0 \quad 0 \quad \frac{i}{16} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{160} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{80}$
	$0$	$-\frac{\sqrt{6}}{40} \quad 0 \quad \frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad -\frac{i}{40} \quad 0 \quad 0 \quad \frac{3\sqrt{10}}{40} \quad 0 \quad -\frac{\sqrt{10}i}{160} \quad 0 \quad 0$
	$\frac{\sqrt{6}}{40}$	$0 \quad \frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{40} \quad -\frac{3\sqrt{10}}{40} \quad 0 \quad -\frac{\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0$
	$-\frac{9\sqrt{2}i}{160}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad -\frac{\sqrt{3}}{10} \quad \frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$0$	$\frac{9\sqrt{2}i}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad 0 \quad 0$
669	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
$\mathbb{G}_4^{(1,0;a)}(A, 5)$	$-\frac{\sqrt{42}i}{1120}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{40} \quad 0 \quad -\frac{3\sqrt{7}}{70} \quad \frac{19\sqrt{70}i}{1120} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{56}$
	$0$	$\frac{\sqrt{42}i}{1120} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{40} \quad 0 \quad \frac{3\sqrt{7}}{70} \quad 0 \quad 0 \quad -\frac{19\sqrt{70}i}{1120} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{56} \quad 0$
	$0$	$0 \quad 0 \quad -\frac{\sqrt{42}i}{1120} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{140} \quad 0 \quad \frac{\sqrt{7}i}{40} \quad 0 \quad 0 \quad -\frac{23\sqrt{70}i}{1120} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{140}$
	$0$	$0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{1120} \quad \frac{\sqrt{7}}{140} \quad 0 \quad \frac{\sqrt{7}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{23\sqrt{70}i}{1120} \quad -\frac{\sqrt{105}}{140} \quad 0$
	$0$	$0 \quad -\frac{\sqrt{42}i}{1120} \quad 0 \quad \frac{\sqrt{42}}{56} \quad -\frac{\sqrt{7}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{224} \quad 0 \quad \frac{3\sqrt{70}}{280} \quad \frac{\sqrt{105}i}{560} \quad 0$
	$-\frac{\sqrt{42}i}{1120}$	$0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{224} \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{560}$
	$0$	$\frac{\sqrt{42}}{140} \quad 0 \quad -\frac{29\sqrt{42}i}{1120} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{140} \quad 0 \quad \frac{\sqrt{70}i}{224} \quad 0 \quad 0$
	$-\frac{\sqrt{42}}{140}$	$0 \quad -\frac{29\sqrt{42}i}{1120} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{40} \quad \frac{\sqrt{70}}{140} \quad 0 \quad \frac{\sqrt{70}i}{224} \quad 0 \quad 0 \quad 0$
	$-\frac{9\sqrt{14}i}{160}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad -\frac{\sqrt{21}}{70} \quad -\frac{\sqrt{210}i}{1120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$0$	$\frac{9\sqrt{14}i}{160} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{70} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{1120} \quad 0 \quad 0 \quad 0 \quad 0$
670	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,0;a)}(B, 1)$	0 0 $-\frac{\sqrt{6}i}{160}$ 0 0 $\frac{1}{40}$ 0 $\frac{i}{10}$ 0 0 $\frac{\sqrt{10}i}{32}$ 0 0 $\frac{\sqrt{15}}{40}$	
	0 0 0 $\frac{\sqrt{6}i}{160}$ $-\frac{1}{40}$ 0 $\frac{i}{10}$ 0 0 0 0 $-\frac{\sqrt{10}i}{32}$ $-\frac{\sqrt{15}}{40}$ 0	
	$\frac{\sqrt{6}i}{160}$ 0 0 0 0 $-\frac{3i}{20}$ 0 $-\frac{1}{40}$ $\frac{\sqrt{10}i}{160}$ 0 0 0 0 $-\frac{\sqrt{15}i}{20}$	
	0 $-\frac{\sqrt{6}i}{160}$ 0 0 $-\frac{3i}{20}$ 0 $\frac{1}{40}$ 0 0 $-\frac{\sqrt{10}i}{160}$ 0 0 $-\frac{\sqrt{15}i}{20}$ 0	
	0 $\frac{\sqrt{6}}{160}$ 0 $-\frac{\sqrt{6}i}{40}$ 0 0 $\frac{i}{40}$ 0 0 $\frac{\sqrt{10}}{160}$ 0 $-\frac{3\sqrt{10}i}{40}$ 0 0	
	$-\frac{\sqrt{6}}{160}$ 0 $-\frac{\sqrt{6}i}{40}$ 0 0 0 0 $-\frac{i}{40}$ $-\frac{\sqrt{10}}{160}$ 0 $-\frac{3\sqrt{10}i}{40}$ 0 0	
	0 $\frac{\sqrt{6}i}{20}$ 0 $\frac{\sqrt{6}}{32}$ $-\frac{i}{16}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{160}$ $\frac{\sqrt{15}i}{80}$ 0	
	$\frac{\sqrt{6}i}{20}$ 0 $-\frac{\sqrt{6}}{32}$ 0 0 $\frac{i}{16}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{160}$ 0 0 $-\frac{\sqrt{15}i}{80}$	
	0 0 $-\frac{9\sqrt{2}i}{160}$ 0 0 $-\frac{\sqrt{3}}{20}$ 0 $\frac{\sqrt{3}i}{10}$ 0 0 $-\frac{\sqrt{30}i}{160}$ 0 0 0	
	0 0 0 $\frac{9\sqrt{2}i}{160}$ $\frac{\sqrt{3}}{20}$ 0 $\frac{\sqrt{3}i}{10}$ 0 0 0 $\frac{\sqrt{30}i}{160}$ 0 0	
671	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{G}_4^{(1,0;a)}(B, 2)$	0 0 0 0 0 0 $-\frac{i}{5}$ 0 0 $\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0	
	0 0 0 0 0 0 0 $\frac{i}{5}$ $-\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0 0	
	0 0 0 0 $-\frac{i}{5}$ 0 0 0 0 $\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0	
	0 0 0 0 0 $\frac{i}{5}$ 0 0 $\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{40}$ 0 0 0	
	0 0 $\frac{\sqrt{6}i}{10}$ 0 0 $-\frac{1}{40}$ 0 $-\frac{i}{40}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{6}i}{10}$ $\frac{1}{40}$ 0 $-\frac{i}{40}$ 0 0 0 0 0 0 0	
	$\frac{\sqrt{6}i}{10}$ 0 0 0 0 $-\frac{i}{40}$ 0 $\frac{1}{40}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{6}i}{10}$ 0 0 $-\frac{i}{40}$ 0 $-\frac{1}{40}$ 0 0 0 0 0 0 0	
	0 $-\frac{3\sqrt{2}}{40}$ 0 $-\frac{3\sqrt{2}i}{40}$ 0 0 0 0 0 0 0 0 0 0	
	$\frac{3\sqrt{2}}{40}$ 0 $-\frac{3\sqrt{2}i}{40}$ 0 0 0 0 0 0 0 0 0 0 0	
672	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,0;a)}(B, 3)$	0 0 $-\frac{\sqrt{42}i}{1120}$ 0 0 $-\frac{\sqrt{7}}{40}$ 0 $\frac{3\sqrt{7}i}{70}$ 0 0 $-\frac{19\sqrt{70}i}{1120}$ 0 0 $\frac{\sqrt{105}}{56}$	
	0 0 0 $\frac{\sqrt{42}i}{1120}$ $\frac{\sqrt{7}}{40}$ 0 $\frac{3\sqrt{7}i}{70}$ 0 0 0 0 $\frac{19\sqrt{70}i}{1120}$ $-\frac{\sqrt{105}}{56}$ 0	
	$\frac{\sqrt{42}i}{1120}$ 0 0 0 0 $\frac{\sqrt{7}i}{140}$ 0 $\frac{\sqrt{7}}{40}$ $-\frac{23\sqrt{70}i}{1120}$ 0 0 0 0 $\frac{\sqrt{105}i}{140}$	
	0 $-\frac{\sqrt{42}i}{1120}$ 0 0 $\frac{\sqrt{7}i}{140}$ 0 $-\frac{\sqrt{7}}{40}$ 0 0 $\frac{23\sqrt{70}i}{1120}$ 0 0 $\frac{\sqrt{105}i}{140}$ 0	
	0 $\frac{29\sqrt{42}}{1120}$ 0 $-\frac{\sqrt{42}i}{140}$ 0 0 $\frac{\sqrt{7}i}{40}$ 0 0 $\frac{\sqrt{70}}{224}$ 0 $-\frac{\sqrt{70}i}{140}$ 0 0	
	$-\frac{29\sqrt{42}}{1120}$ 0 $-\frac{\sqrt{42}i}{140}$ 0 0 0 0 $-\frac{\sqrt{7}i}{40}$ $-\frac{\sqrt{70}}{224}$ 0 $-\frac{\sqrt{70}i}{140}$ 0 0	
	0 $-\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{1120}$ $\frac{\sqrt{7}i}{80}$ 0 0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 $-\frac{\sqrt{70}}{224}$ $\frac{\sqrt{105}i}{560}$ 0	
	$-\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{1120}$ 0 0 $-\frac{\sqrt{7}i}{80}$ 0 0 $\frac{3\sqrt{70}i}{280}$ 0 $\frac{\sqrt{70}}{224}$ 0 0 $-\frac{\sqrt{105}i}{560}$	
	0 0 $\frac{9\sqrt{14}i}{160}$ 0 0 $-\frac{\sqrt{21}}{28}$ 0 $-\frac{\sqrt{21}i}{70}$ 0 0 $-\frac{\sqrt{210}i}{1120}$ 0 0 0	
	0 0 0 $-\frac{9\sqrt{14}i}{160}$ $\frac{\sqrt{21}}{28}$ 0 $-\frac{\sqrt{21}i}{70}$ 0 0 0 $\frac{\sqrt{210}i}{1120}$ 0 0	
673	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{G}_4^{(1,0;a)}(B, 4)$	0 $-\frac{3\sqrt{42}}{560}$ 0 $-\frac{3\sqrt{42}i}{560}$ 0 0 0 0 0 $-\frac{13\sqrt{70}}{560}$ 0 $\frac{13\sqrt{70}i}{560}$ 0 0	
	$\frac{3\sqrt{42}}{560}$ 0 $-\frac{3\sqrt{42}i}{560}$ 0 0 0 0 0 $\frac{13\sqrt{70}}{560}$ 0 $\frac{13\sqrt{70}i}{560}$ 0 0	
	0 $\frac{3\sqrt{42}i}{560}$ 0 $-\frac{3\sqrt{42}}{560}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{560}$ 0 $\frac{\sqrt{70}}{560}$ $-\frac{\sqrt{105}i}{70}$ 0	
	$\frac{3\sqrt{42}i}{560}$ 0 $\frac{3\sqrt{42}}{560}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{560}$ 0 $-\frac{\sqrt{70}}{560}$ 0 0 $\frac{\sqrt{105}i}{70}$	
	0 0 $-\frac{3\sqrt{42}i}{280}$ 0 0 $\frac{\sqrt{7}}{20}$ 0 $\frac{\sqrt{7}i}{40}$ 0 0 0 $-\frac{\sqrt{70}i}{280}$ 0 0 $\frac{3\sqrt{105}}{280}$	
	0 0 0 $\frac{3\sqrt{42}i}{280}$ $-\frac{\sqrt{7}}{20}$ 0 $\frac{\sqrt{7}i}{40}$ 0 0 0 0 $\frac{\sqrt{70}i}{280}$ $-\frac{3\sqrt{105}}{280}$ 0	
	$\frac{3\sqrt{42}i}{280}$ 0 0 0 0 $-\frac{\sqrt{7}i}{20}$ 0 $\frac{\sqrt{7}}{40}$ $-\frac{\sqrt{70}i}{280}$ 0 0 0 0 $\frac{3\sqrt{105}i}{280}$	
	0 $-\frac{3\sqrt{42}i}{280}$ 0 0 $-\frac{\sqrt{7}i}{20}$ 0 $-\frac{\sqrt{7}}{40}$ 0 0 $\frac{\sqrt{70}i}{280}$ 0 0 0 $\frac{3\sqrt{105}i}{280}$	
	0 $\frac{3\sqrt{14}}{80}$ 0 $-\frac{3\sqrt{14}i}{80}$ 0 0 $\frac{\sqrt{21}i}{35}$ 0 0 $-\frac{3\sqrt{210}}{560}$ 0 $-\frac{3\sqrt{210}i}{560}$ 0 0	
	$-\frac{3\sqrt{14}}{80}$ 0 $-\frac{3\sqrt{14}i}{80}$ 0 0 0 0 $-\frac{\sqrt{21}i}{35}$ $\frac{3\sqrt{210}}{560}$ 0 $-\frac{3\sqrt{210}i}{560}$ 0 0	
674	symmetry	1

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_0^{(1,1;a)}(A)$	0	$\frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{14}}{28} \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{420} \quad 0 \quad \frac{\sqrt{210}}{420} \quad 0 \quad 0$
	$\frac{\sqrt{14}i}{28}$	$0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{420} \quad 0 \quad -\frac{\sqrt{210}}{420} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{14}}{28} \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{420} \quad 0 \quad -\frac{\sqrt{210}i}{420} \quad 0 \quad 0$
	$\frac{\sqrt{14}}{28}$	$0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad \frac{\sqrt{210}}{420} \quad 0 \quad -\frac{\sqrt{210}i}{420} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad \frac{\sqrt{21}}{42} \quad \frac{\sqrt{210}i}{105} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{70}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{70}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{105} \quad \frac{\sqrt{35}}{70} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad \frac{\sqrt{70}}{70} \quad \frac{\sqrt{105}i}{70} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad -\frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70}$
675	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{G}_2^{(1,1;a)}(A, 1)$	0	$-\frac{\sqrt{42}i}{84} \quad 0 \quad -\frac{\sqrt{42}}{84} \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad -\frac{\sqrt{70}}{70} \quad 0 \quad 0$
	$-\frac{\sqrt{42}i}{84}$	$0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{42}}{84} \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad 0$
	$-\frac{\sqrt{42}}{84}$	$0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad -\frac{\sqrt{70}}{70} \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad \frac{\sqrt{7}}{28} \quad \frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{210}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{210}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{210}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{140} \quad -\frac{\sqrt{105}}{210} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad \frac{\sqrt{210}}{140} \quad \frac{\sqrt{35}i}{35} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{35}$
676	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,1;a)}(A, 2)$	0	$\frac{\sqrt{14}i}{168} \quad 0 \quad -\frac{\sqrt{14}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{120} \quad 0 \quad -\frac{\sqrt{210}}{120} \quad -\frac{\sqrt{35}i}{42} \quad 0$
	$\frac{\sqrt{14}i}{168}$	$0 \quad \frac{\sqrt{14}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{120} \quad 0 \quad \frac{\sqrt{210}}{120} \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{42}$
	0	$\frac{\sqrt{14}}{168} \quad 0 \quad \frac{\sqrt{14}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{280} \quad 0 \quad \frac{\sqrt{210}i}{280} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{14}}{168}$	$0 \quad \frac{\sqrt{14}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{280} \quad 0 \quad \frac{\sqrt{210}i}{280} \quad 0 \quad 0 \quad 0$
	$\frac{5\sqrt{14}i}{168}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad \frac{\sqrt{21}}{28} \quad \frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{420}$
	0	$-\frac{5\sqrt{14}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad -\frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{420} \quad 0$
	0	$0 \quad \frac{5\sqrt{14}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{420}$
	0	$0 \quad 0 \quad 0 \quad -\frac{5\sqrt{14}i}{168} \quad -\frac{\sqrt{21}}{42} \quad 0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{168} \quad -\frac{\sqrt{35}}{420} \quad 0$
	0	$0 \quad -\frac{5\sqrt{42}i}{168} \quad 0 \quad -\frac{5\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0$
	$-\frac{5\sqrt{42}i}{168}$	$0 \quad \frac{5\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad -\frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0$
677	symmetry	$\sqrt{3}xz$
$\mathbb{G}_2^{(1,1;a)}(A, 3)$	$-\frac{\sqrt{14}i}{42}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{105} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{42}$
	0	$\frac{\sqrt{14}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{105} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{42} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{14}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{42}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{105} \quad \frac{\sqrt{35}}{42} \quad 0$
	0	$0 \quad \frac{5\sqrt{14}i}{168} \quad 0 \quad \frac{5\sqrt{14}}{168} \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{280} \quad 0 \quad \frac{\sqrt{210}}{168} \quad \frac{\sqrt{35}i}{105} \quad 0$
	$\frac{5\sqrt{14}i}{168}$	$0 \quad -\frac{5\sqrt{14}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{280} \quad 0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{105}$
	0	$-\frac{5\sqrt{14}}{168} \quad 0 \quad \frac{5\sqrt{14}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad -\frac{\sqrt{210}i}{120} \quad 0 \quad 0$
	$\frac{5\sqrt{14}}{168}$	$0 \quad \frac{5\sqrt{14}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad -\frac{\sqrt{210}}{168} \quad 0 \quad -\frac{\sqrt{210}i}{120} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{105}$
	0	$0 \quad 0 \quad -\frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{105} \quad 0$
678	symmetry	$\sqrt{3}yz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,1;a)}(B, 1)$	0 0 $-\frac{\sqrt{14}i}{42}$ 0 0 $\frac{\sqrt{21}}{42}$ 0 0 0 0 $-\frac{\sqrt{210}i}{105}$ 0 0 $\frac{\sqrt{35}}{42}$	
	0 0 0 $\frac{\sqrt{14}i}{42}$ $-\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 $\frac{\sqrt{210}i}{105}$ $-\frac{\sqrt{35}}{42}$ 0	
	$\frac{\sqrt{14}i}{42}$ 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ $\frac{\sqrt{210}i}{105}$ 0 0 0 0 $-\frac{\sqrt{35}i}{42}$	
	0 $-\frac{\sqrt{14}i}{42}$ 0 0 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{210}i}{105}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0	
	0 $-\frac{5\sqrt{14}}{168}$ 0 $\frac{5\sqrt{14}i}{168}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{210}}{120}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0	
	$\frac{5\sqrt{14}}{168}$ 0 $\frac{5\sqrt{14}i}{168}$ 0 0 0 0 $-\frac{\sqrt{21}i}{42}$ $\frac{\sqrt{210}}{120}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 0	
	0 $-\frac{5\sqrt{14}i}{168}$ 0 $-\frac{5\sqrt{14}}{168}$ $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{280}$ $\frac{\sqrt{35}i}{105}$ 0	
	$-\frac{5\sqrt{14}i}{168}$ 0 $\frac{5\sqrt{14}}{168}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{280}$ 0 0 $-\frac{\sqrt{35}i}{105}$	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{70}i}{70}$ 0 0 $-\frac{\sqrt{105}}{105}$	
	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{70}$ $\frac{\sqrt{105}}{105}$ 0	
679	symmetry	$\sqrt{3}xy$
$\mathbb{G}_2^{(1,1;a)}(B, 2)$	0 $\frac{\sqrt{14}}{168}$ 0 $\frac{\sqrt{14}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{210}}{280}$ 0 $-\frac{\sqrt{210}i}{280}$ 0 0	
	$-\frac{\sqrt{14}}{168}$ 0 $\frac{\sqrt{14}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{280}$ 0 $-\frac{\sqrt{210}i}{280}$ 0 0 0	
	0 $-\frac{\sqrt{14}i}{168}$ 0 $\frac{\sqrt{14}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{120}$ 0 $-\frac{\sqrt{210}}{120}$ $-\frac{\sqrt{35}i}{42}$ 0	
	$-\frac{\sqrt{14}i}{168}$ 0 $-\frac{\sqrt{14}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{120}$ 0 $\frac{\sqrt{210}}{120}$ 0 0 $\frac{\sqrt{35}i}{42}$	
	0 0 $\frac{5\sqrt{14}i}{168}$ 0 0 $-\frac{\sqrt{21}}{28}$ 0 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{210}i}{168}$ 0 0 $-\frac{\sqrt{35}}{420}$	
	0 0 0 $-\frac{5\sqrt{14}i}{168}$ $\frac{\sqrt{21}}{28}$ 0 $\frac{\sqrt{21}i}{42}$ 0 0 0 0 $-\frac{\sqrt{210}i}{168}$ $\frac{\sqrt{35}}{420}$ 0	
	$-\frac{5\sqrt{14}i}{168}$ 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{21}}{42}$ $\frac{\sqrt{210}i}{168}$ 0 0 0 0 $-\frac{\sqrt{35}i}{420}$	
	0 $\frac{5\sqrt{14}i}{168}$ 0 0 $\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{210}i}{168}$ 0 0 $-\frac{\sqrt{35}i}{420}$ 0	
	0 $\frac{5\sqrt{42}}{168}$ 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 0 0 $-\frac{\sqrt{70}}{280}$ 0 $-\frac{\sqrt{70}i}{280}$ 0 0 0	
	$-\frac{5\sqrt{42}}{168}$ 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 0 0 $\frac{\sqrt{70}}{280}$ 0 $-\frac{\sqrt{70}i}{280}$ 0 0 0	
680	symmetry	$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(A, 1)$	$0 \quad \frac{2\sqrt{165}i}{165} \quad 0 \quad \frac{2\sqrt{165}}{165} \quad \frac{7\sqrt{110}i}{660} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{66} \quad 0 \quad \frac{\sqrt{11}}{66} \quad 0 \quad 0$	
	$\frac{2\sqrt{165}i}{165} \quad 0 \quad -\frac{2\sqrt{165}}{165} \quad 0 \quad 0 \quad -\frac{7\sqrt{110}i}{660} \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{66} \quad 0 \quad -\frac{\sqrt{11}}{66} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{7\sqrt{165}}{660} \quad 0 \quad -\frac{7\sqrt{165}i}{660} \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{330} \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{132} \quad 0 \quad -\frac{\sqrt{11}i}{132} \quad 0 \quad 0$	
	$-\frac{7\sqrt{165}}{660} \quad 0 \quad -\frac{7\sqrt{165}i}{660} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{330} \quad \frac{\sqrt{11}}{132} \quad 0 \quad -\frac{\sqrt{11}i}{132} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{165}i}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{165} \quad 0 \quad -\frac{\sqrt{110}}{330} \quad -\frac{5\sqrt{11}i}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{66}$	
	$0 \quad -\frac{\sqrt{165}i}{220} \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{165} \quad 0 \quad \frac{\sqrt{110}}{330} \quad 0 \quad 0 \quad \frac{5\sqrt{11}i}{132} \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{66} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{165}i}{220} \quad 0 \quad 0 \quad \frac{\sqrt{110}}{165} \quad 0 \quad -\frac{\sqrt{110}i}{330} \quad 0 \quad 0 \quad -\frac{5\sqrt{11}i}{132} \quad 0 \quad 0 \quad \frac{\sqrt{66}}{66}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{220} \quad -\frac{\sqrt{110}}{165} \quad 0 \quad -\frac{\sqrt{110}i}{330} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{11}i}{132} \quad -\frac{\sqrt{66}}{66} \quad 0$	
	$0 \quad -\frac{\sqrt{55}i}{660} \quad 0 \quad \frac{\sqrt{55}}{660} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{44} \quad 0 \quad \frac{\sqrt{33}}{44} \quad \frac{5\sqrt{22}i}{132} \quad 0$	
	$-\frac{\sqrt{55}i}{660} \quad 0 \quad -\frac{\sqrt{55}}{660} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{44} \quad 0 \quad -\frac{\sqrt{33}}{44} \quad 0 \quad 0 \quad -\frac{5\sqrt{22}i}{132}$	
681	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
$\mathbb{G}_4^{(1,1;a)}(A, 2)$	$0 \quad -\frac{5\sqrt{231}i}{462} \quad 0 \quad -\frac{5\sqrt{231}}{462} \quad -\frac{19\sqrt{154}i}{4620} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{385}i}{1155} \quad 0 \quad \frac{\sqrt{385}}{1155} \quad 0 \quad 0$	
	$-\frac{5\sqrt{231}i}{462} \quad 0 \quad \frac{5\sqrt{231}}{462} \quad 0 \quad 0 \quad \frac{19\sqrt{154}i}{4620} \quad 0 \quad 0 \quad -\frac{\sqrt{385}i}{1155} \quad 0 \quad -\frac{\sqrt{385}}{1155} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{231}}{84} \quad 0 \quad \frac{\sqrt{231}i}{84} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{154}i}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{385}}{420} \quad 0 \quad -\frac{\sqrt{385}i}{420} \quad 0 \quad 0$	
	$\frac{\sqrt{231}}{84} \quad 0 \quad \frac{\sqrt{231}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{154}i}{105} \quad \frac{\sqrt{385}}{420} \quad 0 \quad -\frac{\sqrt{385}i}{420} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{231}i}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{2\sqrt{154}i}{1155} \quad 0 \quad -\frac{\sqrt{154}}{210} \quad -\frac{5\sqrt{385}i}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2310}i}{462}$	
	$0 \quad \frac{\sqrt{231}i}{220} \quad 0 \quad 0 \quad -\frac{2\sqrt{154}i}{1155} \quad 0 \quad \frac{\sqrt{154}}{210} \quad 0 \quad 0 \quad \frac{5\sqrt{385}i}{924} \quad 0 \quad 0 \quad \frac{\sqrt{2310}i}{462} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{231}i}{220} \quad 0 \quad 0 \quad \frac{2\sqrt{154}}{1155} \quad 0 \quad -\frac{\sqrt{154}i}{210} \quad 0 \quad 0 \quad -\frac{5\sqrt{385}i}{924} \quad 0 \quad 0 \quad \frac{\sqrt{2310}}{462}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{231}i}{220} \quad -\frac{2\sqrt{154}}{1155} \quad 0 \quad -\frac{\sqrt{154}i}{210} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{385}i}{924} \quad -\frac{\sqrt{2310}}{462} \quad 0$	
	$0 \quad \frac{\sqrt{77}i}{660} \quad 0 \quad -\frac{\sqrt{77}}{660} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{308} \quad 0 \quad \frac{\sqrt{1155}}{308} \quad \frac{5\sqrt{770}i}{924} \quad 0$	
	$\frac{\sqrt{77}i}{660} \quad 0 \quad \frac{\sqrt{77}}{660} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{308} \quad 0 \quad -\frac{\sqrt{1155}}{308} \quad 0 \quad 0 \quad -\frac{5\sqrt{770}i}{924}$	
682	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(A, 3)$	0	$\begin{bmatrix} 0 & \frac{\sqrt{77}i}{1540} & 0 & -\frac{\sqrt{77}}{1540} & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{1155}i}{4620} & 0 & -\frac{17\sqrt{1155}}{4620} & -\frac{\sqrt{770}i}{220} & 0 \\ \frac{\sqrt{77}i}{1540} & 0 & \frac{\sqrt{77}}{1540} & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{1155}i}{4620} & 0 & \frac{17\sqrt{1155}}{4620} & 0 & 0 & \frac{\sqrt{770}i}{220} \\ 0 & \frac{\sqrt{77}}{1540} & 0 & \frac{\sqrt{77}i}{1540} & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{420} & 0 & 0 & \frac{\sqrt{1155}i}{420} & 0 & 0 \\ -\frac{\sqrt{77}}{1540} & 0 & \frac{\sqrt{77}i}{1540} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{420} & 0 & 0 & \frac{\sqrt{1155}i}{420} & 0 & 0 \\ \frac{\sqrt{77}i}{220} & 0 & 0 & 0 & 0 & -\frac{17\sqrt{462}i}{2310} & 0 & -\frac{\sqrt{462}}{210} & -\frac{\sqrt{1155}i}{220} & 0 & 0 & 0 & 0 & \frac{\sqrt{770}i}{385} \\ 0 & -\frac{\sqrt{77}i}{220} & 0 & 0 & -\frac{17\sqrt{462}i}{2310} & 0 & \frac{\sqrt{462}}{210} & 0 & 0 & \frac{\sqrt{1155}i}{220} & 0 & 0 & \frac{\sqrt{770}i}{385} & 0 \\ 0 & 0 & \frac{\sqrt{77}i}{220} & 0 & 0 & -\frac{17\sqrt{462}}{2310} & 0 & \frac{\sqrt{462}i}{210} & 0 & 0 & \frac{\sqrt{1155}i}{220} & 0 & 0 & -\frac{\sqrt{770}}{385} \\ 0 & 0 & 0 & -\frac{\sqrt{77}i}{220} & \frac{17\sqrt{462}}{2310} & 0 & \frac{\sqrt{462}i}{210} & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{220} & \frac{\sqrt{770}}{385} & 0 \\ 0 & -\frac{\sqrt{231}i}{165} & 0 & -\frac{\sqrt{231}}{165} & -\frac{3\sqrt{154}i}{220} & 0 & 0 & 0 & 0 & \frac{3\sqrt{385}i}{770} & 0 & -\frac{3\sqrt{385}}{770} & 0 & 0 \\ -\frac{\sqrt{231}i}{165} & 0 & \frac{\sqrt{231}}{165} & 0 & 0 & \frac{3\sqrt{154}i}{220} & 0 & 0 & \frac{3\sqrt{385}i}{770} & 0 & \frac{3\sqrt{385}}{770} & 0 & 0 & 0 \end{bmatrix}$
	683	symmetry
		$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
		$\begin{bmatrix} \frac{\sqrt{11}i}{220} & 0 & 0 & 0 & 0 & -\frac{7\sqrt{66}i}{660} & 0 & -\frac{3\sqrt{66}}{440} & -\frac{\sqrt{165}i}{132} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}i}{110} \\ 0 & -\frac{\sqrt{11}i}{220} & 0 & 0 & -\frac{7\sqrt{66}i}{660} & 0 & \frac{3\sqrt{66}}{440} & 0 & 0 & \frac{\sqrt{165}i}{132} & 0 & 0 & \frac{\sqrt{110}i}{110} & 0 \\ 0 & 0 & \frac{\sqrt{11}i}{220} & 0 & 0 & -\frac{3\sqrt{66}}{440} & 0 & \frac{\sqrt{66}i}{330} & 0 & 0 & -\frac{\sqrt{165}i}{660} & 0 & 0 & \frac{3\sqrt{110}}{440} \\ 0 & 0 & 0 & -\frac{\sqrt{11}i}{220} & \frac{3\sqrt{66}}{440} & 0 & \frac{\sqrt{66}i}{330} & 0 & 0 & 0 & 0 & \frac{\sqrt{165}i}{660} & -\frac{3\sqrt{110}}{440} & 0 \\ 0 & -\frac{\sqrt{11}i}{44} & 0 & -\frac{9\sqrt{11}}{440} & -\frac{\sqrt{66}i}{66} & 0 & 0 & 0 & 0 & \frac{\sqrt{165}i}{60} & 0 & \frac{3\sqrt{165}}{440} & \frac{\sqrt{110}i}{55} & 0 \\ -\frac{\sqrt{11}i}{44} & 0 & \frac{9\sqrt{11}}{440} & 0 & 0 & \frac{\sqrt{66}i}{66} & 0 & 0 & \frac{\sqrt{165}i}{60} & 0 & -\frac{3\sqrt{165}}{440} & 0 & 0 & -\frac{\sqrt{110}i}{55} \\ 0 & -\frac{3\sqrt{11}}{440} & 0 & \frac{\sqrt{11}i}{220} & 0 & 0 & -\frac{\sqrt{66}i}{330} & 0 & 0 & \frac{3\sqrt{165}}{440} & 0 & -\frac{\sqrt{165}i}{660} & 0 & 0 \\ \frac{3\sqrt{11}}{440} & 0 & \frac{\sqrt{11}i}{220} & 0 & 0 & 0 & 0 & \frac{\sqrt{66}i}{330} & -\frac{3\sqrt{165}}{440} & 0 & -\frac{\sqrt{165}i}{660} & 0 & 0 & 0 \\ -\frac{\sqrt{33}i}{165} & 0 & 0 & 0 & 0 & \frac{3\sqrt{22}i}{110} & 0 & \frac{9\sqrt{22}}{440} & \frac{3\sqrt{55}i}{110} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} \\ 0 & \frac{\sqrt{33}i}{165} & 0 & 0 & \frac{3\sqrt{22}i}{110} & 0 & -\frac{9\sqrt{22}}{440} & 0 & 0 & -\frac{3\sqrt{55}i}{110} & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 \end{bmatrix}$
	684	symmetry
		$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(A, 5)$	$-\frac{\sqrt{77}i}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{29\sqrt{462}i}{4620} \quad 0 \quad -\frac{3\sqrt{462}}{440} \quad -\frac{\sqrt{1155}i}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{77}i}{1540} \quad 0 \quad 0 \quad -\frac{29\sqrt{462}i}{4620} \quad 0 \quad \frac{3\sqrt{462}}{440} \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{77}i}{1540} \quad 0 \quad 0 \quad -\frac{3\sqrt{462}}{440} \quad 0 \quad \frac{17\sqrt{462}i}{2310} \quad 0 \quad 0 \quad \frac{17\sqrt{1155}i}{4620} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}}{440}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{77}i}{1540} \quad \frac{3\sqrt{462}}{440} \quad 0 \quad \frac{17\sqrt{462}i}{2310} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{17\sqrt{1155}i}{4620} \quad \frac{\sqrt{770}}{440} \quad 0$	
	$0 \quad -\frac{3\sqrt{77}i}{220} \quad 0 \quad -\frac{\sqrt{77}}{88} \quad -\frac{\sqrt{462}i}{210} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{924} \quad 0 \quad -\frac{\sqrt{1155}}{440} \quad -\frac{\sqrt{770}i}{385} \quad 0$	
	$-\frac{3\sqrt{77}i}{220} \quad 0 \quad \frac{\sqrt{77}}{88} \quad 0 \quad 0 \quad \frac{\sqrt{462}i}{210} \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{924} \quad 0 \quad \frac{\sqrt{1155}}{440} \quad 0 \quad 0 \quad \frac{\sqrt{770}i}{385}$	
	$0 \quad -\frac{7\sqrt{77}}{440} \quad 0 \quad \frac{3\sqrt{77}i}{220} \quad 0 \quad 0 \quad \frac{17\sqrt{462}i}{2310} \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{440} \quad 0 \quad -\frac{\sqrt{1155}i}{924} \quad 0 \quad 0 \quad 0$	
	$\frac{7\sqrt{77}}{440} \quad 0 \quad \frac{3\sqrt{77}i}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{17\sqrt{462}i}{2310} \quad \frac{\sqrt{1155}}{440} \quad 0 \quad -\frac{\sqrt{1155}i}{924} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{231}i}{165} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{154}}{440} \quad -\frac{3\sqrt{385}i}{770} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2310}i}{924}$	
	$0 \quad \frac{\sqrt{231}i}{165} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{154}}{440} \quad 0 \quad 0 \quad \frac{3\sqrt{385}i}{770} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2310}i}{924} \quad 0$	
685	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{G}_4^{(1,1;a)}(B, 1)$	$0 \quad 0 \quad -\frac{\sqrt{11}i}{220} \quad 0 \quad 0 \quad \frac{7\sqrt{66}}{660} \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{132} \quad 0 \quad 0 \quad \frac{\sqrt{110}}{110}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{220} \quad -\frac{7\sqrt{66}}{660} \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{132} \quad -\frac{\sqrt{110}}{110} \quad 0$	
	$\frac{\sqrt{11}i}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0 \quad -\frac{\sqrt{66}}{330} \quad \frac{\sqrt{165}i}{660} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{110}i}{440}$	
	$0 \quad -\frac{\sqrt{11}i}{220} \quad 0 \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0 \quad \frac{\sqrt{66}}{330} \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{660} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{110}i}{440} \quad 0$	
	$0 \quad \frac{\sqrt{11}}{220} \quad 0 \quad -\frac{3\sqrt{11}i}{440} \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{330} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{660} \quad 0 \quad -\frac{3\sqrt{165}i}{440} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{11}}{220} \quad 0 \quad -\frac{3\sqrt{11}i}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{66}i}{330} \quad -\frac{\sqrt{165}}{660} \quad 0 \quad -\frac{3\sqrt{165}i}{440} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{9\sqrt{11}i}{440} \quad 0 \quad -\frac{\sqrt{11}}{44} \quad -\frac{\sqrt{66}i}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{165}i}{440} \quad 0 \quad -\frac{\sqrt{165}}{60} \quad -\frac{\sqrt{110}i}{55} \quad 0$	
	$-\frac{9\sqrt{11}i}{440} \quad 0 \quad \frac{\sqrt{11}}{44} \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{66} \quad 0 \quad 0 \quad -\frac{3\sqrt{165}i}{440} \quad 0 \quad \frac{\sqrt{165}}{60} \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{55}$	
	$0 \quad 0 \quad -\frac{\sqrt{33}i}{165} \quad 0 \quad 0 \quad \frac{3\sqrt{22}}{110} \quad 0 \quad -\frac{9\sqrt{22}i}{440} \quad 0 \quad 0 \quad -\frac{3\sqrt{55}i}{110} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}}{132}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{165} \quad -\frac{3\sqrt{22}}{110} \quad 0 \quad -\frac{9\sqrt{22}i}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{55}i}{110} \quad -\frac{\sqrt{330}}{132} \quad 0$	
686	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(B, 2)$	$0 - \frac{3\sqrt{11}}{44} 0 \frac{3\sqrt{11}i}{44} 0 0 \frac{3\sqrt{66}i}{220} 0 0 - \frac{\sqrt{165}}{660} 0 - \frac{\sqrt{165}i}{660} 0 0$	
	$\frac{3\sqrt{11}}{44} 0 \frac{3\sqrt{11}i}{44} 0 0 0 - \frac{3\sqrt{66}i}{220} \frac{\sqrt{165}}{660} 0 - \frac{\sqrt{165}i}{660} 0 0 0$	
	$0 \frac{3\sqrt{11}i}{44} 0 \frac{3\sqrt{11}}{44} \frac{3\sqrt{66}i}{220} 0 0 0 - \frac{\sqrt{165}i}{660} 0 \frac{\sqrt{165}}{660} 0 0$	
	$\frac{3\sqrt{11}i}{44} 0 - \frac{3\sqrt{11}}{44} 0 0 - \frac{3\sqrt{66}i}{220} 0 0 - \frac{\sqrt{165}i}{660} 0 - \frac{\sqrt{165}}{660} 0 0$	
	$0 0 \frac{3\sqrt{11}i}{110} 0 0 - \frac{\sqrt{66}}{330} 0 - \frac{\sqrt{66}i}{330} 0 0 0 0 0 0$	
	$0 0 0 - \frac{3\sqrt{11}i}{110} \frac{\sqrt{66}}{330} 0 - \frac{\sqrt{66}i}{330} 0 0 0 0 0 0 0$	
	$\frac{3\sqrt{11}i}{110} 0 0 0 0 - \frac{\sqrt{66}i}{330} 0 \frac{\sqrt{66}}{330} 0 0 0 0 0 0$	
	$0 - \frac{3\sqrt{11}i}{110} 0 0 - \frac{\sqrt{66}i}{330} 0 - \frac{\sqrt{66}}{330} 0 0 0 0 0 0 0$	
	$0 - \frac{\sqrt{33}}{330} 0 - \frac{\sqrt{33}i}{330} 0 0 0 0 0 0 0 0 0 0$	
	$\frac{\sqrt{33}}{330} 0 - \frac{\sqrt{33}i}{330} 0 0 0 0 0 0 0 0 0 0 0$	
687	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
$\mathbb{G}_4^{(1,1;a)}(B, 3)$	$0 0 - \frac{\sqrt{77}i}{1540} 0 0 - \frac{29\sqrt{462}}{4620} 0 \frac{3\sqrt{462}i}{440} 0 0 \frac{\sqrt{1155}i}{420} 0 0 0$	
	$0 0 0 \frac{\sqrt{77}i}{1540} \frac{29\sqrt{462}}{4620} 0 \frac{3\sqrt{462}i}{440} 0 0 0 0 - \frac{\sqrt{1155}i}{420} 0 0$	
	$\frac{\sqrt{77}i}{1540} 0 0 0 0 \frac{3\sqrt{462}i}{440} 0 \frac{17\sqrt{462}}{2310} \frac{17\sqrt{1155}i}{4620} 0 0 0 0 - \frac{\sqrt{770}i}{440}$	
	$0 - \frac{\sqrt{77}i}{1540} 0 0 \frac{3\sqrt{462}i}{440} 0 - \frac{17\sqrt{462}}{2310} 0 0 - \frac{17\sqrt{1155}i}{4620} 0 0 0 - \frac{\sqrt{770}i}{440} 0$	
	$0 - \frac{3\sqrt{77}}{220} 0 \frac{7\sqrt{77}i}{440} 0 0 \frac{17\sqrt{462}i}{2310} 0 0 - \frac{\sqrt{1155}}{924} 0 - \frac{\sqrt{1155}i}{440} 0 0$	
	$\frac{3\sqrt{77}}{220} 0 \frac{7\sqrt{77}i}{440} 0 0 0 - \frac{17\sqrt{462}i}{2310} \frac{\sqrt{1155}}{924} 0 - \frac{\sqrt{1155}i}{440} 0 0 0$	
	$0 \frac{\sqrt{77}i}{88} 0 \frac{3\sqrt{77}}{220} \frac{\sqrt{462}i}{210} 0 0 0 0 - \frac{\sqrt{1155}i}{440} 0 - \frac{\sqrt{1155}}{924} - \frac{\sqrt{770}i}{385} 0$	
	$\frac{\sqrt{77}i}{88} 0 - \frac{3\sqrt{77}}{220} 0 0 - \frac{\sqrt{462}i}{210} 0 0 - \frac{\sqrt{1155}i}{440} 0 \frac{\sqrt{1155}}{924} 0 0 \frac{\sqrt{770}i}{385}$	
	$0 0 \frac{\sqrt{231}i}{165} 0 0 0 - \frac{3\sqrt{154}i}{440} 0 0 - \frac{3\sqrt{385}i}{770} 0 0 \frac{\sqrt{2310}}{924}$	
	$0 0 0 - \frac{\sqrt{231}i}{165} 0 0 - \frac{3\sqrt{154}i}{440} 0 0 0 0 \frac{3\sqrt{385}i}{770} - \frac{\sqrt{2310}}{924} 0$	
688	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(B, 4)$	0	$-\frac{\sqrt{77}}{1540} \quad 0 \quad -\frac{\sqrt{77}i}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{420} \quad 0 \quad \frac{\sqrt{1155}i}{420} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{77}}{1540}$	$0 \quad -\frac{\sqrt{77}i}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{420} \quad 0 \quad \frac{\sqrt{1155}i}{420} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{77}i}{1540} \quad 0 \quad -\frac{\sqrt{77}}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{17\sqrt{1155}i}{4620} \quad 0 \quad \frac{17\sqrt{1155}}{4620} \quad \frac{\sqrt{770}i}{220} \quad 0 \quad 0$
	$\frac{\sqrt{77}i}{1540}$	$0 \quad \frac{\sqrt{77}}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{17\sqrt{1155}i}{4620} \quad 0 \quad -\frac{17\sqrt{1155}}{4620} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}i}{220}$
	0	$0 \quad -\frac{\sqrt{77}i}{220} \quad 0 \quad 0 \quad -\frac{\sqrt{462}}{210} \quad 0 \quad \frac{17\sqrt{462}i}{2310} \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{220} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}}{385} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{77}i}{220} \quad \frac{\sqrt{462}}{210} \quad 0 \quad \frac{17\sqrt{462}i}{2310} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{220} \quad \frac{\sqrt{770}}{385} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{77}i}{220}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{462}i}{210} \quad 0 \quad \frac{17\sqrt{462}}{2310} \quad \frac{\sqrt{1155}i}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}i}{385} \quad 0$
	0	$-\frac{\sqrt{77}i}{220} \quad 0 \quad 0 \quad \frac{\sqrt{462}i}{210} \quad 0 \quad -\frac{17\sqrt{462}}{2310} \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{220} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}i}{385} \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{231}i}{165} \quad 0 \quad \frac{\sqrt{231}i}{165} \quad 0 \quad 0 \quad \frac{3\sqrt{154}i}{220} \quad 0 \quad 0 \quad -\frac{3\sqrt{385}}{770} \quad 0 \quad -\frac{3\sqrt{385}i}{770} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{231}}{165}$	$0 \quad \frac{\sqrt{231}i}{165} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{154}i}{220} \quad \frac{3\sqrt{385}}{770} \quad 0 \quad -\frac{3\sqrt{385}i}{770} \quad 0 \quad 0 \quad 0 \quad 0$
689	symmetry	$y$
$\mathbb{T}_1^{(a)}(A)$	0	$0 \quad 0 \quad \frac{\sqrt{42}i}{28} \quad 0 \quad \frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{28} \quad 0 \quad \frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{42}i}{28}$	$0 \quad 0 \quad -\frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{42}i}{28} \quad 0 \quad -\frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{210}i}{70} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{210}i}{70} \quad 0 \quad 0 \quad 0$
690	symmetry	$x$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_1^{(a)}(B, 1)$	$\frac{\sqrt{42}i}{28}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0 0
	0	$\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0 0
	0	0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{210}i}{70}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 $\frac{\sqrt{210}i}{70}$ 0 0 0 0 0 0 0
	691	symmetry
$\mathbb{T}_1^{(a)}(B, 2)$	$z$	
	0 0 0 0 $\frac{\sqrt{7}i}{14}$	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0	$\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0	0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0	0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 0
	0 0 0 0 0	0 0 0 0 $\frac{\sqrt{70}i}{35}$ 0 0 0 0 0 0 0 0
	0 0 0 0 0	0 0 0 0 0 $\frac{\sqrt{70}i}{35}$ 0 0 0 0 0 0
	0 0 0 0 0	0 0 0 0 0 0 $\frac{\sqrt{70}i}{35}$ 0 0 0 0 0
	0 0 0 0 0	0 0 0 0 0 0 0 $\frac{\sqrt{70}i}{35}$ 0 0 0 0
	0 0 0 0 0	0 0 0 0 0 0 0 0 $\frac{3\sqrt{35}i}{70}$ 0
692	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 \\ -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
693	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{11\sqrt{30}i}{240} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{11\sqrt{30}i}{240} & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{240} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{240} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 \\ 0 & 0 & \frac{5\sqrt{6}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{80} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{6}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{80} & 0 & 0 & 0 & 0 \end{bmatrix}$
694	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(a)}(A, 3)$	$0 \ 0 \ -\frac{\sqrt{30}i}{48} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{2}i}{16} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{30}i}{48} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{2}i}{16} \ 0 \ 0 \ 0$	
	$\frac{\sqrt{30}i}{48} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ \frac{\sqrt{30}i}{48} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{5}i}{8} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{3}i}{24} \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{5}i}{8} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{3}i}{24}$	
	$0 \ 0 \ \frac{\sqrt{10}i}{16} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{6}i}{16} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ \frac{\sqrt{10}i}{16} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{6}i}{16} \ 0 \ 0 \ 0$	
695	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
$\mathbb{T}_3^{(a)}(B, 1)$	$\frac{\sqrt{2}i}{16} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{11\sqrt{30}i}{240} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ \frac{\sqrt{2}i}{16} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{11\sqrt{30}i}{240} \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ \frac{\sqrt{2}i}{16} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{30}i}{240} \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ \frac{\sqrt{2}i}{16} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{30}i}{240} \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ \frac{\sqrt{3}i}{24} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{5}i}{40} \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{3}i}{24} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{5}i}{40}$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{3}i}{6} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{3}i}{6} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$-\frac{5\sqrt{6}i}{48} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{3\sqrt{10}i}{80} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
696	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(a)}(B, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{15} & 0 \end{bmatrix}$
697	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
$\mathbb{T}_3^{(a)}(B, 3)$		$\begin{bmatrix} \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
698	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{T}_3^{(a)}(B, 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
699	symmetry	$\begin{bmatrix} & & & & & & & \frac{3\sqrt{35}xyz(x-y)(x+y)}{2} & & & & & & \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
700	symmetry	$\begin{bmatrix} & & & & & & & \frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2} & & & & & & \\ & & & & & & & & & & & & & & & \end{bmatrix}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(a)}(A, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
701	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$
$\mathbb{T}_5^{(a)}(A, 3)$		$\begin{bmatrix} 0 & 0 & \frac{11\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{105}i}{336} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{11\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{105}i}{336} & 0 & 0 \\ \frac{5\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} \\ 0 & 0 & \frac{\sqrt{21}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{112} & 0 & 0 \end{bmatrix}$
702	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(a)}(A, 4)$	$0 \ 0 \ \frac{3\sqrt{5}i}{80} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{3}i}{16} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ \frac{3\sqrt{5}i}{80} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{3}i}{16} \ 0 \ 0 \ 0$	
	$\frac{\sqrt{5}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{3}i}{8} \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ \frac{\sqrt{5}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{3}i}{8} \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{30}i}{20} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{30}i}{20} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{30}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{2}i}{8} \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{30}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{2}i}{8}$	
	$0 \ 0 \ -\frac{3\sqrt{15}i}{80} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{3i}{16} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ -\frac{3\sqrt{15}i}{80} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{3i}{16} \ 0 \ 0 \ 0$	
703	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
$\mathbb{T}_5^{(a)}(A, 5)$	$0 \ 0 \ \frac{7\sqrt{15}i}{120} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{i}{8} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ \frac{7\sqrt{15}i}{120} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{i}{8} \ 0 \ 0 \ 0$	
	$\frac{\sqrt{15}i}{15} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ \frac{\sqrt{15}i}{15} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{10}i}{20} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{6}i}{12} \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{10}i}{20} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{6}i}{12}$	
	$0 \ 0 \ -\frac{\sqrt{5}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{3}i}{8} \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{5}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{3}i}{8} \ 0 \ 0 \ 0$	
704	symmetry	$\frac{x(8x^4-40x^2y^2-40x^2z^2+15y^4+30y^2z^2+15z^4)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(a)}(B, 1)$	$\frac{11\sqrt{7}i}{112}$	0 0 0 0 0 0 0 0 $-\frac{5\sqrt{105}i}{336}$ 0 0 0 0 0
	0	$\frac{11\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{105}i}{336}$ 0 0 0 0 0
	0	0 $-\frac{5\sqrt{7}i}{56}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 0 0
	0	0 0 $-\frac{5\sqrt{7}i}{56}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 0
	0	0 0 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0
	0	0 0 0 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$
	0	0 0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{21}i}{48}$	0 0 0 0 0 0 0 0 $\frac{3\sqrt{35}i}{112}$ 0 0 0 0 0
	0	$-\frac{\sqrt{21}i}{48}$ 0 0 0 0 0 0 0 0 $\frac{3\sqrt{35}i}{112}$ 0 0 0 0
705	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$
$\mathbb{T}_5^{(a)}(B, 2)$	0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{210}i}{42}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{210}i}{42}$	
706	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(a)}(B, 3)$	$\frac{3\sqrt{5}i}{80}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{5}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
	$707$	$\text{symmetry}$
		$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
	$\mathbb{T}_5^{(a)}(B, 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(a)}(B, 5)$	$-\frac{7\sqrt{15}i}{120}$	$0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{7\sqrt{15}i}{120} \quad 0 \quad -\frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{15}i}{15} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{15} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{6}i}{12} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{6}i}{12}$
	0	$0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0$
	$-\frac{\sqrt{5}i}{40}$	$0 \quad 0 \quad \frac{\sqrt{3}i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{5}i}{40} \quad 0 \quad \frac{\sqrt{3}i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
709	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
$\mathbb{T}_5^{(a)}(B, 6)$	0	$0 \quad 0 \quad \frac{\sqrt{6}i}{12} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{6}i}{12}$
	0	$0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0$
	$-\frac{\sqrt{15}i}{60}$	$0 \quad 0 \quad \frac{i}{4} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{15}i}{60} \quad 0 \quad \frac{i}{4} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{15}i}{60} \quad 0 \quad -\frac{i}{4} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{60} \quad 0 \quad -\frac{i}{4} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{20} \quad 0 \quad 0$
710	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{28} & \frac{\sqrt{42}}{84} & 0 \\ -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{42}}{84} \\ 0 & \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ \frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} \\ 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 \\ 0 & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{42}i}{42} \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & \frac{\sqrt{42}i}{42} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 \end{bmatrix}$
711	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
		$\begin{bmatrix} \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & \frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{140} \\ 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & -\frac{\sqrt{70}}{140} & 0 \\ 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & 0 & -\frac{3\sqrt{70}i}{280} \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} & \frac{3\sqrt{70}i}{280} & 0 \\ 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & \frac{\sqrt{105}i}{56} & \frac{\sqrt{70}}{70} & 0 \\ -\frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & -\frac{\sqrt{70}}{70} & 0 \\ 0 & \frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{280} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 \\ -\frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{280} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & -\frac{3\sqrt{14}i}{56} & -\frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & 0 \end{bmatrix}$
712	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,-1;a)}(A, 3)$	$\frac{-\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{84}$	
	$0 \quad \frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{84} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{168}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84} \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad \frac{\sqrt{42}i}{168} \quad 0$	
	$0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad -\frac{\sqrt{7}i}{56} \quad -\frac{\sqrt{42}}{42} \quad 0$	
	$-\frac{\sqrt{105}}{84} \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad \frac{\sqrt{7}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{42}$	
	$0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}i}{56} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0$	
	$-\frac{\sqrt{105}i}{168} \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{7}i}{56} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{84} \quad 0 \quad -\frac{\sqrt{210}i}{168} \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{84} \quad 0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad 0$	
713	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
$\mathbb{T}_3^{(1,-1;a)}(B, 1)$	$0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{140}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad -\frac{\sqrt{70}i}{140} \quad 0$	
	$\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280}$	
	$0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0$	
	$0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad \frac{\sqrt{105}}{280} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad \frac{\sqrt{105}}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{3\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{56} \quad 0 \quad \frac{\sqrt{105}i}{140} \quad -\frac{\sqrt{70}}{70} \quad 0$	
	$\frac{3\sqrt{7}}{56} \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{56} \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{70}$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad -\frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad -\frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad 0$	
714	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,-1;a)}(B, 2)$	0	$-\frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad \frac{\sqrt{105}}{140} \quad 0 \quad 0$
	$\frac{\sqrt{7}i}{28}$	$0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{28} \quad \frac{\sqrt{105}i}{140} \quad 0 \quad \frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{7}}{28} \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad -\frac{\sqrt{42}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0$
	$\frac{\sqrt{7}}{28}$	$0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{70}$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad \frac{\sqrt{70}i}{70} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{70}$
	0	$0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{70}$
	0	$0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0$
715	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
$\mathbb{T}_3^{(1,-1;a)}(B, 3)$	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{84}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad \frac{\sqrt{42}i}{84} \quad 0$
	$\frac{\sqrt{105}}{84}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{168}$
	0	$-\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0$
	0	$-\frac{\sqrt{105}i}{84} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0$
	$\frac{\sqrt{105}i}{84}$	$0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{105}}{168} \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{56} \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad -\frac{\sqrt{42}}{42} \quad 0$
	$-\frac{\sqrt{105}}{168}$	$0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{42}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{84} \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{84} \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0$
716	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,-1;a)}(B, 4)$	0	$-\frac{\sqrt{105}i}{84}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0
	$\frac{\sqrt{105}i}{84}$	0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0
	0	$-\frac{\sqrt{105}}{84}$ 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ $-\frac{\sqrt{42}}{84}$ 0
	$-\frac{\sqrt{105}}{84}$	0 $\frac{\sqrt{105}i}{84}$ 0 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0 $\frac{\sqrt{42}}{84}$
	0	0 $-\frac{\sqrt{105}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{42}i}{42}$
	0	0 0 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ $\frac{\sqrt{42}i}{42}$ 0
	$\frac{\sqrt{105}}{84}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 0 0 0 $\frac{\sqrt{42}}{42}$
	0	$-\frac{\sqrt{105}}{84}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 $\frac{\sqrt{42}}{42}$ 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{210}}{84}$ $-\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0 0
717	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
$\mathbb{T}_5^{(1,-1;a)}(A, 1)$	0	0 0 0 0 $-\frac{1}{10}$ 0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0
	0	0 0 0 0 0 $\frac{1}{10}$ 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0 0
	0	0 0 0 0 0 0 $\frac{1}{10}$ 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0
	0	0 0 0 0 0 0 0 $-\frac{1}{10}$ $\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0
	$\frac{\sqrt{6}}{20}$	0 0 0 0 0 0 $\frac{1}{20}$ 0 $\frac{i}{20}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{6}}{20}$ 0 0 $\frac{1}{20}$ 0 $-\frac{i}{20}$ 0 0 0 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{6}}{20}$ 0 0 $\frac{i}{20}$ 0 $-\frac{1}{20}$ 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{6}}{20}$ $-\frac{i}{20}$ 0 $-\frac{1}{20}$ 0 0 0 0 0 0 0
	0	$\frac{3\sqrt{2}}{20}$ 0 $\frac{3\sqrt{2}i}{20}$ 0 0 0 0 0 0 0 0 0 0 0
	$\frac{3\sqrt{2}}{20}$	0 $-\frac{3\sqrt{2}i}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0
718	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,-1;a)}(A, 2)$	0	$-\frac{\sqrt{2}}{40} \quad 0 \quad -\frac{\sqrt{2}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{40} \quad 0 \quad \frac{\sqrt{30}i}{40} \quad \frac{\sqrt{5}}{10} \quad 0$
	$-\frac{\sqrt{2}}{40}$	$0 \quad \frac{\sqrt{2}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{40} \quad 0 \quad -\frac{\sqrt{30}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10}$
	0	$\frac{\sqrt{2}i}{40} \quad 0 \quad -\frac{\sqrt{2}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad 0 \quad -\frac{\sqrt{30}}{120} \quad 0 \quad -\frac{\sqrt{30}}{120} \quad 0 \quad 0$
	$-\frac{\sqrt{2}i}{40}$	$0 \quad -\frac{\sqrt{2}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad -\frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{3\sqrt{2}}{40}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{15} \quad 0 \quad \frac{\sqrt{3}i}{20} \quad \frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20}$
	0	$-\frac{3\sqrt{2}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{15} \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0$
	0	$0 \quad 0 \quad \frac{3\sqrt{2}}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{15} \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20}$
	0	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{2}}{40} \quad \frac{\sqrt{3}i}{15} \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0$
	0	$\frac{\sqrt{6}}{40} \quad 0 \quad -\frac{\sqrt{6}i}{40} \quad -\frac{1}{5} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{6}}{40}$	$0 \quad \frac{\sqrt{6}i}{40} \quad 0 \quad 0 \quad \frac{1}{5} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
719	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$
$\mathbb{T}_5^{(1,-1;a)}(A, 3)$	$\frac{\sqrt{210}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{60} \quad 0 \quad -\frac{\sqrt{35}i}{84} \quad -\frac{\sqrt{14}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{84}$	
	0	$-\frac{\sqrt{210}}{560} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{60} \quad 0 \quad \frac{\sqrt{35}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{14}}{336} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{84} \quad 0$
	0	$0 \quad \frac{\sqrt{210}}{560} \quad 0 \quad 0 \quad -\frac{5\sqrt{35}i}{168} \quad 0 \quad \frac{\sqrt{35}}{60} \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{14}}{336} \quad 0 \quad 0 \quad -\frac{5\sqrt{21}i}{168}$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{560} \quad \frac{5\sqrt{35}i}{168} \quad 0 \quad \frac{\sqrt{35}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{14}}{336} \quad \frac{5\sqrt{21}i}{168} \quad 0$
	0	$\frac{11\sqrt{210}}{1680} \quad 0 \quad \frac{\sqrt{210}i}{168} \quad -\frac{\sqrt{35}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{336} \quad 0 \quad -\frac{5\sqrt{14}i}{168} \quad -\frac{\sqrt{21}}{56} \quad 0$
	$\frac{11\sqrt{210}}{1680}$	$0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{120} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{336} \quad 0 \quad \frac{5\sqrt{14}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{56}$
	0	$\frac{5\sqrt{210}i}{336} \quad 0 \quad -\frac{17\sqrt{210}}{1680} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{60} \quad 0 \quad 0 \quad \frac{5\sqrt{14}i}{336} \quad 0 \quad \frac{\sqrt{14}}{336} \quad 0 \quad 0 \quad 0$
	$-\frac{5\sqrt{210}i}{336}$	$0 \quad -\frac{17\sqrt{210}}{1680} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{60} \quad -\frac{5\sqrt{14}i}{336} \quad 0 \quad \frac{\sqrt{14}}{336} \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{70}}{80}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{210} \quad 0 \quad \frac{\sqrt{105}i}{84} \quad \frac{\sqrt{42}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{70}}{80} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{210} \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
720	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,-1;a)}(A, 4)$	$\frac{\sqrt{6}}{80} 0 0 0 0 -\frac{1}{20} 0 \frac{i}{20} \frac{\sqrt{10}}{16} 0 0 0 0 0 \frac{\sqrt{15}}{20}$	
	$0 -\frac{\sqrt{6}}{80} 0 0 -\frac{1}{20} 0 -\frac{i}{20} 0 0 -\frac{\sqrt{10}}{16} 0 0 0 \frac{\sqrt{15}}{20} 0$	
	$0 0 \frac{\sqrt{6}}{80} 0 0 -\frac{3i}{40} 0 \frac{1}{20} 0 0 0 -\frac{\sqrt{10}}{80} 0 0 0 \frac{\sqrt{15}i}{40}$	
	$0 0 0 -\frac{\sqrt{6}}{80} \frac{3i}{40} 0 \frac{1}{20} 0 0 0 0 \frac{\sqrt{10}}{80} -\frac{\sqrt{15}i}{40} 0$	
	$0 \frac{\sqrt{6}}{16} 0 \frac{\sqrt{6}i}{40} -\frac{1}{8} 0 0 0 0 \frac{\sqrt{10}}{80} 0 -\frac{\sqrt{10}i}{40} -\frac{\sqrt{15}}{40} 0$	
	$\frac{\sqrt{6}}{16} 0 -\frac{\sqrt{6}i}{40} 0 0 \frac{1}{8} 0 0 \frac{\sqrt{10}}{80} 0 \frac{\sqrt{10}i}{40} 0 0 0 \frac{\sqrt{15}}{40}$	
	$0 -\frac{\sqrt{6}i}{80} 0 \frac{\sqrt{6}}{80} 0 0 -\frac{1}{20} 0 0 0 \frac{3\sqrt{10}i}{80} 0 -\frac{\sqrt{10}}{80} 0 0 0$	
	$\frac{\sqrt{6}i}{80} 0 \frac{\sqrt{6}}{80} 0 0 0 0 \frac{1}{20} -\frac{3\sqrt{10}i}{80} 0 -\frac{\sqrt{10}}{80} 0 0 0 0$	
	$-\frac{9\sqrt{2}}{80} 0 0 0 0 -\frac{\sqrt{3}}{10} 0 -\frac{\sqrt{3}i}{20} \frac{\sqrt{30}}{80} 0 0 0 0 0 0$	
	$0 \frac{9\sqrt{2}}{80} 0 0 -\frac{\sqrt{3}}{10} 0 \frac{\sqrt{3}i}{20} 0 0 -\frac{\sqrt{30}}{80} 0 0 0 0 0$	
721	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
$\mathbb{T}_5^{(1,-1;a)}(A, 5)$	$-\frac{\sqrt{2}}{40} 0 0 0 0 -\frac{\sqrt{3}}{15} 0 -\frac{\sqrt{3}i}{10} -\frac{\sqrt{30}}{120} 0 0 0 0 0 0 0$	
	$0 \frac{\sqrt{2}}{40} 0 0 -\frac{\sqrt{3}}{15} 0 \frac{\sqrt{3}i}{10} 0 0 \frac{\sqrt{30}}{120} 0 0 0 0 0 0$	
	$0 0 -\frac{\sqrt{2}}{40} 0 0 -\frac{\sqrt{3}i}{60} 0 \frac{\sqrt{3}}{15} 0 0 0 -\frac{\sqrt{30}}{40} 0 0 0 \frac{\sqrt{5}i}{20}$	
	$0 0 0 \frac{\sqrt{2}}{40} \frac{\sqrt{3}i}{60} 0 \frac{\sqrt{3}}{15} 0 0 0 0 0 \frac{\sqrt{30}}{40} -\frac{\sqrt{5}i}{20} 0$	
	$0 \frac{\sqrt{2}}{10} 0 \frac{\sqrt{2}i}{8} \frac{\sqrt{3}}{20} 0 0 0 0 0 0 0 0 \frac{\sqrt{30}i}{40} \frac{\sqrt{5}}{20} 0$	
	$\frac{\sqrt{2}}{10} 0 -\frac{\sqrt{2}i}{8} 0 0 -\frac{\sqrt{3}}{20} 0 0 0 0 0 -\frac{\sqrt{30}i}{40} 0 0 0 -\frac{\sqrt{5}}{20}$	
	$0 \frac{\sqrt{2}i}{20} 0 -\frac{\sqrt{2}}{10} 0 0 0 \frac{\sqrt{3}}{15} 0 0 -\frac{\sqrt{30}i}{60} 0 0 0 0 0$	
	$-\frac{\sqrt{2}i}{20} 0 -\frac{\sqrt{2}}{10} 0 0 0 0 -\frac{\sqrt{3}}{15} \frac{\sqrt{30}i}{60} 0 0 0 0 0 0 0$	
	$-\frac{\sqrt{6}}{40} 0 0 0 0 0 0 -\frac{i}{10} -\frac{\sqrt{10}}{40} 0 0 0 0 0 0 0$	
	$0 \frac{\sqrt{6}}{40} 0 0 0 0 \frac{i}{10} 0 0 \frac{\sqrt{10}}{40} 0 0 0 0 0 0$	
722	symmetry	$\frac{x(8x^4-40x^2y^2-40x^2z^2+15y^4+30y^2z^2+15z^4)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,-1;a)}(B, 1)$	0 0 $-\frac{\sqrt{210}}{560}$ 0 0 $-\frac{\sqrt{35}i}{60}$ 0 $\frac{\sqrt{35}}{84}$ 0 0 $-\frac{\sqrt{14}}{336}$ 0 0 $\frac{\sqrt{21}i}{84}$	
	0 0 0 $\frac{\sqrt{210}}{560}$ $\frac{\sqrt{35}i}{60}$ 0 $\frac{\sqrt{35}}{84}$ 0 0 0 0 $\frac{\sqrt{14}}{336}$ $-\frac{\sqrt{21}i}{84}$ 0	
	$\frac{\sqrt{210}}{560}$ 0 0 0 0 $\frac{5\sqrt{35}}{168}$ 0 $\frac{\sqrt{35}i}{60}$ $-\frac{13\sqrt{14}}{336}$ 0 0 0 0 $-\frac{5\sqrt{21}}{168}$	
	0 $-\frac{\sqrt{210}}{560}$ 0 0 $\frac{5\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{60}$ 0 0 $\frac{13\sqrt{14}}{336}$ 0 0 $-\frac{5\sqrt{21}}{168}$ 0	
	0 $\frac{17\sqrt{210}i}{1680}$ 0 $-\frac{5\sqrt{210}}{336}$ 0 0 $\frac{\sqrt{35}}{60}$ 0 0 $\frac{\sqrt{14}i}{336}$ 0 $\frac{5\sqrt{14}}{336}$ 0 0	
	$-\frac{17\sqrt{210}i}{1680}$ 0 $-\frac{5\sqrt{210}}{336}$ 0 0 0 0 $-\frac{\sqrt{35}}{60}$ $-\frac{\sqrt{14}i}{336}$ 0 $\frac{5\sqrt{14}}{336}$ 0 0	
	0 $-\frac{\sqrt{210}}{168}$ 0 $-\frac{11\sqrt{210}i}{1680}$ $-\frac{\sqrt{35}}{120}$ 0 0 0 0 $-\frac{5\sqrt{14}}{168}$ 0 $-\frac{\sqrt{14}i}{336}$ $\frac{\sqrt{21}}{56}$ 0	
	$-\frac{\sqrt{210}}{168}$ 0 $\frac{11\sqrt{210}i}{1680}$ 0 0 $\frac{\sqrt{35}}{120}$ 0 0 $-\frac{5\sqrt{14}}{168}$ 0 $\frac{\sqrt{14}i}{336}$ 0 0 $-\frac{\sqrt{21}}{56}$	
	0 0 $\frac{\sqrt{70}}{80}$ 0 0 $-\frac{\sqrt{105}i}{210}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 $-\frac{\sqrt{42}}{112}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{70}}{80}$ $\frac{\sqrt{105}i}{210}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 0 $-\frac{\sqrt{42}}{112}$ 0 0 0	
723	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$
$\mathbb{T}_5^{(1,-1;a)}(B, 2)$	0 $\frac{\sqrt{210}i}{420}$ 0 $\frac{\sqrt{210}}{420}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{14}i}{42}$ 0 $-\frac{\sqrt{14}}{42}$ 0 0	
	$-\frac{\sqrt{210}i}{420}$ 0 $\frac{\sqrt{210}}{420}$ 0 0 0 0 $\frac{\sqrt{35}}{42}$ $-\frac{\sqrt{14}i}{42}$ 0 $-\frac{\sqrt{14}}{42}$ 0 0	
	0 $-\frac{\sqrt{210}}{420}$ 0 $\frac{\sqrt{210}i}{420}$ $\frac{\sqrt{35}}{42}$ 0 0 0 0 $\frac{\sqrt{14}}{42}$ 0 $\frac{\sqrt{14}i}{42}$ 0 0	
	$-\frac{\sqrt{210}}{420}$ 0 $-\frac{\sqrt{210}i}{420}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{14}}{42}$ 0 $-\frac{\sqrt{14}i}{42}$ 0 0	
	0 0 0 0 0 $-\frac{\sqrt{35}i}{60}$ 0 $-\frac{\sqrt{35}}{60}$ 0 0 $\frac{5\sqrt{14}}{84}$ 0 0 $-\frac{\sqrt{21}i}{42}$	
	0 0 0 0 0 $\frac{\sqrt{35}i}{60}$ 0 $-\frac{\sqrt{35}}{60}$ 0 0 0 0 $-\frac{5\sqrt{14}}{84}$ $\frac{\sqrt{21}i}{42}$ 0	
	0 0 0 0 0 0 $\frac{\sqrt{35}}{60}$ 0 $-\frac{\sqrt{35}i}{60}$ $-\frac{5\sqrt{14}}{84}$ 0 0 0 0 $-\frac{\sqrt{21}}{42}$	
	0 0 0 0 0 0 $\frac{\sqrt{35}}{60}$ 0 $\frac{\sqrt{35}i}{60}$ 0 0 $\frac{5\sqrt{14}}{84}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{84}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{84}$ 0 0 0	
724	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,-1;a)}(B, 3)$	0	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{80} & 0 & 0 & -\frac{i}{20} & 0 & -\frac{1}{20} & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{80} & \frac{i}{20} & 0 & -\frac{1}{20} & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} & \frac{\sqrt{15}i}{20} & 0 \\ \frac{\sqrt{6}}{80} & 0 & 0 & 0 & 0 & \frac{3}{40} & 0 & \frac{i}{20} & \frac{\sqrt{10}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} \\ 0 & -\frac{\sqrt{6}}{80} & 0 & 0 & \frac{3}{40} & 0 & -\frac{i}{20} & 0 & 0 & -\frac{\sqrt{10}}{80} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 \\ 0 & -\frac{\sqrt{6}i}{80} & 0 & \frac{\sqrt{6}}{80} & 0 & 0 & \frac{1}{20} & 0 & 0 & -\frac{\sqrt{10}i}{80} & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 \\ \frac{\sqrt{6}i}{80} & 0 & \frac{\sqrt{6}}{80} & 0 & 0 & 0 & 0 & -\frac{1}{20} & \frac{\sqrt{10}i}{80} & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{40} & 0 & -\frac{\sqrt{6}i}{16} & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{80} & \frac{\sqrt{15}}{40} & 0 \\ -\frac{\sqrt{6}}{40} & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{\sqrt{10}}{40} & 0 & -\frac{\sqrt{10}i}{80} & 0 & 0 & -\frac{\sqrt{15}}{40} \\ 0 & 0 & -\frac{9\sqrt{2}}{80} & 0 & 0 & \frac{\sqrt{3}i}{10} & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & -\frac{\sqrt{30}}{80} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{2}}{80} & -\frac{\sqrt{3}i}{10} & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{80} & 0 & 0 & 0 \end{bmatrix}$
	725	symmetry
		$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
	$\mathbb{T}_5^{(1,-1;a)}(B, 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{10} & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{10} & \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{10} & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & \frac{i}{20} & 0 & -\frac{1}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{20} & -\frac{i}{20} & 0 & -\frac{1}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & -\frac{1}{20} & 0 & -\frac{i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{20} & 0 & 0 & -\frac{1}{20} & 0 & \frac{i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{2}i}{20} & 0 & -\frac{3\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{2}i}{20} & 0 & -\frac{3\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		symmetry
		$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,-1;a)}(B, 5)$	0 0 $-\frac{\sqrt{2}}{40}$ 0 0 $\frac{\sqrt{3}i}{15}$ 0 $-\frac{\sqrt{3}}{10}$ 0 0 $\frac{\sqrt{30}}{120}$ 0 0 0	
	0 0 0 $\frac{\sqrt{2}}{40}$ $-\frac{\sqrt{3}i}{15}$ 0 $-\frac{\sqrt{3}}{10}$ 0 0 0 0 $-\frac{\sqrt{30}}{120}$ 0 0	
	$\frac{\sqrt{2}}{40}$ 0 0 0 0 $-\frac{\sqrt{3}}{60}$ 0 $-\frac{\sqrt{3}i}{15}$ $-\frac{\sqrt{30}}{40}$ 0 0 0 0 $-\frac{\sqrt{5}}{20}$	
	0 $-\frac{\sqrt{2}}{40}$ 0 0 $-\frac{\sqrt{3}}{60}$ 0 $\frac{\sqrt{3}i}{15}$ 0 0 $\frac{\sqrt{30}}{40}$ 0 0 $-\frac{\sqrt{5}}{20}$ 0	
	0 $-\frac{\sqrt{2}i}{10}$ 0 $\frac{\sqrt{2}}{20}$ 0 0 $\frac{\sqrt{3}}{15}$ 0 0 0 0 $\frac{\sqrt{30}}{60}$ 0 0	
	$\frac{\sqrt{2}i}{10}$ 0 $\frac{\sqrt{2}}{20}$ 0 0 0 0 $-\frac{\sqrt{3}}{15}$ 0 0 0 $\frac{\sqrt{30}}{60}$ 0 0 0	
	0 $\frac{\sqrt{2}}{8}$ 0 $\frac{\sqrt{2}i}{10}$ $-\frac{\sqrt{3}}{20}$ 0 0 0 0 $-\frac{\sqrt{30}}{40}$ 0 0 0 $\frac{\sqrt{5}}{20}$ 0	
	$\frac{\sqrt{2}}{8}$ 0 $-\frac{\sqrt{2}i}{10}$ 0 0 $\frac{\sqrt{3}}{20}$ 0 0 $-\frac{\sqrt{30}}{40}$ 0 0 0 0 $-\frac{\sqrt{5}}{20}$	
	0 0 $\frac{\sqrt{6}}{40}$ 0 0 0 0 $\frac{1}{10}$ 0 0 $-\frac{\sqrt{10}}{40}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{6}}{40}$ 0 0 $\frac{1}{10}$ 0 0 0 0 $\frac{\sqrt{10}}{40}$ 0 0	
727	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
$\mathbb{T}_5^{(1,-1;a)}(B, 6)$	0 $\frac{\sqrt{2}i}{40}$ 0 $-\frac{\sqrt{2}}{40}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{120}$ 0 $\frac{\sqrt{30}}{120}$ 0 0	
	$-\frac{\sqrt{2}i}{40}$ 0 $-\frac{\sqrt{2}}{40}$ 0 0 0 0 0 $-\frac{\sqrt{30}i}{120}$ 0 $\frac{\sqrt{30}}{120}$ 0 0 0	
	0 $\frac{\sqrt{2}}{40}$ 0 $\frac{\sqrt{2}i}{40}$ 0 0 0 0 0 $-\frac{\sqrt{30}}{40}$ 0 $\frac{\sqrt{30}i}{40}$ $\frac{\sqrt{5}}{10}$ 0	
	$\frac{\sqrt{2}}{40}$ 0 $-\frac{\sqrt{2}i}{40}$ 0 0 0 0 0 $-\frac{\sqrt{30}}{40}$ 0 $-\frac{\sqrt{30}i}{40}$ 0 0 $-\frac{\sqrt{5}}{10}$	
	0 0 $\frac{3\sqrt{2}}{40}$ 0 0 $-\frac{\sqrt{3}i}{20}$ 0 $\frac{\sqrt{3}}{15}$ 0 0 $\frac{\sqrt{30}}{120}$ 0 0 $-\frac{\sqrt{5}i}{20}$	
	0 0 0 $-\frac{3\sqrt{2}}{40}$ $\frac{\sqrt{3}i}{20}$ 0 $\frac{\sqrt{3}}{15}$ 0 0 0 0 $-\frac{\sqrt{30}}{120}$ $\frac{\sqrt{5}i}{20}$ 0	
	$-\frac{3\sqrt{2}}{40}$ 0 0 0 0 $-\frac{\sqrt{3}}{20}$ 0 $-\frac{\sqrt{3}i}{15}$ $\frac{\sqrt{30}}{120}$ 0 0 0 0 $\frac{\sqrt{5}}{20}$	
	0 $\frac{3\sqrt{2}}{40}$ 0 0 $-\frac{\sqrt{3}}{20}$ 0 $\frac{\sqrt{3}i}{15}$ 0 0 $-\frac{\sqrt{30}}{120}$ 0 0 $\frac{\sqrt{5}}{20}$ 0	
	0 $\frac{\sqrt{6}i}{40}$ 0 $\frac{\sqrt{6}}{40}$ 0 0 $-\frac{1}{5}$ 0 0 $\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0	
	$-\frac{\sqrt{6}i}{40}$ 0 $\frac{\sqrt{6}}{40}$ 0 0 0 0 $\frac{1}{5}$ $-\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0 0	
728	symmetry	$y$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_1^{(1,0;a)}(A)$	$x$	$\begin{bmatrix} \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{140} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & -\frac{3\sqrt{70}}{140} & 0 \end{bmatrix}$
	$y$	
	$z$	
	$x$	
	$y$	
	$z$	
	$x$	
	$y$	
	$z$	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_1^{(1,0;a)}(B, 2)$	0	$\frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0$
	$-\frac{\sqrt{21}i}{28}$	$0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad 0$
	$-\frac{\sqrt{21}}{28}$	$0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0$
731	symmetry	$\sqrt{15}xyz$
$\mathbb{T}_3^{(1,0;a)}(A, 1)$	0	$\frac{\sqrt{10}}{48} \quad 0 \quad \frac{\sqrt{10}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{48} \quad 0 \quad \frac{\sqrt{6}i}{48} \quad -\frac{1}{6} \quad 0$
	$\frac{\sqrt{10}}{48}$	$0 \quad -\frac{\sqrt{10}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{48} \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad 0 \quad 0 \quad \frac{1}{6}$
	0	$-\frac{\sqrt{10}i}{48} \quad 0 \quad \frac{\sqrt{10}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{10}i}{48}$	$0 \quad \frac{\sqrt{10}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}i}{16} \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{10}}{24}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{24}$
	0	$-\frac{\sqrt{10}}{24} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad -\frac{1}{24} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{10}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad -\frac{i}{24}$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{24} \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{24} \quad \frac{i}{24} \quad 0$
	0	$\frac{\sqrt{30}}{48} \quad 0 \quad -\frac{\sqrt{30}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}}{16} \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{30}}{48}$	$0 \quad \frac{\sqrt{30}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}}{16} \quad 0 \quad \frac{\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0$
732	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{T}_3^{(1,0;a)}(A, 2)$	$\begin{bmatrix} \frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & \frac{3\sqrt{10}}{160} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{160} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 \\ 0 & 0 & \frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{7\sqrt{10}}{160} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & \frac{7\sqrt{10}}{160} & 0 & 0 \\ 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & -\frac{3}{16} & 0 & 0 & 0 & 0 & \frac{7\sqrt{10}}{160} & 0 & 0 & -\frac{\sqrt{15}}{240} & 0 \\ \frac{5\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & \frac{7\sqrt{10}}{160} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{240} \\ 0 & 0 & 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{160} & 0 & 0 \\ 0 & 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{3\sqrt{10}}{160} & 0 & 0 & 0 \\ \frac{5\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{160} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ 0 & -\frac{5\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{160} & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 \end{bmatrix}$
733	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A, 3)$	$\begin{bmatrix} -\frac{\sqrt{10}}{96} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{1}{24} \\ 0 & \frac{\sqrt{10}}{96} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{6}}{96} & 0 & 0 & \frac{1}{24} & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{96} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{10}}{96} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{96} & \frac{i}{6} & 0 \\ 0 & -\frac{\sqrt{10}}{96} & 0 & \frac{\sqrt{10}i}{24} & -\frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & \frac{\sqrt{6}i}{24} & \frac{1}{48} & 0 \\ -\frac{\sqrt{10}}{96} & 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & -\frac{1}{48} \\ 0 & -\frac{\sqrt{10}i}{24} & 0 & -\frac{\sqrt{10}}{96} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 \\ \frac{\sqrt{10}i}{24} & 0 & -\frac{\sqrt{10}}{96} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 \\ \frac{\sqrt{30}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ 0 & -\frac{\sqrt{30}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{32} & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 \end{bmatrix}$
734	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,0;a)}(B, 1)$	$z \left( \frac{3x^2 + 3y^2 - 2z^2}{2} \right)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{96} & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{160} & -\frac{\sqrt{15}i}{24} & 0 \\ \frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & \frac{7\sqrt{10}}{160} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & -\frac{7\sqrt{10}}{160} & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{3\sqrt{10}i}{160} & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & \frac{3\sqrt{10}i}{160} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{6}i}{96} & -\frac{3}{16} & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{10}i}{160} & \frac{\sqrt{15}}{240} & 0 & 0 \\ 0 & 0 & \frac{5\sqrt{6}i}{96} & 0 & 0 & \frac{3}{16} & 0 & 0 & 0 & 0 & -\frac{7\sqrt{10}i}{160} & 0 & 0 & -\frac{\sqrt{15}}{240} \\ 0 & 0 & \frac{5\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{160} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{160} & -\frac{\sqrt{5}i}{20} & 0 & 0 \end{bmatrix}$
	$735$	symmetry
		$-\frac{z(3x^2 + 3y^2 - 2z^2)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(B, 2)$	$\sqrt{15}x(y-z)(y+z)$
		$\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 \\ \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 \\ \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{60} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} \\ 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & \frac{\sqrt{30}}{40} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & \frac{\sqrt{30}}{40} & 0 & 0 & 0 \end{bmatrix}$
		$\sqrt{15}x(y-z)(y+z)$
		$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,0;a)}(B, 3)$	0	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{10}}{96} & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{6}}{96} & 0 & 0 & \frac{i}{24} \\ 0 & 0 & 0 & \frac{\sqrt{10}}{96} & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{96} & -\frac{i}{24} & 0 \\ \frac{\sqrt{10}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{1}{6} \\ 0 & -\frac{\sqrt{10}}{96} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{6}}{96} & 0 & 0 & \frac{1}{6} & 0 \\ 0 & -\frac{\sqrt{10}i}{96} & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 \\ \frac{\sqrt{10}i}{96} & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & -\frac{\sqrt{6}i}{96} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{24} & 0 & -\frac{\sqrt{10}i}{96} & \frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{32} & \frac{1}{48} & 0 \\ \frac{\sqrt{10}}{24} & 0 & \frac{\sqrt{10}i}{96} & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{1}{48} \\ 0 & 0 & -\frac{\sqrt{30}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{32} & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{32} & -\frac{\sqrt{3}i}{12} & 0 \end{bmatrix}$
	737	symmetry
	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$	
	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$	
	$\frac{\sqrt{10}i}{48}$	
	$-\frac{\sqrt{10}i}{48}$	
	$\frac{\sqrt{10}}{48}$	
	$\frac{\sqrt{10}}{48}$	
	$0$	
	$0$	
$\mathbb{T}_3^{(1,0;a)}(B, 4)$	0	$\begin{bmatrix} 0 & \frac{\sqrt{10}i}{48} & 0 & -\frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 \\ -\frac{\sqrt{10}i}{48} & 0 & -\frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{48} & 0 & \frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{48} & 0 & -\frac{\sqrt{6}i}{48} & \frac{1}{6} & 0 \\ \frac{\sqrt{10}}{48} & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{48} & 0 & \frac{\sqrt{6}i}{48} & 0 & 0 & -\frac{1}{6} \\ 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & -\frac{i}{24} \\ 0 & 0 & 0 & \frac{\sqrt{10}}{24} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & \frac{i}{24} & 0 \\ \frac{\sqrt{10}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & \frac{1}{24} \\ 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & \frac{1}{24} & 0 \\ 0 & -\frac{\sqrt{30}i}{48} & 0 & -\frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & \frac{\sqrt{2}}{16} & 0 & 0 \\ \frac{\sqrt{30}i}{48} & 0 & -\frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 \end{bmatrix}$
	738	symmetry
	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(A, 1)$	0	$-\frac{\sqrt{6}}{24} \quad 0 \quad \frac{\sqrt{6}i}{24} \quad \frac{1}{5} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad 0$
	$-\frac{\sqrt{6}}{24}$	$0 \quad -\frac{\sqrt{6}i}{24} \quad 0 \quad 0 \quad -\frac{1}{5} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{6}i}{24} \quad 0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad -\frac{1}{5} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0$
	$-\frac{\sqrt{6}i}{24}$	$0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{5} \quad \frac{\sqrt{10}i}{40} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{6}}{15}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{10} \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{6}}{15} \quad 0 \quad 0 \quad -\frac{1}{10} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{6}}{15} \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{6}}{15} \quad \frac{i}{10} \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{2}}{20} \quad 0 \quad -\frac{\sqrt{2}i}{20} \quad 0 \quad 0$
	$-\frac{\sqrt{2}}{20}$	$0 \quad \frac{\sqrt{2}i}{20} \quad 0 \quad 0$
739	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
$\mathbb{T}_5^{(1,0;a)}(A, 2)$	0	$\frac{\sqrt{2}}{120} \quad 0 \quad \frac{\sqrt{2}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad -\frac{\sqrt{5}}{30} \quad 0$
	$\frac{\sqrt{2}}{120}$	$0 \quad -\frac{\sqrt{2}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{30}$
	0	$-\frac{\sqrt{2}i}{120} \quad 0 \quad \frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{40} \quad 0 \quad -\frac{\sqrt{30}}{40} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{2}i}{120}$	$0 \quad \frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad -\frac{\sqrt{30}}{40} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{2}}{60}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad -\frac{\sqrt{3}i}{10} \quad -\frac{\sqrt{30}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{15}$
	0	$-\frac{\sqrt{2}}{60} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad \frac{\sqrt{30}}{60} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{15} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{2}}{60} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{30} \quad 0 \quad -\frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad \frac{\sqrt{30}}{60} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{15}$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}}{60} \quad \frac{\sqrt{3}i}{30} \quad 0 \quad -\frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{60} \quad -\frac{\sqrt{5}i}{15} \quad 0$
	0	$\frac{\sqrt{6}}{30} \quad 0 \quad -\frac{\sqrt{6}i}{30} \quad -\frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{6}}{30}$	$0 \quad \frac{\sqrt{6}i}{30} \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0 \quad 0$
740	symmetry	$\frac{y(15x^4-40x^2y^2+30x^2z^2+8y^4-40y^2z^2+15z^4)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(A, 3)$	$\frac{53\sqrt{210}}{3360} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{35}}{560} \quad 0 \quad 0 \quad \frac{3\sqrt{14}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{48}$	
	$0 \quad -\frac{53\sqrt{210}}{3360} \quad 0 \quad 0 \quad -\frac{13\sqrt{35}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}}{224} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{48} \quad 0$	
	$0 \quad 0 \quad -\frac{13\sqrt{210}}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{13\sqrt{210}}{840} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{210}}{240} \quad 0 \quad 0 \quad \frac{3\sqrt{35}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{168} \quad 0$	
	$-\frac{\sqrt{210}}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{35}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{168}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{120} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{14}}{56} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{210}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad \frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{70}}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{112}$	
	$0 \quad -\frac{\sqrt{70}}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{112} \quad 0$	
741	symmetry	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
$\mathbb{T}_5^{(1,0;a)}(A, 4)$	$\frac{13\sqrt{6}}{480} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3}{80} \quad 0 \quad -\frac{i}{10} \quad -\frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{240}$	
	$0 \quad -\frac{13\sqrt{6}}{480} \quad 0 \quad 0 \quad \frac{3}{80} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{240} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{6}}{40} \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{40} \quad \frac{i}{10} \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad -\frac{\sqrt{15}i}{30} \quad 0$	
	$0 \quad \frac{\sqrt{6}}{48} \quad 0 \quad -\frac{\sqrt{6}i}{20} \quad -\frac{1}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{10}}{80} \quad 0 \quad \frac{\sqrt{10}i}{20} \quad \frac{\sqrt{15}}{120} \quad 0$	
	$\frac{\sqrt{6}}{48} \quad 0 \quad \frac{\sqrt{6}i}{20} \quad 0 \quad 0 \quad \frac{1}{8} \quad 0 \quad 0 \quad \frac{3\sqrt{10}}{80} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{120}$	
	$0 \quad -\frac{\sqrt{6}i}{60} \quad 0 \quad -\frac{\sqrt{6}}{40} \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0$	
	$\frac{\sqrt{6}i}{60} \quad 0 \quad -\frac{\sqrt{6}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{10} \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad 0$	
	$-\frac{9\sqrt{2}}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{80} \quad 0 \quad \frac{\sqrt{3}i}{10} \quad \frac{\sqrt{30}}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{16}$	
	$0 \quad \frac{9\sqrt{2}}{160} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{80} \quad 0 \quad -\frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{16} \quad 0$	
742	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(A, 5)$	$\frac{37\sqrt{2}}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{120} \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad -\frac{\sqrt{30}}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{24}$	
	$0 \quad -\frac{37\sqrt{2}}{240} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{120} \quad 0 \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{30}}{240} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{24} \quad 0$	
	$0 \quad 0 \quad -\frac{19\sqrt{2}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{60}$	
	$0 \quad 0 \quad 0 \quad \frac{19\sqrt{2}}{120} \quad \frac{\sqrt{3}i}{20} \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{120} \quad \frac{\sqrt{5}i}{60} \quad 0$	
	$0 \quad -\frac{\sqrt{2}}{30} \quad 0 \quad -\frac{\sqrt{2}i}{24} \quad -\frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad -\frac{\sqrt{5}}{60} \quad 0$	
	$-\frac{\sqrt{2}}{30} \quad 0 \quad \frac{\sqrt{2}i}{24} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{60}$	
	$0 \quad -\frac{7\sqrt{2}i}{120} \quad 0 \quad -\frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad 0 \quad -\frac{\sqrt{30}}{24} \quad 0 \quad 0$	
	$\frac{7\sqrt{2}i}{120} \quad 0 \quad -\frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{30} \quad \frac{\sqrt{30}i}{120} \quad 0 \quad -\frac{\sqrt{30}}{24} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{6}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{8} \quad 0 \quad -\frac{i}{20} \quad -\frac{\sqrt{10}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24}$	
	$0 \quad \frac{\sqrt{6}}{80} \quad 0 \quad 0 \quad \frac{1}{8} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{80} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24} \quad 0$	
743	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
$\mathbb{T}_5^{(1,0;a)}(B, 1)$	$0 \quad 0 \quad -\frac{53\sqrt{210}}{3360} \quad 0 \quad 0 \quad -\frac{13\sqrt{35}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{14}}{224} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{48}$	
	$0 \quad 0 \quad 0 \quad \frac{53\sqrt{210}}{3360} \quad \frac{13\sqrt{35}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}}{224} \quad -\frac{\sqrt{21}i}{48} \quad 0$	
	$-\frac{13\sqrt{210}}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{13\sqrt{210}}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{210}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad \frac{3\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{210}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad -\frac{3\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{240} \quad \frac{3\sqrt{35}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{112} \quad -\frac{\sqrt{21}}{168} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{210}i}{240} \quad 0 \quad 0 \quad -\frac{3\sqrt{35}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{112} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{168}$	
	$0 \quad 0 \quad \frac{\sqrt{70}}{160} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad -\frac{5\sqrt{7}i}{112}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{160} \quad -\frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{224} \quad \frac{5\sqrt{7}i}{112} \quad 0$	
744	symmetry	$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$

continued ...

Table 9

No.	multipole	matrix	
$\mathbb{T}_5^{(1,0;a)}(B, 2)$	0	$\frac{\sqrt{210}i}{840}$ 0 $\frac{\sqrt{210}}{840}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 $\frac{\sqrt{14}}{56}$ 0 0 0	
	$-\frac{\sqrt{210}i}{840}$	0 $\frac{\sqrt{210}}{840}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 $\frac{\sqrt{14}}{56}$ 0 0 0 0	
	0	$-\frac{\sqrt{210}}{840}$ 0 $\frac{\sqrt{210}i}{840}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0	
	$-\frac{\sqrt{210}}{840}$	0 $-\frac{\sqrt{210}i}{840}$ 0 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 $\frac{\sqrt{14}i}{56}$ 0 0 0	
	0	0 0 0 0 0 $-\frac{\sqrt{35}i}{70}$ 0 $-\frac{\sqrt{35}}{70}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{21}$	
	0	0 0 0 0 $\frac{\sqrt{35}i}{70}$ 0 $-\frac{\sqrt{35}}{70}$ 0 0 0 0 0 $-\frac{\sqrt{21}i}{21}$ 0	
	0	0 0 0 0 0 $\frac{\sqrt{35}}{70}$ 0 $-\frac{\sqrt{35}i}{70}$ 0 0 0 0 0 $\frac{\sqrt{21}}{21}$	
	0	0 0 0 0 $\frac{\sqrt{35}}{70}$ 0 $\frac{\sqrt{35}i}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{21}}{21}$ 0	
	0	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{28}$ 0 0 0	
	0	0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{28}$ 0 0 0	
$\mathbb{T}_5^{(1,0;a)}(B, 3)$	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$		
	0	$0 0 -\frac{13\sqrt{6}}{480} 0 0 \frac{3i}{80} 0 \frac{1}{10} 0 0 -\frac{\sqrt{10}}{32} 0 0 -\frac{\sqrt{15}i}{240}$	
	0	$0 0 0 \frac{13\sqrt{6}}{480} -\frac{3i}{80} 0 \frac{1}{10} 0 0 0 0 \frac{\sqrt{10}}{32} \frac{\sqrt{15}i}{240} 0$	
	$-\frac{\sqrt{6}}{40}$	$0 0 0 0 0 \frac{1}{10} 0 -\frac{i}{10} -\frac{\sqrt{10}}{40} 0 0 0 0 0 \frac{\sqrt{15}}{30}$	
	0	$\frac{\sqrt{6}}{40} 0 0 \frac{1}{10} 0 \frac{i}{10} 0 0 \frac{\sqrt{10}}{40} 0 0 0 \frac{\sqrt{15}}{30} 0$	
	0	$\frac{\sqrt{6}i}{40} 0 \frac{\sqrt{6}}{60} 0 0 -\frac{1}{10} 0 0 \frac{\sqrt{10}i}{40} 0 \frac{\sqrt{10}}{20} 0 0 0$	
	$-\frac{\sqrt{6}i}{40}$	$0 \frac{\sqrt{6}}{60} 0 0 0 0 \frac{1}{10} -\frac{\sqrt{10}i}{40} 0 \frac{\sqrt{10}}{20} 0 0 0 0$	
	0	$\frac{\sqrt{6}}{20} 0 -\frac{\sqrt{6}i}{48} -\frac{1}{8} 0 0 0 0 \frac{\sqrt{10}}{20} 0 0 \frac{3\sqrt{10}i}{80} -\frac{\sqrt{15}}{120} 0$	
	$\frac{\sqrt{6}}{20}$	$0 \frac{\sqrt{6}i}{48} 0 0 \frac{1}{8} 0 0 \frac{\sqrt{10}}{20} 0 -\frac{3\sqrt{10}i}{80} 0 0 \frac{\sqrt{15}}{120} 0$	
	0	$0 0 -\frac{9\sqrt{2}}{160} 0 0 -\frac{\sqrt{3}i}{80} 0 \frac{\sqrt{3}}{10} 0 0 -\frac{\sqrt{30}}{160} 0 0 -\frac{\sqrt{5}i}{16} 0$	
746	$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$		
	symmetry		

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(B, 4)$	0	$\begin{bmatrix} 0 & \frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & -\frac{1}{5} & 0 & 0 & -\frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{40} & 0 & 0 \\ -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & \frac{1}{5} & \frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{40} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & -\frac{1}{5} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 \\ \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & \frac{1}{5} & 0 & 0 & \frac{\sqrt{10}}{40} & 0 & -\frac{\sqrt{10}i}{40} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{15} & 0 & 0 & -\frac{i}{10} & 0 & \frac{1}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{15} & \frac{i}{10} & 0 & \frac{1}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{15} & 0 & 0 & 0 & 0 & \frac{1}{10} & 0 & \frac{i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{15} & 0 & 0 & \frac{1}{10} & 0 & -\frac{i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{20} & 0 & \frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{20} & 0 & \frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	747	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$
	$\mathbb{T}_5^{(1,0;a)}(B, 5)$	$\begin{bmatrix} 0 & 0 & \frac{37\sqrt{2}}{240} & 0 & 0 & -\frac{\sqrt{3}i}{120} & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & \frac{\sqrt{30}}{240} & 0 & 0 & \frac{\sqrt{5}i}{24} \\ 0 & 0 & 0 & -\frac{37\sqrt{2}}{240} & \frac{\sqrt{3}i}{120} & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & 0 & -\frac{\sqrt{30}}{240} & -\frac{\sqrt{5}i}{24} & 0 \\ \frac{19\sqrt{2}}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{20} & 0 & -\frac{\sqrt{3}i}{30} & \frac{\sqrt{30}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{60} \\ 0 & -\frac{19\sqrt{2}}{120} & 0 & 0 & -\frac{\sqrt{3}}{20} & 0 & \frac{\sqrt{3}i}{30} & 0 & 0 & -\frac{\sqrt{30}}{120} & 0 & 0 & \frac{\sqrt{5}}{60} & 0 \\ 0 & -\frac{\sqrt{2}i}{120} & 0 & -\frac{7\sqrt{2}}{120} & 0 & 0 & \frac{\sqrt{3}}{30} & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{120} & 0 & 0 \\ \frac{\sqrt{2}i}{120} & 0 & -\frac{7\sqrt{2}}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{30} & -\frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{120} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{24} & 0 & -\frac{\sqrt{2}i}{30} & \frac{\sqrt{3}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{120} & 0 & 0 & -\frac{\sqrt{5}}{60} & 0 \\ -\frac{\sqrt{2}}{24} & 0 & \frac{\sqrt{2}i}{30} & 0 & 0 & -\frac{\sqrt{3}}{60} & 0 & 0 & \frac{\sqrt{30}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{60} \\ 0 & 0 & \frac{\sqrt{6}}{80} & 0 & 0 & \frac{i}{8} & 0 & \frac{1}{20} & 0 & 0 & -\frac{\sqrt{10}}{80} & 0 & 0 & -\frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{80} & -\frac{i}{8} & 0 & \frac{1}{20} & 0 & 0 & 0 & \frac{\sqrt{10}}{80} & \frac{\sqrt{15}i}{24} & 0 & 0 \end{bmatrix}$
	748	$\frac{-\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(B, 6)$	0	$-\frac{\sqrt{2}i}{120} \quad 0 \quad \frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad \frac{\sqrt{30}}{40} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{2}i}{120}$	$0 \quad \frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{40} \quad 0 \quad 0 \quad \frac{\sqrt{30}}{40} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$- \frac{\sqrt{2}}{120} \quad 0 \quad - \frac{\sqrt{2}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad - \frac{\sqrt{30}i}{120} \quad - \frac{\sqrt{5}}{30} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{2}}{120}$	$0 \quad \frac{\sqrt{2}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{30} \quad 0$
	0	$0 \quad \frac{\sqrt{2}}{60} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad - \frac{\sqrt{30}}{60} \quad 0 \quad 0 \quad 0 \quad - \frac{\sqrt{5}i}{15}$
	0	$0 \quad 0 \quad - \frac{\sqrt{2}}{60} \quad - \frac{\sqrt{3}i}{10} \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{60} \quad \frac{\sqrt{5}i}{15} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{2}}{60}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad - \frac{\sqrt{3}i}{30} \quad - \frac{\sqrt{30}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{15}$
	0	$\frac{\sqrt{2}}{60} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad \frac{\sqrt{30}}{60} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{15} \quad 0 \quad 0$
	0	$\frac{\sqrt{6}i}{30} \quad 0 \quad \frac{\sqrt{6}}{30} \quad 0 \quad 0 \quad - \frac{1}{10} \quad 0 \quad 0 \quad 0 \quad - \frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{6}i}{30}$	$0 \quad \frac{\sqrt{6}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{10} \quad \frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
749	symmetry	$y$
$\mathbb{T}_1^{(1,1;a)}(A)$	$-\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad - \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{140}$	
	0	$\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad - \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{140} \quad 0$
	0	$0 \quad 0 \quad - \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad - \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad - \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad - \frac{\sqrt{105}i}{140}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0$
	0	$0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad - \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad - \frac{3\sqrt{70}}{280} \quad 0 \quad \frac{\sqrt{70}i}{56} \quad - \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{42}}{56}$	$0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad - \frac{3\sqrt{70}}{280} \quad 0 \quad - \frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70}$
	0	$0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{280} \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{42}i}{56}$	$0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad - \frac{\sqrt{70}i}{280} \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad - \frac{\sqrt{21}i}{28} \quad \frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad - \frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
750	symmetry	$x$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_1^{(1,1;a)}(B, 1)$	$z$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & -\frac{\sqrt{105}i}{140} \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{3\sqrt{70}}{280} & \frac{\sqrt{105}i}{140} & 0 \\ -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} \\ 0 & \frac{\sqrt{42}}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 \\ 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{280} & 0 & \frac{\sqrt{70}}{280} & 0 & 0 \\ \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{280} & 0 & \frac{\sqrt{70}}{280} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & -\frac{3\sqrt{70}i}{280} & \frac{\sqrt{105}}{70} & 0 \\ \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{70}i}{280} & 0 & 0 & -\frac{\sqrt{105}}{70} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 \end{bmatrix}$
	$z$	
751	symmetry	$z$
$\mathbb{T}_1^{(1,1;a)}(B, 2)$	$z$	$\begin{bmatrix} 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & \frac{3\sqrt{70}i}{280} & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & -\frac{3\sqrt{70}i}{280} & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{42}i}{56} & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{280} & 0 & \frac{3\sqrt{70}i}{280} & 0 & 0 \\ -\frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & \frac{3\sqrt{70}}{280} & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & \frac{\sqrt{105}i}{70} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & -\frac{\sqrt{105}i}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{70} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & \frac{\sqrt{105}}{70} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 \end{bmatrix}$
	$z$	
752	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,1;a)}(A, 1)$	0	$-\frac{\sqrt{70}}{560} \quad 0 \quad -\frac{\sqrt{70}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{42}}{112} \quad 0 \quad \frac{3\sqrt{42}i}{112} \quad -\frac{\sqrt{7}}{14} \quad 0$
	$-\frac{\sqrt{70}}{560}$	$0 \quad \frac{\sqrt{70}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{42}}{112} \quad 0 \quad -\frac{3\sqrt{42}i}{112} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14}$
	0	$\frac{\sqrt{70}i}{560} \quad 0 \quad -\frac{\sqrt{70}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{42}i}{336} \quad 0 \quad \frac{5\sqrt{42}}{336} \quad 0 \quad 0$
	$-\frac{\sqrt{70}i}{560}$	$0 \quad -\frac{\sqrt{70}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{42}i}{336} \quad 0 \quad \frac{5\sqrt{42}}{336} \quad 0 \quad 0 \quad 0$
	$-\frac{3\sqrt{70}}{280}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{56}$
	0	$\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{56} \quad 0$
	0	$0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{56}$
	0	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad \frac{\sqrt{105}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{168} \quad -\frac{\sqrt{7}i}{56} \quad 0$
	0	$\frac{\sqrt{210}}{80} \quad 0 \quad -\frac{\sqrt{210}i}{80} \quad \frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{112} \quad 0 \quad -\frac{\sqrt{14}i}{112} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{210}}{80}$	$0 \quad \frac{\sqrt{210}i}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{112} \quad 0 \quad \frac{\sqrt{14}i}{112} \quad 0 \quad 0 \quad 0 \quad 0$
753	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
$\mathbb{T}_3^{(1,1;a)}(A, 2)$	$-\frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{24} \quad 0 \quad -\frac{\sqrt{7}i}{42} \quad \frac{\sqrt{70}}{672} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{168}$	
	0	$\frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{24} \quad 0 \quad \frac{\sqrt{7}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{672} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad -\frac{5\sqrt{7}i}{84} \quad 0 \quad -\frac{\sqrt{7}}{24} \quad 0 \quad 0 \quad -\frac{13\sqrt{70}}{672} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{84}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{224} \quad \frac{5\sqrt{7}i}{84} \quad 0 \quad -\frac{\sqrt{7}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{70}}{672} \quad \frac{\sqrt{105}i}{84} \quad 0$
	0	$0 \quad -\frac{11\sqrt{42}}{672} \quad 0 \quad \frac{\sqrt{42}i}{84} \quad \frac{\sqrt{7}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{672} \quad 0 \quad -\frac{\sqrt{70}i}{84} \quad \frac{\sqrt{105}}{112} \quad 0$
	$-\frac{11\sqrt{42}}{672}$	$0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{48} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{672} \quad 0 \quad \frac{\sqrt{70}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{112}$
	0	$\frac{5\sqrt{42}i}{168} \quad 0 \quad \frac{17\sqrt{42}}{672} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{168} \quad 0 \quad -\frac{\sqrt{70}}{672} \quad 0 \quad 0 \quad 0$
	$-\frac{5\sqrt{42}i}{168}$	$0 \quad \frac{17\sqrt{42}}{672} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{24} \quad -\frac{\sqrt{70}i}{168} \quad 0 \quad -\frac{\sqrt{70}}{672} \quad 0 \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{14}}{32}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{84} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad -\frac{\sqrt{210}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{14}}{32} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{84} \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{210}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
754	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,1;a)}(A, 3)$	$\frac{\sqrt{70}}{224} 0 0 0 0 \frac{\sqrt{105}}{120} 0 -\frac{\sqrt{105}i}{70} \frac{17\sqrt{42}}{672} 0 0 0 0 -\frac{3\sqrt{7}}{56}$	
	$0 -\frac{\sqrt{70}}{224} 0 0 \frac{\sqrt{105}}{120} 0 \frac{\sqrt{105}i}{70} 0 0 -\frac{17\sqrt{42}}{672} 0 0 0 -\frac{3\sqrt{7}}{56} 0$	
	$0 0 \frac{\sqrt{70}}{224} 0 0 -\frac{\sqrt{105}i}{420} 0 -\frac{\sqrt{105}}{120} 0 0 0 \frac{\sqrt{42}}{224} 0 0 \frac{\sqrt{7}i}{28}$	
	$0 0 0 -\frac{\sqrt{70}}{224} \frac{\sqrt{105}i}{420} 0 -\frac{\sqrt{105}}{120} 0 0 0 0 -\frac{\sqrt{42}}{224} -\frac{\sqrt{7}i}{28} 0$	
	$0 -\frac{23\sqrt{70}}{1120} 0 \frac{\sqrt{70}i}{56} -\frac{\sqrt{105}}{80} 0 0 0 0 -\frac{\sqrt{42}}{224} 0 \frac{\sqrt{42}i}{56} -\frac{5\sqrt{7}}{112} 0$	
	$-\frac{23\sqrt{70}}{1120} 0 -\frac{\sqrt{70}i}{56} 0 0 \frac{\sqrt{105}}{80} 0 0 -\frac{\sqrt{42}}{224} 0 -\frac{\sqrt{42}i}{56} 0 0 \frac{5\sqrt{7}}{112}$	
	$0 \frac{\sqrt{70}i}{140} 0 \frac{\sqrt{70}}{224} 0 0 -\frac{\sqrt{105}}{120} 0 0 0 -\frac{\sqrt{42}i}{84} 0 \frac{\sqrt{42}}{224} 0 0$	
	$-\frac{\sqrt{70}i}{140} 0 \frac{\sqrt{70}}{224} 0 0 0 0 \frac{\sqrt{105}}{120} \frac{\sqrt{42}i}{84} 0 \frac{\sqrt{42}}{224} 0 0 0$	
	$-\frac{\sqrt{210}}{160} 0 0 0 0 \frac{3\sqrt{35}}{140} 0 -\frac{\sqrt{35}i}{70} \frac{5\sqrt{14}}{224} 0 0 0 0 0$	
	$0 \frac{\sqrt{210}}{160} 0 0 \frac{3\sqrt{35}}{140} 0 \frac{\sqrt{35}i}{70} 0 0 -\frac{5\sqrt{14}}{224} 0 0 0 0$	
755	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
$\mathbb{T}_3^{(1,1;a)}(B, 1)$	$0 0 \frac{\sqrt{42}}{224} 0 0 \frac{\sqrt{7}i}{24} 0 \frac{\sqrt{7}}{42} 0 0 0 \frac{\sqrt{70}}{672} 0 0 -\frac{\sqrt{105}i}{168}$	
	$0 0 0 -\frac{\sqrt{42}}{224} -\frac{\sqrt{7}i}{24} 0 \frac{\sqrt{7}}{42} 0 0 0 0 -\frac{\sqrt{70}}{672} \frac{\sqrt{105}i}{168} 0$	
	$-\frac{\sqrt{42}}{224} 0 0 0 0 \frac{5\sqrt{7}}{84} 0 -\frac{\sqrt{7}i}{24} \frac{13\sqrt{70}}{672} 0 0 0 0 0 -\frac{\sqrt{105}}{84}$	
	$0 \frac{\sqrt{42}}{224} 0 0 \frac{5\sqrt{7}}{84} 0 \frac{\sqrt{7}i}{24} 0 0 -\frac{13\sqrt{70}}{672} 0 0 0 -\frac{\sqrt{105}}{84} 0$	
	$0 -\frac{17\sqrt{42}i}{672} 0 -\frac{5\sqrt{42}}{168} 0 0 -\frac{\sqrt{7}}{24} 0 0 -\frac{\sqrt{70}i}{672} 0 \frac{\sqrt{70}}{168} 0 0$	
	$\frac{17\sqrt{42}i}{672} 0 -\frac{5\sqrt{42}}{168} 0 0 0 \frac{\sqrt{7}}{24} \frac{\sqrt{70}i}{672} 0 \frac{\sqrt{70}}{168} 0 0 0$	
	$0 -\frac{\sqrt{42}}{84} 0 \frac{11\sqrt{42}i}{672} \frac{\sqrt{7}}{48} 0 0 0 0 -\frac{\sqrt{70}}{84} 0 \frac{\sqrt{70}i}{672} -\frac{\sqrt{105}}{112} 0$	
	$-\frac{\sqrt{42}}{84} 0 -\frac{11\sqrt{42}i}{672} 0 0 -\frac{\sqrt{7}}{48} 0 0 -\frac{\sqrt{70}}{84} 0 -\frac{\sqrt{70}i}{672} 0 0 \frac{\sqrt{105}}{112}$	
	$0 0 -\frac{\sqrt{14}}{32} 0 0 \frac{\sqrt{21}i}{84} 0 \frac{\sqrt{21}}{42} 0 0 \frac{\sqrt{210}}{224} 0 0 0$	
	$0 0 0 \frac{\sqrt{14}}{32} -\frac{\sqrt{21}i}{84} 0 \frac{\sqrt{21}}{42} 0 0 0 -\frac{\sqrt{210}}{224} 0 0 0$	
756	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,1;a)}(B, 2)$	0	$-\frac{\sqrt{42}i}{168} \quad 0 \quad -\frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{84} \quad 0 \quad \frac{\sqrt{70}}{84} \quad 0 \quad 0$
	$\frac{\sqrt{42}i}{168}$	$0 \quad -\frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{21} \quad \frac{\sqrt{70}i}{84} \quad 0 \quad \frac{\sqrt{70}}{84} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{42}}{168} \quad 0 \quad -\frac{\sqrt{42}i}{168} \quad \frac{\sqrt{7}}{21} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{84} \quad 0 \quad -\frac{\sqrt{70}i}{84} \quad 0 \quad 0$
	$\frac{\sqrt{42}}{168}$	$0 \quad \frac{\sqrt{42}i}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{84} \quad 0 \quad \frac{\sqrt{70}i}{84} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{24} \quad 0 \quad \frac{\sqrt{7}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{84}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{24} \quad 0 \quad \frac{\sqrt{7}}{24} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{42} \quad -\frac{\sqrt{105}i}{84} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{24} \quad 0 \quad \frac{\sqrt{7}i}{24} \quad -\frac{\sqrt{70}}{42} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{24} \quad 0 \quad -\frac{\sqrt{7}i}{24} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84}$
	0	$0 \quad 0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0$
757	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
$\mathbb{T}_3^{(1,1;a)}(B, 3)$	0	$0 \quad 0 \quad \frac{\sqrt{70}}{224} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{120} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{17\sqrt{42}}{672} \quad 0 \quad 0 \quad -\frac{3\sqrt{7}i}{56}$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{224} \quad \frac{\sqrt{105}i}{120} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{17\sqrt{42}}{672} \quad \frac{3\sqrt{7}i}{56} \quad 0$
	$-\frac{\sqrt{70}}{224}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{420} \quad 0 \quad \frac{\sqrt{105}i}{120} \quad \frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28}$
	0	$\frac{\sqrt{70}}{224} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{420} \quad 0 \quad -\frac{\sqrt{105}i}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0$
	0	$0 \quad \frac{\sqrt{70}i}{224} \quad 0 \quad \frac{\sqrt{70}}{140} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{224} \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$
	$-\frac{\sqrt{70}i}{224}$	$0 \quad \frac{\sqrt{70}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{120} \quad \frac{\sqrt{42}i}{224} \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{70}}{56} \quad 0 \quad -\frac{23\sqrt{70}i}{1120} \quad \frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{224} \quad -\frac{5\sqrt{7}}{112} \quad 0$
	$\frac{\sqrt{70}}{56}$	$0 \quad \frac{23\sqrt{70}i}{1120} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{224} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{112}$
	0	$0 \quad 0 \quad \frac{\sqrt{210}}{160} \quad 0 \quad 0 \quad \frac{3\sqrt{35}i}{140} \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad \frac{5\sqrt{14}}{224} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{160} \quad -\frac{3\sqrt{35}i}{140} \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{14}}{224} \quad 0 \quad 0$
758	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,1;a)}(B, 4)$	$0 - \frac{\sqrt{70}i}{560} 0 \frac{\sqrt{70}}{560} 0 0 0 0 0 \frac{5\sqrt{42}i}{336} 0 \frac{5\sqrt{42}}{336} 0 0$	$\begin{bmatrix} 0 & -\frac{\sqrt{70}i}{560} & 0 & \frac{\sqrt{70}}{560} & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{336} & 0 & \frac{5\sqrt{42}}{336} & 0 & 0 \\ \frac{\sqrt{70}i}{560} & 0 & \frac{\sqrt{70}}{560} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{336} & 0 & \frac{5\sqrt{42}}{336} & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{560} & 0 & -\frac{\sqrt{70}i}{560} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{112} & 0 & -\frac{3\sqrt{42}i}{112} & \frac{\sqrt{7}}{14} \\ -\frac{\sqrt{70}}{560} & 0 & \frac{\sqrt{70}i}{560} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{42}}{112} & 0 & \frac{3\sqrt{42}i}{112} & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{120} & 0 & 0 & \frac{\sqrt{42}}{168} & 0 & 0 & \frac{\sqrt{7}i}{56} \\ 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & -\frac{\sqrt{105}}{120} & 0 & 0 & 0 & -\frac{\sqrt{42}}{168} & -\frac{\sqrt{7}i}{56} & 0 & 0 \\ -\frac{3\sqrt{70}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{120} & \frac{\sqrt{42}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{56} \\ 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{120} & 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & -\frac{\sqrt{7}}{56} & 0 \\ 0 & -\frac{\sqrt{210}i}{80} & 0 & -\frac{\sqrt{210}}{80} & 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & -\frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{14}}{112} & 0 & 0 \\ \frac{\sqrt{210}i}{80} & 0 & -\frac{\sqrt{210}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{35} & \frac{\sqrt{14}i}{112} & 0 & \frac{\sqrt{14}}{112} & 0 & 0 & 0 \end{bmatrix}$
	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$	
	$0 0 0 0 0 0 -\frac{\sqrt{70}i}{28} 0 0 0 0 0 0 0$	
	$0 0 0 0 0 0 0 -\frac{\sqrt{70}i}{28} 0 0 0 0 0 0$	
	$0 0 0 0 \frac{\sqrt{70}i}{28} 0 0 0 0 0 0 0 0 0$	
	$0 0 0 0 0 \frac{\sqrt{70}i}{28} 0 0 0 0 0 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 -\frac{\sqrt{7}i}{14} 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 -\frac{\sqrt{7}i}{14} 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 \frac{\sqrt{7}i}{14} 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 0 0 0 0$	
$\mathbb{M}_2^{(a)}(A, 1)$	$\sqrt{3}(x-y)(x+y)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\sqrt{3}(x-y)(x+y)$	
	$0 0 0 0 0 0 -\frac{\sqrt{70}i}{28} 0 0 0 0 0 0 0$	
	$0 0 0 0 0 0 0 -\frac{\sqrt{70}i}{28} 0 0 0 0 0 0$	
	$0 0 0 0 0 0 \frac{\sqrt{70}i}{28} 0 0 0 0 0 0 0$	
	$0 0 0 0 0 0 0 \frac{\sqrt{70}i}{28} 0 0 0 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 -\frac{\sqrt{7}i}{14} 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 -\frac{\sqrt{7}i}{14} 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 \frac{\sqrt{7}i}{14} 0 0 0$	
760	symmetry	$\sqrt{3}(x-y)(x+y)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(a)}(A, 2)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} \\ 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	761 symmetry	$\sqrt{3}xz$
	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 \end{bmatrix}$	
	762 symmetry	$\sqrt{3}yz$

continued ...

Table 9

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
763	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
764	symmetry	$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$

continued ...

Table 9

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 \\ \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
765	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{210} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{210} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{70}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{168} & 0 & 0 \\ -\frac{\sqrt{70}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
766	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2 + y^2 - 6z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$M_4^{(a)}(A, 3)$	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{14}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{14}$
	0	0 0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0
	0	0 0 0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0
	$-\frac{3\sqrt{210}i}{280}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 0
	0	$-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{105}i}{35}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{105}i}{35}$ 0 0 0 0 0 0 0 0
767	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$M_4^{(a)}(A, 4)$	0	0 0 $\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{16}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{16}$ 0 0 0
	$-\frac{\sqrt{30}i}{80}$	0 0 0 0 0 0 0 0 $\frac{3\sqrt{2}i}{16}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 0 0 0 $\frac{3\sqrt{2}i}{16}$ 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0
	0	0 0 0 0 $\frac{3\sqrt{5}i}{40}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0
	0	0 0 0 0 0 $\frac{3\sqrt{5}i}{40}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$
	0	0 0 $-\frac{3\sqrt{10}i}{80}$ 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 0
	0	0 0 0 $-\frac{3\sqrt{10}i}{80}$ 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 0
768	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(a)}(A, 5)$	$0 \quad 0 \quad -\frac{\sqrt{210}i}{560} \quad 0 \quad \frac{9\sqrt{14}i}{112} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{560} \quad 0 \quad \frac{9\sqrt{14}i}{112} \quad 0 \quad 0$	
	$\frac{\sqrt{210}i}{560} \quad 0 \quad \frac{5\sqrt{14}i}{112} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{210}i}{560} \quad 0 \quad \frac{5\sqrt{14}i}{112} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{40} \quad 0 \quad \frac{\sqrt{21}i}{56} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{40} \quad 0 \quad \frac{\sqrt{21}i}{56}$	
	$0 \quad 0 \quad -\frac{3\sqrt{70}i}{80} \quad 0 \quad -\frac{\sqrt{42}i}{112} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{80} \quad 0 \quad -\frac{\sqrt{42}i}{112} \quad 0 \quad 0$	
769	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{M}_4^{(a)}(B, 1)$	$\frac{\sqrt{30}i}{80} \quad 0 \quad \frac{\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{30}i}{80} \quad 0 \quad \frac{\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{30}i}{80} \quad 0 \quad \frac{3\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{80} \quad 0 \quad \frac{3\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{5}i}{40} \quad 0 \quad -\frac{\sqrt{3}i}{8} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{5}i}{40} \quad 0 \quad -\frac{\sqrt{3}i}{8}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$\frac{3\sqrt{10}i}{80} \quad 0 \quad \frac{\sqrt{6}i}{16} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{3\sqrt{10}i}{80} \quad 0 \quad \frac{\sqrt{6}i}{16} \quad 0 \quad 0 \quad 0$	
770	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_4^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
771	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} \frac{\sqrt{210}i}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{14}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{9\sqrt{14}i}{112} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{112} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{56} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{70}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{70}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
772	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_4^{(a)}(B, 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
773	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{M}_2^{(1,-1;a)}(A, 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{28} & \frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{420} & 0 & \frac{\sqrt{105}i}{420} & 0 & 0 \\ -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & \frac{\sqrt{105}}{420} & 0 & -\frac{\sqrt{105}i}{420} & 0 & 0 \\ 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & -\frac{\sqrt{105}i}{420} & 0 & \frac{\sqrt{105}}{420} & 0 & 0 \\ \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & \frac{\sqrt{105}i}{420} & 0 & \frac{\sqrt{105}}{420} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{42}i}{84} & \frac{2\sqrt{105}}{105} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{140} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & -\frac{2\sqrt{105}}{105} & 0 & 0 & \frac{\sqrt{70}}{140} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & \frac{2\sqrt{105}}{105} & 0 & 0 & -\frac{\sqrt{70}i}{140} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{105}}{105} & \frac{\sqrt{70}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 & \frac{\sqrt{35}i}{70} & \frac{\sqrt{210}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & -\frac{\sqrt{210}}{70} \end{bmatrix}$
774	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,-1;a)}(A, 2)$	0	$\frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0$
	$\frac{\sqrt{21}}{28}$	$0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad 0$
	$\frac{\sqrt{21}i}{28}$	$0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0$
775	symmetry	$\sqrt{3}xz$
$\mathbb{M}_2^{(1,-1;a)}(A, 3)$	$\frac{\sqrt{21}}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{140}$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0$
776	symmetry	$\sqrt{3}yz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,-1;a)}(B, 1)$		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 \\ -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & -\frac{\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{35}}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & \frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{35} & -\frac{\sqrt{210}}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & \frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & -\frac{3\sqrt{70}i}{140} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & \frac{3\sqrt{70}i}{140} & 0 \end{bmatrix}$
		777 symmetry
		$\sqrt{3}xy$
		$\begin{bmatrix} 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{140} & 0 & \frac{\sqrt{35}}{140} & 0 & 0 \\ \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & \frac{\sqrt{35}}{140} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & \frac{\sqrt{35}i}{140} & 0 & 0 \\ -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{105}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{105}}{70} & 0 & 0 \end{bmatrix}$
		778 symmetry
		$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,-1;a)}(A, 1)$	0	$\frac{\sqrt{6}}{48} \ 0 \ -\frac{\sqrt{6}i}{48} \ -\frac{1}{6} \ 0 \ 0 \ 0 \ 0 \ -\frac{11\sqrt{10}}{240} \ 0 \ -\frac{11\sqrt{10}i}{240} \ 0 \ 0$
	$\frac{\sqrt{6}}{48}$	$0 \ \frac{\sqrt{6}i}{48} \ 0 \ 0 \ \frac{1}{6} \ 0 \ 0 \ -\frac{11\sqrt{10}}{240} \ 0 \ \frac{11\sqrt{10}i}{240} \ 0 \ 0 \ 0$
	0	$\frac{\sqrt{6}i}{48} \ 0 \ \frac{\sqrt{6}}{48} \ 0 \ 0 \ -\frac{1}{6} \ 0 \ 0 \ \frac{\sqrt{10}i}{240} \ 0 \ -\frac{\sqrt{10}}{240} \ 0 \ 0 \ 0$
	$-\frac{\sqrt{6}i}{48}$	$0 \ \frac{\sqrt{6}}{48} \ 0 \ 0 \ 0 \ 0 \ \frac{1}{6} \ -\frac{\sqrt{10}i}{240} \ 0 \ -\frac{\sqrt{10}}{240} \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{1}{24} \ 0 \ \frac{i}{6} \ \frac{\sqrt{10}}{60} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}}{120}$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{1}{24} \ 0 \ -\frac{i}{6} \ 0 \ 0 \ -\frac{\sqrt{10}}{60} \ 0 \ 0 \ -\frac{\sqrt{15}}{120} \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{i}{24} \ 0 \ -\frac{1}{6} \ 0 \ 0 \ \frac{\sqrt{10}}{60} \ 0 \ 0 \ 0 \ \frac{\sqrt{15}i}{120}$
	0	$0 \ 0 \ 0 \ 0 \ -\frac{i}{24} \ 0 \ -\frac{1}{6} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{10}}{60} \ -\frac{\sqrt{15}i}{120} \ 0$
	0	$0 \ -\frac{5\sqrt{2}}{48} \ 0 \ -\frac{5\sqrt{2}i}{48} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{30}}{80} \ 0 \ \frac{\sqrt{30}i}{80} \ \frac{\sqrt{5}}{15} \ 0$
	$-\frac{5\sqrt{2}}{48}$	$0 \ \frac{5\sqrt{2}i}{48} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{30}}{80} \ 0 \ -\frac{\sqrt{30}i}{80} \ 0 \ 0 \ -\frac{\sqrt{5}}{15}$
779	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
$\mathbb{M}_4^{(1,-1;a)}(A, 2)$	0	$\frac{\sqrt{210}}{336} \ 0 \ -\frac{\sqrt{210}i}{336} \ -\frac{\sqrt{35}}{42} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{14}}{336} \ 0 \ \frac{\sqrt{14}i}{336} \ 0 \ 0$
	$\frac{\sqrt{210}}{336}$	$0 \ \frac{\sqrt{210}i}{336} \ 0 \ 0 \ 0 \ \frac{\sqrt{35}}{42} \ 0 \ 0 \ \frac{\sqrt{14}}{336} \ 0 \ -\frac{\sqrt{14}i}{336} \ 0 \ 0 \ 0$
	0	$\frac{\sqrt{210}i}{336} \ 0 \ \frac{\sqrt{210}}{336} \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}}{42} \ 0 \ 0 \ \frac{13\sqrt{14}i}{336} \ 0 \ -\frac{13\sqrt{14}}{336} \ 0 \ 0 \ 0$
	$-\frac{\sqrt{210}i}{336}$	$0 \ \frac{\sqrt{210}}{336} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{35}}{42} \ -\frac{13\sqrt{14}i}{336} \ 0 \ -\frac{13\sqrt{14}}{336} \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{5\sqrt{35}}{168} \ 0 \ -\frac{\sqrt{35}i}{84} \ \frac{\sqrt{14}}{84} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}}{168}$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{5\sqrt{35}}{168} \ 0 \ \frac{\sqrt{35}i}{84} \ 0 \ -\frac{\sqrt{14}}{84} \ 0 \ 0 \ -\frac{\sqrt{21}}{168} \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{5\sqrt{35}i}{168} \ 0 \ \frac{\sqrt{35}}{84} \ 0 \ 0 \ \frac{\sqrt{14}}{84} \ 0 \ 0 \ \frac{\sqrt{21}i}{168}$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{5\sqrt{35}i}{168} \ 0 \ \frac{\sqrt{35}}{84} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{14}}{84} \ -\frac{\sqrt{21}i}{168} \ 0$
	0	$0 \ \frac{\sqrt{70}}{48} \ 0 \ \frac{\sqrt{70}i}{48} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}}{112} \ 0 \ \frac{\sqrt{42}i}{112} \ \frac{\sqrt{7}}{21} \ 0$
	$\frac{\sqrt{70}}{48}$	$0 \ -\frac{\sqrt{70}i}{48} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}}{112} \ 0 \ -\frac{\sqrt{42}i}{112} \ 0 \ 0 \ -\frac{\sqrt{7}}{21}$
780	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,-1;a)}(A, 3)$	$0 \quad \frac{\sqrt{70}}{112} \quad 0 \quad \frac{\sqrt{70}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{48} \quad 0 \quad \frac{\sqrt{42}i}{48} \quad \frac{\sqrt{7}}{14} \quad 0$	
	$\frac{\sqrt{70}}{112} \quad 0 \quad -\frac{\sqrt{70}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{48} \quad 0 \quad -\frac{\sqrt{42}i}{48} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14}$	
	$0 \quad -\frac{\sqrt{70}i}{112} \quad 0 \quad \frac{\sqrt{70}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{42}i}{336} \quad 0 \quad -\frac{5\sqrt{42}}{336} \quad 0 \quad 0$	
	$\frac{\sqrt{70}i}{112} \quad 0 \quad \frac{\sqrt{70}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{42}i}{336} \quad 0 \quad -\frac{5\sqrt{42}}{336} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{168} \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{56}$	
	$0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{168} \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{56} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{56}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad -\frac{\sqrt{105}i}{168} \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad \frac{\sqrt{7}i}{56} \quad 0$	
	$0 \quad -\frac{\sqrt{210}}{336} \quad 0 \quad \frac{\sqrt{210}i}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}}{112} \quad 0 \quad -\frac{3\sqrt{14}i}{112} \quad 0 \quad 0$	
	$-\frac{\sqrt{210}}{336} \quad 0 \quad -\frac{\sqrt{210}i}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}}{112} \quad 0 \quad \frac{3\sqrt{14}i}{112} \quad 0 \quad 0 \quad 0$	
781	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{M}_4^{(1,-1;a)}(A, 4)$	$-\frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad \frac{7\sqrt{6}}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{8}$	
	$0 \quad \frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{6}}{96} \quad 0 \quad 0 \quad 0 \quad \frac{1}{8} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{6}}{96} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{6}}{96} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{96} \quad 0 \quad 0 \quad 0 \quad \frac{1}{16} \quad 0$	
	$-\frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{48} \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{16}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{6}}{96} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{6}}{96} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{30}}{96} \quad 0 \quad \frac{3\sqrt{2}}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{12} \quad 0$	
782	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,-1;a)}(A, 5)$	$\frac{\sqrt{70}}{224} 0 0 0 0 \frac{\sqrt{105}}{168} 0 0 \frac{\sqrt{42}}{672} 0 0 0 0 \frac{3\sqrt{7}}{56}$	
	$0 -\frac{\sqrt{70}}{224} 0 0 \frac{\sqrt{105}}{168} 0 0 0 -\frac{\sqrt{42}}{672} 0 0 \frac{3\sqrt{7}}{56} 0$	
	$0 0 \frac{\sqrt{70}}{224} 0 0 0 0 \frac{\sqrt{105}}{168} 0 0 -\frac{13\sqrt{42}}{672} 0 0 \frac{\sqrt{7}i}{14}$	
	$0 0 0 -\frac{\sqrt{70}}{224} 0 0 \frac{\sqrt{105}}{168} 0 0 0 0 \frac{13\sqrt{42}}{672} -\frac{\sqrt{7}i}{14} 0$	
	$0 -\frac{3\sqrt{70}}{224} 0 -\frac{\sqrt{70}i}{56} -\frac{5\sqrt{105}}{336} 0 0 0 -\frac{11\sqrt{42}}{672} 0 -\frac{\sqrt{42}i}{56} -\frac{\sqrt{7}}{112} 0$	
	$-\frac{3\sqrt{70}}{224} 0 \frac{\sqrt{70}i}{56} 0 0 \frac{5\sqrt{105}}{336} 0 0 -\frac{11\sqrt{42}}{672} 0 \frac{\sqrt{42}i}{56} 0 0 \frac{\sqrt{7}}{112}$	
	$0 \frac{\sqrt{70}i}{56} 0 -\frac{3\sqrt{70}}{224} 0 0 \frac{\sqrt{105}}{168} 0 0 -\frac{\sqrt{42}i}{56} 0 \frac{\sqrt{42}}{96} 0 0$	
	$-\frac{\sqrt{70}i}{56} 0 -\frac{3\sqrt{70}}{224} 0 0 0 0 -\frac{\sqrt{105}}{168} \frac{\sqrt{42}i}{56} 0 \frac{\sqrt{42}}{96} 0 0 0$	
	$\frac{\sqrt{210}}{96} 0 0 0 0 0 0 -\frac{3\sqrt{14}}{224} 0 0 0 0 -\frac{\sqrt{21}}{84} 0$	
	$0 -\frac{\sqrt{210}}{96} 0 0 0 0 0 0 0 \frac{3\sqrt{14}}{224} 0 0 0 -\frac{\sqrt{21}}{84} 0$	
783	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{M}_4^{(1,-1;a)}(B, 1)$	$0 0 \frac{\sqrt{10}}{32} 0 0 -\frac{\sqrt{15}i}{24} 0 0 0 0 \frac{7\sqrt{6}}{96} 0 0 -\frac{i}{8}$	
	$0 0 0 -\frac{\sqrt{10}}{32} \frac{\sqrt{15}i}{24} 0 0 0 0 0 0 -\frac{7\sqrt{6}}{96} \frac{i}{8} 0$	
	$-\frac{\sqrt{10}}{32} 0 0 0 0 0 0 -\frac{\sqrt{15}i}{24} -\frac{5\sqrt{6}}{96} 0 0 0 0 0$	
	$0 \frac{\sqrt{10}}{32} 0 0 0 0 \frac{\sqrt{15}i}{24} 0 0 \frac{5\sqrt{6}}{96} 0 0 0 0$	
	$0 \frac{\sqrt{10}i}{32} 0 0 0 0 -\frac{\sqrt{15}}{24} 0 0 \frac{5\sqrt{6}i}{96} 0 0 0 0$	
	$-\frac{\sqrt{10}i}{32} 0 0 0 0 0 0 \frac{\sqrt{15}}{24} -\frac{5\sqrt{6}i}{96} 0 0 0 0 0$	
	$0 0 0 \frac{\sqrt{10}i}{32} \frac{\sqrt{15}}{48} 0 0 0 0 0 -\frac{\sqrt{6}i}{96} -\frac{1}{16} 0$	
	$0 0 -\frac{\sqrt{10}i}{32} 0 0 -\frac{\sqrt{15}}{48} 0 0 0 0 \frac{\sqrt{6}i}{96} 0 0 \frac{1}{16}$	
	$0 0 \frac{\sqrt{30}}{96} 0 0 0 0 0 0 -\frac{3\sqrt{2}}{32} 0 0 0 \frac{\sqrt{3}i}{12}$	
	$0 0 0 -\frac{\sqrt{30}}{96} 0 0 0 0 0 0 0 \frac{3\sqrt{2}}{32} -\frac{\sqrt{3}i}{12} 0$	
784	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,-1;a)}(B, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{24} & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{24} & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
785	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
$\mathbb{M}_4^{(1,-1;a)}(B, 3)$		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{70}}{224} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{672} & 0 & 0 & \frac{3\sqrt{7}i}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{70}}{224} & \frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{672} & -\frac{3\sqrt{7}i}{56} & 0 \\ -\frac{\sqrt{70}}{224} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & -\frac{13\sqrt{42}}{672} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & \frac{\sqrt{70}}{224} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & 0 & \frac{13\sqrt{42}}{672} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 \\ 0 & -\frac{3\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{42}i}{96} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 \\ \frac{3\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & \frac{\sqrt{42}i}{96} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{3\sqrt{70}i}{224} & \frac{5\sqrt{105}}{336} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & \frac{11\sqrt{42}i}{672} & -\frac{\sqrt{7}}{112} & 0 \\ -\frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{70}i}{224} & 0 & 0 & -\frac{5\sqrt{105}}{336} & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{11\sqrt{42}i}{672} & 0 & 0 & \frac{\sqrt{7}}{112} \\ 0 & 0 & -\frac{\sqrt{210}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{224} & 0 & 0 & \frac{\sqrt{21}i}{84} \\ 0 & 0 & 0 & \frac{\sqrt{210}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{224} & -\frac{\sqrt{21}i}{84} & 0 \end{bmatrix}$
786	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,-1;a)}(B, 4)$	0	$\begin{bmatrix} 0 & \frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{336} & 0 & -\frac{5\sqrt{42}}{336} & 0 & 0 \\ -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{336} & 0 & -\frac{5\sqrt{42}}{336} & 0 & 0 \\ 0 & \frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{70}i}{112} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{48} & 0 & -\frac{\sqrt{42}i}{48} & -\frac{\sqrt{7}}{14} & 0 \\ \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{42}i}{48} & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{7}i}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & \frac{\sqrt{7}i}{56} & 0 \\ -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{56} \\ 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & \frac{\sqrt{7}}{56} & 0 \\ 0 & \frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{210}}{336} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}i}{112} & 0 & \frac{3\sqrt{14}}{112} & 0 & 0 \\ -\frac{\sqrt{210}i}{336} & 0 & \frac{\sqrt{210}}{336} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}i}{112} & 0 & \frac{3\sqrt{14}}{112} & 0 & 0 & 0 \end{bmatrix}$
	787	$\text{symmetry}$
	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$	
	$\left[ \begin{array}{ccccccccccccc} 0 & \frac{\sqrt{231}}{616} & 0 & -\frac{\sqrt{231}i}{616} & -\frac{3\sqrt{154}}{308} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385}}{616} & 0 & -\frac{3\sqrt{385}i}{616} & 0 & 0 \\ \frac{\sqrt{231}}{616} & 0 & \frac{\sqrt{231}i}{616} & 0 & 0 & \frac{3\sqrt{154}}{308} & 0 & 0 & 0 & -\frac{3\sqrt{385}}{616} & 0 & \frac{3\sqrt{385}i}{616} & 0 & 0 \\ 0 & -\frac{\sqrt{231}i}{462} & 0 & -\frac{\sqrt{231}}{462} & 0 & 0 & \frac{\sqrt{154}}{77} & 0 & 0 & -\frac{\sqrt{385}i}{154} & 0 & \frac{\sqrt{385}}{154} & 0 & 0 \\ \frac{\sqrt{231}i}{462} & 0 & -\frac{\sqrt{231}}{462} & 0 & 0 & 0 & 0 & -\frac{\sqrt{154}}{77} & \frac{\sqrt{385}i}{154} & 0 & \frac{\sqrt{385}}{154} & 0 & 0 & 0 \\ -\frac{\sqrt{231}}{132} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{154}}{308} & 0 & -\frac{\sqrt{154}i}{77} & -\frac{\sqrt{385}}{308} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2310}}{924} \\ 0 & \frac{\sqrt{231}}{132} & 0 & 0 & -\frac{3\sqrt{154}}{308} & 0 & \frac{\sqrt{154}i}{77} & 0 & 0 & \frac{\sqrt{385}}{308} & 0 & 0 & 0 & -\frac{\sqrt{2310}}{924} \\ 0 & 0 & \frac{\sqrt{231}}{132} & 0 & 0 & -\frac{3\sqrt{154}i}{308} & 0 & \frac{\sqrt{154}}{77} & 0 & 0 & -\frac{\sqrt{385}}{308} & 0 & 0 & \frac{\sqrt{2310}i}{924} \\ 0 & 0 & 0 & -\frac{\sqrt{231}}{132} & \frac{3\sqrt{154}i}{308} & 0 & \frac{\sqrt{154}}{77} & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{308} & -\frac{\sqrt{2310}i}{924} & 0 \\ 0 & -\frac{\sqrt{77}}{88} & 0 & -\frac{\sqrt{77}i}{88} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{616} & 0 & \frac{\sqrt{1155}i}{616} & \frac{\sqrt{770}}{308} & 0 \\ -\frac{\sqrt{77}}{88} & 0 & \frac{\sqrt{77}i}{88} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{616} & 0 & -\frac{\sqrt{1155}}{616} & 0 & 0 & -\frac{\sqrt{770}}{308} \end{array} \right]$	
	788	$\text{symmetry}$
	$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$	

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_6^{(1,-1;a)}(A, 2)$	$\begin{bmatrix} 0 & \frac{7\sqrt{5}}{120} & 0 & \frac{7\sqrt{5}i}{120} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{3}i}{24} & -\frac{\sqrt{2}}{12} & 0 \\ \frac{7\sqrt{5}}{120} & 0 & -\frac{7\sqrt{5}i}{120} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & \frac{\sqrt{2}}{12} \\ 0 & \frac{\sqrt{5}i}{15} & 0 & -\frac{\sqrt{5}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{15} & 0 & -\frac{\sqrt{5}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{12} \\ 0 & -\frac{\sqrt{5}}{60} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}}{60} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{60} & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{120} & 0 & -\frac{\sqrt{15}i}{120} & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 \\ \frac{\sqrt{15}}{120} & 0 & \frac{\sqrt{15}i}{120} & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & -\frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
789	symmetry	$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$
	$\mathbb{M}_6^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{33}}{264} & 0 & \frac{\sqrt{33}i}{264} & \frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & \frac{\sqrt{55}i}{88} & 0 & 0 \\ -\frac{\sqrt{33}}{264} & 0 & -\frac{\sqrt{33}i}{264} & 0 & 0 & -\frac{\sqrt{22}}{44} & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & -\frac{\sqrt{55}i}{88} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{33}}{132} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}}{44} & 0 & 0 & -\frac{\sqrt{55}}{44} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{132} \\ 0 & -\frac{\sqrt{33}}{132} & 0 & 0 & \frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{44} & 0 & 0 & 0 & -\frac{\sqrt{330}}{132} & 0 \\ 0 & 0 & -\frac{\sqrt{33}}{132} & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{44} & 0 & 0 & 0 & \frac{\sqrt{330}i}{132} \\ 0 & 0 & 0 & \frac{\sqrt{33}}{132} & -\frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{44} & -\frac{\sqrt{330}i}{132} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{11}}{88} & 0 & \frac{\sqrt{11}i}{88} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{88} & 0 & \frac{\sqrt{165}i}{88} & \frac{\sqrt{110}}{44} & 0 & 0 \\ \frac{\sqrt{11}}{88} & 0 & -\frac{\sqrt{11}i}{88} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{88} & 0 & -\frac{\sqrt{165}i}{88} & 0 & 0 & 0 & -\frac{\sqrt{110}}{44} \end{bmatrix}$
790	symmetry	$\frac{\sqrt{42}(x-y)(x+y)(x^4 - 9x^2y^2 - 5x^2z^2 + y^4 - 5y^2z^2 + 5z^4)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_6^{(1,-1;a)}(A, 4)$	0	$\frac{17\sqrt{11}}{264} \quad 0 \quad \frac{17\sqrt{11}i}{264} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{264} \quad 0 \quad \frac{\sqrt{165}i}{264} \quad \frac{\sqrt{110}}{132} \quad 0$
	$\frac{17\sqrt{11}}{264}$	$0 \quad -\frac{17\sqrt{11}i}{264} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{264} \quad 0 \quad -\frac{\sqrt{165}i}{264} \quad 0 \quad 0 \quad -\frac{\sqrt{110}}{132}$
	0	$\frac{2\sqrt{11}i}{33} \quad 0 \quad -\frac{2\sqrt{11}}{33} \quad 0 \quad 0$
	$-\frac{2\sqrt{11}i}{33}$	$0 \quad -\frac{2\sqrt{11}}{33} \quad 0 \quad 0$
	$-\frac{\sqrt{11}}{132}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{66}}{132} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}}{132}$
	0	$\frac{\sqrt{11}}{132} \quad 0 \quad 0 \quad -\frac{\sqrt{66}}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{132} \quad 0 \quad 0 \quad \frac{\sqrt{110}}{132} \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{11}}{132} \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{132} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{132}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{11}}{132} \quad -\frac{\sqrt{66}i}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{132} \quad -\frac{\sqrt{110}i}{132} \quad 0$
	$-\frac{\sqrt{33}}{264}$	$0 \quad \frac{\sqrt{33}i}{264} \quad \frac{\sqrt{22}}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{55}}{88} \quad 0 \quad \frac{\sqrt{55}i}{88} \quad 0 \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{33}}{264}$	$0 \quad -\frac{\sqrt{33}i}{264} \quad 0 \quad 0 \quad -\frac{\sqrt{22}}{44} \quad 0 \quad 0 \quad \frac{\sqrt{55}}{88} \quad 0 \quad -\frac{\sqrt{55}i}{88} \quad 0 \quad 0 \quad 0 \quad 0$
791	symmetry	$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$
$\mathbb{M}_6^{(1,-1;a)}(A, 5)$	$\frac{5\sqrt{66}}{528} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad \frac{\sqrt{11}i}{44} \quad -\frac{\sqrt{110}}{176} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{264}$	
	0	$-\frac{5\sqrt{66}}{528} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad \frac{\sqrt{110}}{176} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{264} \quad 0$
	0	$0 \quad -\frac{\sqrt{66}}{88} \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{44} \quad 0 \quad -\frac{\sqrt{11}}{22} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{132}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{66}}{88} \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad -\frac{\sqrt{11}}{22} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}}{88} \quad \frac{\sqrt{165}i}{132} \quad 0$
	0	$\frac{\sqrt{66}}{66} \quad 0 \quad \frac{\sqrt{66}i}{88} \quad -\frac{\sqrt{11}}{44} \quad 0 \quad -\frac{\sqrt{110}i}{88} \quad -\frac{\sqrt{165}}{132} \quad 0$
	$\frac{\sqrt{66}}{66}$	$0 \quad -\frac{\sqrt{66}i}{88} \quad 0 \quad 0 \quad \frac{\sqrt{11}}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{132}$
	0	$\frac{\sqrt{66}i}{264} \quad 0 \quad -\frac{\sqrt{66}}{88} \quad 0 \quad 0 \quad \frac{\sqrt{11}}{22} \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{88} \quad 0 \quad \frac{\sqrt{110}}{88} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{66}i}{264}$	$0 \quad -\frac{\sqrt{66}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{22} \quad \frac{\sqrt{110}i}{88} \quad 0 \quad \frac{\sqrt{110}}{88} \quad 0 \quad 0 \quad 0 \quad 0$
	$-\frac{3\sqrt{22}}{176}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{88} \quad 0 \quad -\frac{\sqrt{33}i}{44} \quad -\frac{\sqrt{330}}{176} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0$
	0	$\frac{3\sqrt{22}}{176} \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{88} \quad 0 \quad \frac{\sqrt{33}i}{44} \quad 0 \quad 0 \quad \frac{\sqrt{330}}{176} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0$
792	symmetry	$\frac{\sqrt{462}xz(x^2-3z^2)(3x^2-z^2)}{16}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_6^{(1,-1;a)}(A, 6)$	$\begin{bmatrix} \frac{1}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & -\frac{\sqrt{15}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{32} \\ 0 & -\frac{1}{32} & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{32} & 0 & 0 & -\frac{\sqrt{10}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{16} & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{16} & 0 & 0 & \frac{\sqrt{10}}{16} & 0 \\ \frac{1}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & -\frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{32} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{32} & 0 & 0 & \frac{3\sqrt{5}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{32} \\ 0 & \frac{\sqrt{3}}{32} & 0 & 0 & -\frac{3\sqrt{2}}{32} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{32} & 0 & 0 & \frac{\sqrt{30}}{32} & 0 \end{bmatrix}$
793	symmetry	$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$ $\begin{bmatrix} \frac{17\sqrt{55}}{1056} & 0 & 0 & 0 & 0 & \frac{37\sqrt{330}}{5280} & 0 & \frac{\sqrt{330}i}{110} & \frac{\sqrt{33}}{96} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}}{96} \\ 0 & -\frac{17\sqrt{55}}{1056} & 0 & 0 & \frac{37\sqrt{330}}{5280} & 0 & -\frac{\sqrt{330}i}{110} & 0 & 0 & -\frac{\sqrt{33}}{96} & 0 & 0 & \frac{\sqrt{22}}{96} & 0 \\ 0 & 0 & -\frac{\sqrt{55}}{66} & 0 & 0 & \frac{\sqrt{330}i}{110} & 0 & -\frac{\sqrt{330}}{165} & 0 & 0 & -\frac{\sqrt{33}}{66} & 0 & 0 & \frac{\sqrt{22}i}{66} \\ 0 & 0 & 0 & \frac{\sqrt{55}}{66} & -\frac{\sqrt{330}i}{110} & 0 & -\frac{\sqrt{330}}{165} & 0 & 0 & 0 & 0 & \frac{\sqrt{33}}{66} & -\frac{\sqrt{22}i}{66} & 0 \\ 0 & \frac{29\sqrt{55}}{2640} & 0 & \frac{\sqrt{55}i}{66} & \frac{\sqrt{330}}{240} & 0 & 0 & 0 & 0 & \frac{\sqrt{33}}{176} & 0 & \frac{\sqrt{33}i}{66} & \frac{5\sqrt{22}}{528} & 0 \\ \frac{29\sqrt{55}}{2640} & 0 & -\frac{\sqrt{55}i}{66} & 0 & 0 & -\frac{\sqrt{330}}{240} & 0 & 0 & \frac{\sqrt{33}}{176} & 0 & -\frac{\sqrt{33}i}{66} & 0 & 0 & -\frac{5\sqrt{22}}{528} \\ 0 & \frac{7\sqrt{55}i}{330} & 0 & -\frac{\sqrt{55}}{66} & 0 & 0 & -\frac{\sqrt{330}}{165} & 0 & 0 & \frac{\sqrt{33}i}{66} & 0 & -\frac{\sqrt{33}}{66} & 0 & 0 \\ -\frac{7\sqrt{55}i}{330} & 0 & -\frac{\sqrt{55}}{66} & 0 & 0 & 0 & 0 & \frac{\sqrt{330}}{165} & -\frac{\sqrt{33}i}{66} & 0 & -\frac{\sqrt{33}}{66} & 0 & 0 & 0 \\ \frac{9\sqrt{165}}{1760} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{160} & 0 & \frac{\sqrt{110}i}{110} & \frac{5\sqrt{11}}{352} & 0 & 0 & 0 & 0 & \frac{5\sqrt{66}}{1056} \\ 0 & -\frac{9\sqrt{165}}{1760} & 0 & 0 & \frac{\sqrt{110}}{160} & 0 & -\frac{\sqrt{110}i}{110} & 0 & 0 & -\frac{5\sqrt{11}}{352} & 0 & 0 & \frac{5\sqrt{66}}{1056} & 0 \end{bmatrix}$
794	symmetry	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2 - y^2 - z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_6^{(1,-1;a)}(B, 1)$	0 0 $-\frac{5\sqrt{66}}{528}$ 0 0 $\frac{3\sqrt{11}i}{88}$ 0 $-\frac{\sqrt{11}}{44}$ 0 0 $-\frac{\sqrt{110}}{176}$ 0 0 $\frac{\sqrt{165}i}{264}$	
	0 0 0 $\frac{5\sqrt{66}}{528}$ $-\frac{3\sqrt{11}i}{88}$ 0 $-\frac{\sqrt{11}}{44}$ 0 0 0 0 $\frac{\sqrt{110}}{176}$ $-\frac{\sqrt{165}i}{264}$ 0	
	$-\frac{\sqrt{66}}{88}$ 0 0 0 0 $-\frac{\sqrt{11}}{44}$ 0 $-\frac{\sqrt{11}i}{22}$ $-\frac{\sqrt{110}}{88}$ 0 0 0 0 $-\frac{\sqrt{165}}{132}$	
	0 $\frac{\sqrt{66}}{88}$ 0 0 $-\frac{\sqrt{11}}{44}$ 0 $\frac{\sqrt{11}i}{22}$ 0 0 $\frac{\sqrt{110}}{88}$ 0 0 $-\frac{\sqrt{165}}{132}$ 0	
	0 $\frac{\sqrt{66}i}{88}$ 0 $-\frac{\sqrt{66}}{264}$ 0 0 $-\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0	
	$-\frac{\sqrt{66}i}{88}$ 0 $-\frac{\sqrt{66}}{264}$ 0 0 0 $\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0 0	
	0 $-\frac{\sqrt{66}}{88}$ 0 $-\frac{\sqrt{66}i}{66}$ $-\frac{\sqrt{11}}{44}$ 0 0 0 0 $-\frac{\sqrt{110}}{88}$ 0 0 $\frac{\sqrt{165}}{132}$ 0	
	$-\frac{\sqrt{66}}{88}$ 0 $\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{11}}{44}$ 0 0 $-\frac{\sqrt{110}}{88}$ 0 0 0 0 $-\frac{\sqrt{165}}{132}$	
	0 0 $-\frac{3\sqrt{22}}{176}$ 0 0 $\frac{\sqrt{33}i}{88}$ 0 $-\frac{\sqrt{33}}{44}$ 0 0 $\frac{\sqrt{330}}{176}$ 0 0 $-\frac{\sqrt{55}i}{88}$	
	0 0 0 $\frac{3\sqrt{22}}{176}$ $-\frac{\sqrt{33}i}{88}$ 0 $-\frac{\sqrt{33}}{44}$ 0 0 0 0 $-\frac{\sqrt{330}}{176}$ $\frac{\sqrt{55}i}{88}$ 0	
795	symmetry	$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$
$\mathbb{M}_6^{(1,-1;a)}(B, 2)$	0 $-\frac{\sqrt{66}i}{264}$ 0 $-\frac{\sqrt{66}}{264}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 0 $-\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0	
	$\frac{\sqrt{66}i}{264}$ 0 $-\frac{\sqrt{66}}{264}$ 0 0 0 0 $-\frac{\sqrt{11}}{22}$ $\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 0	
	0 $-\frac{\sqrt{66}}{264}$ 0 $\frac{\sqrt{66}i}{264}$ $\frac{\sqrt{11}}{22}$ 0 0 0 0 $\frac{\sqrt{110}}{88}$ 0 $\frac{\sqrt{110}i}{88}$ 0 0	
	$-\frac{\sqrt{66}}{264}$ 0 $-\frac{\sqrt{66}i}{264}$ 0 0 $-\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ 0 0 0	
	0 0 $\frac{\sqrt{66}}{66}$ 0 0 $-\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{22}$ 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{66}}{66}$ $\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{22}$ 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{66}}{66}$ 0 0 0 0 $\frac{\sqrt{11}}{22}$ 0 $\frac{\sqrt{11}i}{22}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{66}}{66}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 $-\frac{\sqrt{11}i}{22}$ 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{22}i}{44}$ 0 $\frac{\sqrt{22}}{44}$ 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{22}i}{44}$ 0 $\frac{\sqrt{22}}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0	
796	symmetry	$\frac{\sqrt{462}yz(y^2-3z^2)(3y^2-z^2)}{16}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_6^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & \frac{1}{32} & 0 & 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{32} & 0 & 0 & -\frac{\sqrt{10}i}{32} \\ 0 & 0 & 0 & -\frac{1}{32} & \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{32} & \frac{\sqrt{10}i}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{16} & \frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{16} & \frac{\sqrt{10}}{16} & 0 \\ 0 & 0 & -\frac{i}{16} & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 & -\frac{\sqrt{10}}{16} \\ 0 & 0 & \frac{\sqrt{3}}{32} & 0 & 0 & -\frac{3\sqrt{2}i}{32} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{32} & 0 & -\frac{\sqrt{30}i}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{32} & \frac{3\sqrt{2}i}{32} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{32} & \frac{\sqrt{30}i}{32} & 0 \end{bmatrix}$
797	symmetry	$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$
	$\mathbb{M}_6^{(1,-1;a)}(B, 4)$	$\begin{bmatrix} 0 & -\frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{4} & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
798	symmetry	$\frac{\sqrt{210}yz(16x^4-16x^2y^2-16x^2z^2+y^4+2y^2z^2+z^4)}{16}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_6^{(1,-1;a)}(B, 5)$	0 0 $\frac{17\sqrt{55}}{1056}$ 0 0 $-\frac{37\sqrt{330}i}{5280}$ 0 $\frac{\sqrt{330}}{110}$ 0 0 0 $-\frac{\sqrt{33}}{96}$ 0 0 $\frac{\sqrt{22}i}{96}$	
	0 0 0 $-\frac{17\sqrt{55}}{1056}$ $\frac{37\sqrt{330}i}{5280}$ 0 $\frac{\sqrt{330}}{110}$ 0 0 0 0 $\frac{\sqrt{33}}{96}$ $-\frac{\sqrt{22}i}{96}$ 0	
	$\frac{\sqrt{55}}{66}$ 0 0 0 0 $\frac{\sqrt{330}}{110}$ 0 $\frac{\sqrt{330}i}{165}$ $-\frac{\sqrt{33}}{66}$ 0 0 0 0 $-\frac{\sqrt{22}}{66}$	
	0 $-\frac{\sqrt{55}}{66}$ 0 0 $\frac{\sqrt{330}}{110}$ 0 $-\frac{\sqrt{330}i}{165}$ 0 0 $\frac{\sqrt{33}}{66}$ 0 0 $-\frac{\sqrt{22}}{66}$ 0	
	0 $-\frac{\sqrt{55}i}{66}$ 0 $\frac{7\sqrt{55}}{330}$ 0 0 $-\frac{\sqrt{330}}{165}$ 0 0 $\frac{\sqrt{33}i}{66}$ 0 $-\frac{\sqrt{33}}{66}$ 0 0	
	$\frac{\sqrt{55}i}{66}$ 0 $\frac{7\sqrt{55}}{330}$ 0 0 0 $\frac{\sqrt{330}}{165}$ $-\frac{\sqrt{33}i}{66}$ 0 $-\frac{\sqrt{33}}{66}$ 0 0 0	
	0 $\frac{\sqrt{55}}{66}$ 0 $\frac{29\sqrt{55}i}{2640}$ $-\frac{\sqrt{330}}{240}$ 0 0 0 0 $-\frac{\sqrt{33}}{66}$ 0 $-\frac{\sqrt{33}i}{176}$ $\frac{5\sqrt{22}}{528}$ 0	
	$\frac{\sqrt{55}}{66}$ 0 $-\frac{29\sqrt{55}i}{2640}$ 0 0 $\frac{\sqrt{330}}{240}$ 0 0 $-\frac{\sqrt{33}}{66}$ 0 $\frac{\sqrt{33}i}{176}$ 0 0 $-\frac{5\sqrt{22}}{528}$	
	0 0 $-\frac{9\sqrt{165}}{1760}$ 0 0 $\frac{\sqrt{110}i}{160}$ 0 $-\frac{\sqrt{110}}{110}$ 0 0 $\frac{5\sqrt{11}}{352}$ 0 0 $-\frac{5\sqrt{66}i}{1056}$	
	0 0 0 $\frac{9\sqrt{165}}{1760}$ $-\frac{\sqrt{110}i}{160}$ 0 $-\frac{\sqrt{110}}{110}$ 0 0 0 0 $-\frac{5\sqrt{11}}{352}$ $\frac{5\sqrt{66}i}{1056}$ 0	
799	symmetry	$\frac{\sqrt{210}xy(x^4+2x^2y^2-16x^2z^2+y^4-16y^2z^2+16z^4)}{16}$
$\mathbb{M}_6^{(1,-1;a)}(B, 6)$	0 $-\frac{\sqrt{55}i}{660}$ 0 $\frac{\sqrt{55}}{660}$ 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{55}i}{660}$ 0 $\frac{\sqrt{55}}{660}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{55}}{660}$ 0 $-\frac{\sqrt{55}i}{660}$ 0 0 0 0 0 $-\frac{\sqrt{33}}{66}$ 0 $\frac{\sqrt{33}i}{66}$ $\frac{\sqrt{22}}{33}$ 0	
	$-\frac{\sqrt{55}}{660}$ 0 $\frac{\sqrt{55}i}{660}$ 0 0 0 0 0 $-\frac{\sqrt{33}}{66}$ 0 $-\frac{\sqrt{33}i}{66}$ 0 0 $-\frac{\sqrt{22}}{33}$	
	0 0 $-\frac{\sqrt{55}}{165}$ 0 0 0 0 $-\frac{\sqrt{330}}{165}$ 0 0 $\frac{\sqrt{33}}{33}$ 0 0 $-\frac{\sqrt{22}i}{33}$	
	0 0 0 $\frac{\sqrt{55}}{165}$ 0 0 $-\frac{\sqrt{330}}{165}$ 0 0 0 0 $-\frac{\sqrt{33}}{33}$ $\frac{\sqrt{22}i}{33}$ 0	
	$\frac{\sqrt{55}}{165}$ 0 0 0 0 0 $\frac{\sqrt{330}i}{165}$ $\frac{\sqrt{33}}{33}$ 0 0 0 0 $\frac{\sqrt{22}}{33}$	
	0 $-\frac{\sqrt{55}}{165}$ 0 0 0 0 $-\frac{\sqrt{330}i}{165}$ 0 0 $-\frac{\sqrt{33}}{33}$ 0 0 $\frac{\sqrt{22}}{33}$ 0	
	0 $-\frac{\sqrt{165}i}{330}$ 0 $-\frac{\sqrt{165}}{330}$ 0 0 $\frac{\sqrt{110}}{55}$ 0 0 $-\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{22}$ 0 0	
	$\frac{\sqrt{165}i}{330}$ 0 $-\frac{\sqrt{165}}{330}$ 0 0 0 0 $-\frac{\sqrt{110}}{55}$ $\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{22}$ 0 0 0	
800	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 9

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 \\ -\frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 \\ \frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 \end{bmatrix}$
801	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{14}i}{56} & -\frac{\sqrt{21}}{42} & 0 \\ -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & \frac{\sqrt{21}}{42} \\ 0 & \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 \\ 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & \frac{\sqrt{21}i}{42} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 \end{bmatrix}$
802	symmetry	$\sqrt{3}xz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,0;a)}(A, 3)$	$\sqrt{\frac{210}{168}}$	0 0 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ $\frac{\sqrt{14}}{56}$ 0 0 0 0 $\frac{\sqrt{21}}{84}$
	0	$-\frac{\sqrt{210}}{168}$ 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 $\frac{\sqrt{21}}{84}$ 0
	0	0 $\frac{\sqrt{210}}{168}$ 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 0 $-\frac{\sqrt{21}i}{84}$
	0	0 0 0 $-\frac{\sqrt{210}}{168}$ $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ $\frac{\sqrt{21}i}{84}$ 0
	0	$\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ $\frac{\sqrt{21}}{42}$ 0
	$\frac{\sqrt{210}}{168}$	0 $\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 $\frac{\sqrt{14}i}{56}$ 0 0 $-\frac{\sqrt{21}}{42}$
	0	$\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $\frac{3\sqrt{14}i}{56}$ 0 $\frac{\sqrt{14}}{56}$ 0 0 0
	$-\frac{\sqrt{210}i}{168}$	0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{3\sqrt{14}i}{56}$ 0 $\frac{\sqrt{14}}{56}$ 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 $-\frac{\sqrt{105}i}{84}$ $-\frac{\sqrt{42}}{84}$ 0 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 $\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{42}}{84}$ 0 0 0 0 0
803	symmetry	$\sqrt{3}yz$
$\mathbb{M}_2^{(1,0;a)}(B, 1)$	0 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 $\frac{\sqrt{21}i}{84}$	
	0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0 0 $\frac{\sqrt{14}}{56}$ $-\frac{\sqrt{21}i}{84}$ 0	
	$-\frac{\sqrt{210}}{168}$ 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 $\frac{\sqrt{14}}{56}$ 0 0 0 0 $\frac{\sqrt{21}}{84}$	
	0 $\frac{\sqrt{210}}{168}$ 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 $\frac{\sqrt{21}}{84}$ 0	
	0 $\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 $-\frac{3\sqrt{14}}{56}$ 0 0 0	
	$-\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 $-\frac{3\sqrt{14}}{56}$ 0 0 0	
	0 $-\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 $\frac{\sqrt{14}i}{56}$ $\frac{\sqrt{21}}{42}$ 0	
	$-\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 $-\frac{\sqrt{21}}{42}$	
	0 0 0 0 0 $\frac{\sqrt{105}i}{84}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 $-\frac{\sqrt{42}}{84}$ 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 $\frac{\sqrt{42}}{84}$ 0 0 0	
804	symmetry	$\sqrt{3}xy$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,0;a)}(B, 2)$	0	$\frac{\sqrt{210}i}{168} \quad 0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0$
	$-\frac{\sqrt{210}i}{168}$	$0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{210}}{168} \quad 0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad \frac{\sqrt{14}i}{56} \quad -\frac{\sqrt{21}}{42} \quad 0$
	$\frac{\sqrt{210}}{168}$	$0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42}$
	0	$0 \quad -\frac{\sqrt{210}}{84} \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad -\frac{\sqrt{21}i}{42} \quad 0$
	$\frac{\sqrt{210}}{84}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42}$
	0	$-\frac{\sqrt{210}}{84} \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42} \quad \frac{\sqrt{42}i}{84} \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0 \quad 0 \quad 0$
805	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{M}_4^{(1,0;a)}(A, 1)$	0	$\frac{\sqrt{10}}{80} \quad 0 \quad -\frac{\sqrt{10}i}{80} \quad \frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{48} \quad 0 \quad \frac{\sqrt{6}i}{48} \quad 0 \quad 0$
	$\frac{\sqrt{10}}{80}$	$0 \quad \frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{48} \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad 0 \quad 0 \quad 0$
	0	$0 \quad \frac{\sqrt{10}i}{80} \quad 0 \quad \frac{\sqrt{10}}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad \frac{\sqrt{6}}{16} \quad 0 \quad 0$
	$-\frac{\sqrt{10}i}{80}$	$0 \quad \frac{\sqrt{10}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{30} \quad \frac{\sqrt{6}i}{16} \quad 0 \quad \frac{\sqrt{6}}{16} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{10}}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{8}$
	0	$\frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{8}$
	0	$0 \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{40} \quad 0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{8}$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{20} \quad \frac{\sqrt{15}i}{40} \quad 0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{8}$
	0	$0 \quad \frac{\sqrt{30}}{80} \quad 0 \quad \frac{\sqrt{30}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2}}{16} \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad 0$
	$\frac{\sqrt{30}}{80}$	$0 \quad -\frac{\sqrt{30}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2}}{16} \quad 0 \quad \frac{\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0$
806	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,0;a)}(A, 2)$	$0 \quad \frac{\sqrt{14}}{112} \quad 0 \quad -\frac{\sqrt{14}i}{112} \quad -\frac{\sqrt{21}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{17\sqrt{210}}{1680} \quad 0 \quad \frac{17\sqrt{210}i}{1680} \quad 0 \quad 0$	
	$\frac{\sqrt{14}}{112} \quad 0 \quad \frac{\sqrt{14}i}{112} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{30} \quad 0 \quad 0 \quad \frac{17\sqrt{210}}{1680} \quad 0 \quad -\frac{17\sqrt{210}i}{1680} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{14}i}{112} \quad 0 \quad \frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{560} \quad 0 \quad \frac{\sqrt{210}}{560} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{14}i}{112} \quad 0 \quad \frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{30} \quad \frac{\sqrt{210}i}{560} \quad 0 \quad \frac{\sqrt{210}}{560} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{14}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{40} \quad 0 \quad \frac{\sqrt{21}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{56}$	
	$0 \quad -\frac{\sqrt{14}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{40} \quad 0 \quad -\frac{\sqrt{21}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{56} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{14}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{40} \quad 0 \quad -\frac{\sqrt{21}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{56}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{20} \quad \frac{\sqrt{21}i}{40} \quad 0 \quad -\frac{\sqrt{21}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{56} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{42}}{80} \quad 0 \quad -\frac{\sqrt{42}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{112} \quad 0 \quad -\frac{\sqrt{70}i}{112} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{42}}{80} \quad 0 \quad \frac{\sqrt{42}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{112} \quad 0 \quad \frac{\sqrt{70}i}{112} \quad 0 \quad 0 \quad 0$	
807	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
$\mathbb{M}_4^{(1,0;a)}(A, 3)$	$0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad -\frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{560} \quad 0 \quad -\frac{\sqrt{70}i}{560} \quad -\frac{\sqrt{105}}{70} \quad 0$	
	$-\frac{3\sqrt{42}}{560} \quad 0 \quad \frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{560} \quad 0 \quad \frac{\sqrt{70}i}{560} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70}$	
	$0 \quad \frac{3\sqrt{42}i}{560} \quad 0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{70}i}{560} \quad 0 \quad -\frac{13\sqrt{70}}{560} \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{42}i}{560} \quad 0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{70}i}{560} \quad 0 \quad -\frac{13\sqrt{70}}{560} \quad 0 \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{42}}{280} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{40} \quad 0 \quad \frac{\sqrt{7}i}{20} \quad -\frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{105}}{280}$	
	$0 \quad \frac{3\sqrt{42}}{280} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{40} \quad 0 \quad -\frac{\sqrt{7}i}{20} \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{105}}{280}$	
	$0 \quad 0 \quad -\frac{3\sqrt{42}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{40} \quad 0 \quad \frac{\sqrt{7}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{105}i}{280}$	
	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{42}}{280} \quad \frac{\sqrt{7}i}{40} \quad 0 \quad \frac{\sqrt{7}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{280} \quad -\frac{3\sqrt{105}i}{280} \quad 0 \quad 0$	
	$0 \quad -\frac{3\sqrt{14}}{80} \quad 0 \quad \frac{3\sqrt{14}i}{80} \quad \frac{\sqrt{21}}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{210}}{560} \quad 0 \quad -\frac{3\sqrt{210}i}{560} \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{14}}{80} \quad 0 \quad -\frac{3\sqrt{14}i}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{35} \quad 0 \quad 0 \quad -\frac{3\sqrt{210}}{560} \quad 0 \quad \frac{3\sqrt{210}i}{560} \quad 0 \quad 0 \quad 0$	
808	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,0;a)}(A, 4)$		$\begin{bmatrix} -\frac{\sqrt{6}}{160} & 0 & 0 & 0 & 0 & \frac{1}{40} & 0 & \frac{i}{10} & -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} \\ 0 & \frac{\sqrt{6}}{160} & 0 & 0 & \frac{1}{40} & 0 & -\frac{i}{10} & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{160} & 0 & 0 & -\frac{3i}{20} & 0 & -\frac{1}{40} & 0 & 0 & 0 & \frac{\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{160} & \frac{3i}{20} & 0 & -\frac{1}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{160} & -\frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{32} & 0 & \frac{\sqrt{6}i}{20} & \frac{1}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{160} & 0 & -\frac{\sqrt{10}i}{20} & \frac{\sqrt{15}}{80} & 0 & 0 \\ -\frac{\sqrt{6}}{32} & 0 & -\frac{\sqrt{6}i}{20} & 0 & 0 & -\frac{1}{16} & 0 & 0 & -\frac{\sqrt{10}}{160} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{15}}{80} \\ 0 & -\frac{\sqrt{6}i}{40} & 0 & -\frac{\sqrt{6}}{160} & 0 & 0 & \frac{1}{40} & 0 & 0 & 3\frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{160} & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{40} & 0 & -\frac{\sqrt{6}}{160} & 0 & 0 & 0 & 0 & -\frac{1}{40} & -\frac{3\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{160} & 0 & 0 & 0 & 0 \\ \frac{9\sqrt{2}}{160} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{20} & 0 & -\frac{\sqrt{3}i}{10} & -\frac{\sqrt{30}}{160} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{9\sqrt{2}}{160} & 0 & 0 & 0 & \frac{\sqrt{3}}{20} & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & \frac{\sqrt{30}}{160} & 0 & 0 & 0 & 0 \end{bmatrix}$
		$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
809	symmetry	
$\mathbb{M}_4^{(1,0;a)}(A, 5)$		$\begin{bmatrix} \frac{\sqrt{42}}{1120} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{40} & 0 & -\frac{3\sqrt{7}i}{70} & -\frac{19\sqrt{70}}{1120} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{56} \\ 0 & -\frac{\sqrt{42}}{1120} & 0 & 0 & \frac{\sqrt{7}}{40} & 0 & \frac{3\sqrt{7}i}{70} & 0 & 0 & \frac{19\sqrt{70}}{1120} & 0 & 0 & 0 & \frac{\sqrt{105}}{56} & 0 \\ 0 & 0 & \frac{\sqrt{42}}{1120} & 0 & 0 & -\frac{\sqrt{7}i}{140} & 0 & -\frac{\sqrt{7}}{40} & 0 & 0 & \frac{23\sqrt{70}}{1120} & 0 & 0 & 0 & \frac{\sqrt{105}i}{140} \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{1120} & \frac{\sqrt{7}i}{140} & 0 & -\frac{\sqrt{7}}{40} & 0 & 0 & 0 & 0 & -\frac{23\sqrt{70}}{1120} & -\frac{\sqrt{105}i}{140} & 0 & 0 \\ 0 & \frac{\sqrt{42}}{1120} & 0 & \frac{\sqrt{42}i}{56} & \frac{\sqrt{7}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & \frac{3\sqrt{70}i}{280} & -\frac{\sqrt{105}}{560} & 0 & 0 \\ \frac{\sqrt{42}}{1120} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{\sqrt{7}}{80} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & \frac{\sqrt{105}}{560} \\ 0 & \frac{\sqrt{42}i}{140} & 0 & \frac{29\sqrt{42}}{1120} & 0 & 0 & -\frac{\sqrt{7}}{40} & 0 & 0 & -\frac{\sqrt{70}i}{140} & 0 & -\frac{\sqrt{70}}{224} & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{140} & 0 & \frac{29\sqrt{42}}{1120} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{40} & \frac{\sqrt{70}i}{140} & 0 & -\frac{\sqrt{70}}{224} & 0 & 0 & 0 & 0 \\ \frac{9\sqrt{14}}{160} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{70} & \frac{\sqrt{210}}{1120} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{9\sqrt{14}}{160} & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{70} & 0 & 0 & -\frac{\sqrt{210}}{1120} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
810	symmetry	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,0;a)}(B, 1)$	0 0 $\frac{\sqrt{6}}{160}$ 0 0 $\frac{i}{40}$ 0 $-\frac{1}{10}$ 0 0 $-\frac{\sqrt{10}}{32}$ 0 0 $\frac{\sqrt{15}i}{40}$	
	0 0 0 $-\frac{\sqrt{6}}{160}$ $-\frac{i}{40}$ 0 $-\frac{1}{10}$ 0 0 0 0 $\frac{\sqrt{10}}{32}$ $-\frac{\sqrt{15}i}{40}$ 0	
	$-\frac{\sqrt{6}}{160}$ 0 0 0 0 $\frac{3}{20}$ 0 $-\frac{i}{40}$ $-\frac{\sqrt{10}}{160}$ 0 0 0 0 $\frac{\sqrt{15}}{20}$	
	0 $\frac{\sqrt{6}}{160}$ 0 0 $\frac{3}{20}$ 0 $\frac{i}{40}$ 0 0 $\frac{\sqrt{10}}{160}$ 0 0 $\frac{\sqrt{15}}{20}$ 0	
	0 $\frac{\sqrt{6}i}{160}$ 0 $\frac{\sqrt{6}}{40}$ 0 0 $-\frac{1}{40}$ 0 0 $\frac{\sqrt{10}i}{160}$ 0 $\frac{3\sqrt{10}}{40}$ 0 0	
	$-\frac{\sqrt{6}i}{160}$ 0 $\frac{\sqrt{6}}{40}$ 0 0 0 0 $\frac{1}{40}$ $-\frac{\sqrt{10}i}{160}$ 0 $\frac{3\sqrt{10}}{40}$ 0 0	
	0 $-\frac{\sqrt{6}i}{20}$ 0 $\frac{\sqrt{6}i}{32}$ $\frac{1}{16}$ 0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{160}$ $-\frac{\sqrt{15}}{80}$ 0	
	$-\frac{\sqrt{6}}{20}$ 0 $-\frac{\sqrt{6}i}{32}$ 0 0 $-\frac{1}{16}$ 0 0 $-\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{160}$ 0 0 $\frac{\sqrt{15}}{80}$	
	0 0 $\frac{9\sqrt{2}}{160}$ 0 0 $-\frac{\sqrt{3}i}{20}$ 0 $-\frac{\sqrt{3}}{10}$ 0 0 $\frac{\sqrt{30}}{160}$ 0 0 0	
	0 0 0 $-\frac{9\sqrt{2}}{160}$ $\frac{\sqrt{3}i}{20}$ 0 $-\frac{\sqrt{3}}{10}$ 0 0 0 $-\frac{\sqrt{30}}{160}$ 0 0 0	
811	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{M}_4^{(1,0;a)}(B, 2)$	0 0 0 0 0 0 $\frac{1}{5}$ 0 0 $\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0	
	0 0 0 0 0 0 0 $-\frac{1}{5}$ $-\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0 0	
	0 0 0 0 $\frac{1}{5}$ 0 0 0 0 $-\frac{\sqrt{10}}{40}$ 0 $-\frac{\sqrt{10}i}{40}$ 0 0	
	0 0 0 0 0 $-\frac{1}{5}$ 0 0 $-\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0 0	
	0 0 $-\frac{\sqrt{6}}{10}$ 0 0 $-\frac{i}{40}$ 0 $\frac{1}{40}$ 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{6}}{10}$ $\frac{i}{40}$ 0 $\frac{1}{40}$ 0 0 0 0 0 0 0	
	$-\frac{\sqrt{6}}{10}$ 0 0 0 0 $\frac{1}{40}$ 0 $\frac{i}{40}$ 0 0 0 0 0 0	
	0 $\frac{\sqrt{6}}{10}$ 0 0 $\frac{1}{40}$ 0 $-\frac{i}{40}$ 0 0 0 0 0 0 0	
	0 $-\frac{3\sqrt{2}i}{40}$ 0 $\frac{3\sqrt{2}}{40}$ 0 0 0 0 0 0 0 0 0 0	
	$\frac{3\sqrt{2}i}{40}$ 0 $\frac{3\sqrt{2}}{40}$ 0 0 0 0 0 0 0 0 0 0 0	
812	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,0;a)}(B, 3)$	0 0 $\frac{\sqrt{42}}{1120}$ 0 0 $-\frac{\sqrt{7}i}{40}$ 0 $-\frac{3\sqrt{7}}{70}$ 0 0 $\frac{19\sqrt{70}}{1120}$ 0 0 $\frac{\sqrt{105}i}{56}$	
	0 0 0 $-\frac{\sqrt{42}}{1120}$ $\frac{\sqrt{7}i}{40}$ 0 $-\frac{3\sqrt{7}}{70}$ 0 0 0 0 $-\frac{19\sqrt{70}}{1120}$ $-\frac{\sqrt{105}i}{56}$ 0	
	$-\frac{\sqrt{42}}{1120}$ 0 0 0 0 $-\frac{\sqrt{7}}{140}$ 0 $\frac{\sqrt{7}i}{40}$ $\frac{23\sqrt{70}}{1120}$ 0 0 0 0 $-\frac{\sqrt{105}}{140}$	
	0 $\frac{\sqrt{42}}{1120}$ 0 0 $-\frac{\sqrt{7}}{140}$ 0 $-\frac{\sqrt{7}i}{40}$ 0 0 $-\frac{23\sqrt{70}}{1120}$ 0 0 0 $-\frac{\sqrt{105}}{140}$ 0	
	0 $\frac{29\sqrt{42}i}{1120}$ 0 $\frac{\sqrt{42}}{140}$ 0 0 $-\frac{\sqrt{7}}{40}$ 0 0 $\frac{\sqrt{70}i}{224}$ 0 $\frac{\sqrt{70}}{140}$ 0 0	
	$-\frac{29\sqrt{42}i}{1120}$ 0 $\frac{\sqrt{42}}{140}$ 0 0 0 0 $\frac{\sqrt{7}}{40}$ $-\frac{\sqrt{70}i}{224}$ 0 $\frac{\sqrt{70}}{140}$ 0 0 0	
	0 $\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{1120}$ $-\frac{\sqrt{7}}{80}$ 0 0 0 0 $-\frac{3\sqrt{70}}{280}$ 0 $-\frac{\sqrt{70}i}{224}$ $-\frac{\sqrt{105}}{560}$ 0	
	$\frac{\sqrt{42}}{56}$ 0 $-\frac{\sqrt{42}i}{1120}$ 0 0 $\frac{\sqrt{7}}{80}$ 0 0 $-\frac{3\sqrt{70}}{280}$ 0 $\frac{\sqrt{70}i}{224}$ 0 0 $\frac{\sqrt{105}}{560}$	
	0 0 $-\frac{9\sqrt{14}}{160}$ 0 0 $-\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{21}}{70}$ 0 0 $\frac{\sqrt{210}}{1120}$ 0 0 0	
	0 0 0 $\frac{9\sqrt{14}}{160}$ $\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{21}}{70}$ 0 0 0 0 $-\frac{\sqrt{210}}{1120}$ 0 0	
813	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{M}_4^{(1,0;a)}(B, 4)$	0 $-\frac{3\sqrt{42}i}{560}$ 0 $\frac{3\sqrt{42}}{560}$ 0 0 0 0 0 $-\frac{13\sqrt{70}i}{560}$ 0 $-\frac{13\sqrt{70}}{560}$ 0 0	
	$\frac{3\sqrt{42}i}{560}$ 0 $\frac{3\sqrt{42}}{560}$ 0 0 0 0 0 $\frac{13\sqrt{70}i}{560}$ 0 $-\frac{13\sqrt{70}}{560}$ 0 0 0	
	0 $-\frac{3\sqrt{42}}{560}$ 0 $-\frac{3\sqrt{42}i}{560}$ 0 0 0 0 0 $-\frac{\sqrt{70}}{560}$ 0 $\frac{\sqrt{70}i}{560}$ $\frac{\sqrt{105}}{70}$ 0	
	$-\frac{3\sqrt{42}}{560}$ 0 $\frac{3\sqrt{42}i}{560}$ 0 0 0 0 0 $-\frac{\sqrt{70}}{560}$ 0 $-\frac{\sqrt{70}i}{560}$ 0 0 $-\frac{\sqrt{105}}{70}$	
	0 0 $\frac{3\sqrt{42}}{280}$ 0 0 $\frac{\sqrt{7}i}{20}$ 0 $-\frac{\sqrt{7}}{40}$ 0 0 $\frac{\sqrt{70}}{280}$ 0 0 $\frac{3\sqrt{105}i}{280}$	
	0 0 0 $-\frac{3\sqrt{42}}{280}$ $-\frac{\sqrt{7}i}{20}$ 0 $-\frac{\sqrt{7}}{40}$ 0 0 0 0 $-\frac{\sqrt{70}}{280}$ $-\frac{3\sqrt{105}i}{280}$ 0	
	$-\frac{3\sqrt{42}}{280}$ 0 0 0 0 $\frac{\sqrt{7}}{20}$ 0 $\frac{\sqrt{7}i}{40}$ $\frac{\sqrt{70}}{280}$ 0 0 0 0 $-\frac{3\sqrt{105}}{280}$	
	0 $\frac{3\sqrt{42}}{280}$ 0 0 $\frac{\sqrt{7}}{20}$ 0 $-\frac{\sqrt{7}i}{40}$ 0 0 $-\frac{\sqrt{70}}{280}$ 0 0 $-\frac{3\sqrt{105}}{280}$ 0	
	0 $\frac{3\sqrt{14}i}{80}$ 0 $\frac{3\sqrt{14}}{80}$ 0 0 $-\frac{\sqrt{21}}{35}$ 0 0 $-\frac{3\sqrt{210}i}{560}$ 0 $\frac{3\sqrt{210}}{560}$ 0 0	
	$-\frac{3\sqrt{14}i}{80}$ 0 $\frac{3\sqrt{14}}{80}$ 0 0 0 0 $\frac{\sqrt{21}}{35}$ $\frac{3\sqrt{210}i}{560}$ 0 $\frac{3\sqrt{210}}{560}$ 0 0 0	
814	symmetry	1

continued ...

Table 9

No.	multipole	matrix
$M_0^{(1,1;a)}(A)$	0	$\frac{\sqrt{14}}{28} 0 -\frac{\sqrt{14}i}{28} \frac{\sqrt{21}}{42} 0 0 0 0 -\frac{\sqrt{210}}{420} 0 -\frac{\sqrt{210}i}{420} 0 0$
	$\frac{\sqrt{14}}{28}$	$0 \frac{\sqrt{14}i}{28} 0 0 -\frac{\sqrt{21}}{42} 0 0 -\frac{\sqrt{210}}{420} 0 \frac{\sqrt{210}i}{420} 0 0 0$
	0	$\frac{\sqrt{14}i}{28} 0 \frac{\sqrt{14}}{28} 0 0 \frac{\sqrt{21}}{42} 0 0 \frac{\sqrt{210}i}{420} 0 -\frac{\sqrt{210}}{420} 0 0 0$
	$-\frac{\sqrt{14}i}{28}$	$0 \frac{\sqrt{14}}{28} 0 0 0 0 -\frac{\sqrt{21}}{42} -\frac{\sqrt{210}i}{420} 0 -\frac{\sqrt{210}}{420} 0 0 0 0$
	0	$0 0 0 0 0 \frac{\sqrt{21}}{42} 0 -\frac{\sqrt{21}i}{42} \frac{\sqrt{210}}{105} 0 0 0 0 -\frac{\sqrt{35}}{70}$
	0	$0 0 0 0 \frac{\sqrt{21}}{42} 0 \frac{\sqrt{21}i}{42} 0 0 -\frac{\sqrt{210}}{105} 0 0 -\frac{\sqrt{35}}{70} 0$
	0	$0 0 0 0 0 \frac{\sqrt{21}i}{42} 0 \frac{\sqrt{21}}{42} 0 0 \frac{\sqrt{210}}{105} 0 0 0 \frac{\sqrt{35}i}{70}$
	0	$0 0 0 0 0 -\frac{\sqrt{21}i}{42} 0 \frac{\sqrt{21}}{42} 0 0 0 0 -\frac{\sqrt{210}}{105} -\frac{\sqrt{35}i}{70} 0$
	0	$0 0 0 0 0 0 0 0 0 \frac{\sqrt{70}}{70} 0 -\frac{\sqrt{70}i}{70} \frac{\sqrt{105}}{70} 0$
	0	$0 0 0 0 0 0 0 0 0 0 \frac{\sqrt{70}}{70} 0 \frac{\sqrt{70}i}{70} 0 0 -\frac{\sqrt{105}}{70}$
815	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$M_2^{(1,1;a)}(A, 1)$	0	$-\frac{\sqrt{42}}{84} 0 \frac{\sqrt{42}i}{84} -\frac{\sqrt{7}}{14} 0 0 0 0 \frac{\sqrt{70}}{70} 0 \frac{\sqrt{70}i}{70} 0 0$
	$-\frac{\sqrt{42}}{84}$	$0 -\frac{\sqrt{42}i}{84} 0 0 0 \frac{\sqrt{7}}{14} 0 0 \frac{\sqrt{70}}{70} 0 -\frac{\sqrt{70}i}{70} 0 0 0$
	0	$0 -\frac{\sqrt{42}i}{84} 0 -\frac{\sqrt{42}}{84} 0 0 -\frac{\sqrt{7}}{14} 0 0 -\frac{\sqrt{70}i}{70} 0 \frac{\sqrt{70}}{70} 0 0$
	$\frac{\sqrt{42}i}{84}$	$0 -\frac{\sqrt{42}}{84} 0 0 0 0 0 \frac{\sqrt{7}}{14} \frac{\sqrt{70}i}{70} 0 \frac{\sqrt{70}}{70} 0 0 0$
	0	$0 0 0 0 0 0 \frac{\sqrt{7}}{28} 0 -\frac{\sqrt{7}i}{28} \frac{\sqrt{70}}{140} 0 0 0 0 \frac{\sqrt{105}}{210}$
	0	$0 0 0 0 0 \frac{\sqrt{7}}{28} 0 \frac{\sqrt{7}i}{28} 0 0 -\frac{\sqrt{70}}{140} 0 0 \frac{\sqrt{105}}{210} 0$
	0	$0 0 0 0 0 0 \frac{\sqrt{7}i}{28} 0 \frac{\sqrt{7}}{28} 0 0 \frac{\sqrt{70}}{140} 0 0 0 -\frac{\sqrt{105}i}{210}$
	0	$0 0 0 0 0 -\frac{\sqrt{7}i}{28} 0 \frac{\sqrt{7}}{28} 0 0 0 0 -\frac{\sqrt{70}}{140} \frac{\sqrt{105}i}{210} 0$
	0	$0 0 0 0 0 0 0 0 0 \frac{\sqrt{210}}{140} 0 -\frac{\sqrt{210}i}{140} \frac{\sqrt{35}}{35} 0$
	0	$0 0 0 0 0 0 0 0 0 0 \frac{\sqrt{210}}{140} 0 \frac{\sqrt{210}i}{140} 0 0 -\frac{\sqrt{35}}{35}$
816	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

*continued ..*

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,1;a)}(A, 2)$	$\sqrt{3}xz$	$\begin{bmatrix} 0 & \frac{\sqrt{14}}{168} & 0 & \frac{\sqrt{14}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{120} & 0 & \frac{\sqrt{210}i}{120} & -\frac{\sqrt{35}}{42} & 0 \\ \frac{\sqrt{14}}{168} & 0 & -\frac{\sqrt{14}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{120} & 0 & -\frac{\sqrt{210}i}{120} & 0 & 0 & \frac{\sqrt{35}}{42} \\ 0 & -\frac{\sqrt{14}i}{168} & 0 & \frac{\sqrt{14}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{210}}{280} & 0 & 0 \\ \frac{\sqrt{14}i}{168} & 0 & \frac{\sqrt{14}}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{280} & 0 & \frac{\sqrt{210}}{280} & 0 & 0 & 0 \\ \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{28} & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & -\frac{\sqrt{35}}{420} \\ 0 & -\frac{5\sqrt{14}}{168} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}}{420} & 0 \\ 0 & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}i}{420} \\ 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & \frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{168} & \frac{\sqrt{35}i}{420} & 0 \\ 0 & -\frac{5\sqrt{42}}{168} & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{280} & 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 \\ -\frac{5\sqrt{42}}{168} & 0 & -\frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{280} & 0 & \frac{\sqrt{70}i}{280} & 0 & 0 & 0 \end{bmatrix}$
	817 symmetry	$\sqrt{3}xz$
	$\mathbb{M}_2^{(1,1;a)}(A, 3)$	$\sqrt{3}xz$
		$\begin{bmatrix} -\frac{\sqrt{14}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}}{105} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \\ 0 & \frac{\sqrt{14}}{42} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{105} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & -\frac{\sqrt{14}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}}{105} & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} \\ 0 & 0 & 0 & \frac{\sqrt{14}}{42} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{105} & -\frac{\sqrt{35}i}{42} & 0 \\ 0 & \frac{5\sqrt{14}}{168} & 0 & -\frac{5\sqrt{14}i}{168} & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{280} & 0 & -\frac{\sqrt{210}i}{168} & \frac{\sqrt{35}}{105} & 0 \\ \frac{5\sqrt{14}}{168} & 0 & \frac{5\sqrt{14}i}{168} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{35}}{105} \\ 0 & \frac{5\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{120} & 0 & 0 \\ -\frac{5\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{120} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{105} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & 0 & 0 & 0 & -\frac{\sqrt{105}}{105} & 0 \end{bmatrix}$
	818 symmetry	$\sqrt{3}yz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,1;a)}(B, 1)$	$0 \quad 0 \quad -\frac{\sqrt{14}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{42}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{42} \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{105} \quad \frac{\sqrt{35}i}{42} \quad 0$	
	$\frac{\sqrt{14}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad \frac{\sqrt{210}}{105} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{42}$	
	$0 \quad -\frac{\sqrt{14}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{42} \quad 0$	
	$0 \quad \frac{5\sqrt{14}i}{168} \quad 0 \quad \frac{5\sqrt{14}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{120} \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0$	
	$-\frac{5\sqrt{14}i}{168} \quad 0 \quad \frac{5\sqrt{14}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad -\frac{\sqrt{210}i}{120} \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{5\sqrt{14}}{168} \quad 0 \quad \frac{5\sqrt{14}i}{168} \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad -\frac{\sqrt{210}i}{280} \quad \frac{\sqrt{35}}{105} \quad 0$	
	$-\frac{5\sqrt{14}}{168} \quad 0 \quad -\frac{5\sqrt{14}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad \frac{\sqrt{210}i}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{105}$	
	$0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{105}$	
	$0 \quad 0 \quad -\frac{\sqrt{70}}{70} \quad -\frac{\sqrt{105}i}{105} \quad 0$	
819	symmetry	$\sqrt{3}xy$
$\mathbb{M}_2^{(1,1;a)}(B, 2)$	$0 \quad -\frac{\sqrt{14}i}{168} \quad 0 \quad \frac{\sqrt{14}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{280} \quad 0 \quad -\frac{\sqrt{210}}{280} \quad 0 \quad 0$	
	$\frac{\sqrt{14}i}{168} \quad 0 \quad \frac{\sqrt{14}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{280} \quad 0 \quad -\frac{\sqrt{210}}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{14}}{168} \quad 0 \quad -\frac{\sqrt{14}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{120} \quad 0 \quad \frac{\sqrt{210}i}{120} \quad -\frac{\sqrt{35}}{42} \quad 0$	
	$-\frac{\sqrt{14}}{168} \quad 0 \quad \frac{\sqrt{14}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{120} \quad 0 \quad -\frac{\sqrt{210}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{42}$	
	$0 \quad 0 \quad \frac{5\sqrt{14}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{420}$	
	$0 \quad 0 \quad 0 \quad -\frac{5\sqrt{14}}{168} \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{168} \quad -\frac{\sqrt{35}i}{420} \quad 0$	
	$-\frac{5\sqrt{14}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{420}$	
	$0 \quad \frac{5\sqrt{14}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{420} \quad 0$	
	$0 \quad -\frac{5\sqrt{42}i}{168} \quad 0 \quad -\frac{5\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{280} \quad 0 \quad -\frac{\sqrt{70}}{280} \quad 0 \quad 0$	
	$\frac{5\sqrt{42}i}{168} \quad 0 \quad -\frac{5\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad -\frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0$	
820	symmetry	$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$

continued ...

Table 9

No.	multipole	matrix												
$M_4^{(1,1;a)}(A, 1)$	0	$\frac{2\sqrt{165}}{165}$	0	$-\frac{2\sqrt{165}i}{165}$	$\frac{7\sqrt{110}}{660}$	0	0	0	0	$-\frac{\sqrt{11}}{66}$	0	$-\frac{\sqrt{11}i}{66}$	0	0
	$\frac{2\sqrt{165}}{165}$	0	$\frac{2\sqrt{165}i}{165}$	0	0	$-\frac{7\sqrt{110}}{660}$	0	0	$-\frac{\sqrt{11}}{66}$	0	$\frac{\sqrt{11}i}{66}$	0	0	0
	0	$-\frac{7\sqrt{165}i}{660}$	0	$-\frac{7\sqrt{165}}{660}$	0	0	$-\frac{\sqrt{110}}{330}$	0	0	$\frac{\sqrt{11}i}{132}$	0	$-\frac{\sqrt{11}}{132}$	0	0
	$\frac{7\sqrt{165}i}{660}$	0	$-\frac{7\sqrt{165}}{660}$	0	0	0	0	$\frac{\sqrt{110}}{330}$	$-\frac{\sqrt{11}i}{132}$	0	$-\frac{\sqrt{11}}{132}$	0	0	0
	$\frac{\sqrt{165}}{220}$	0	0	0	0	$-\frac{\sqrt{110}}{165}$	0	$\frac{\sqrt{110}i}{330}$	$-\frac{5\sqrt{11}}{132}$	0	0	0	0	$\frac{\sqrt{66}}{66}$
	0	$-\frac{\sqrt{165}}{220}$	0	0	$-\frac{\sqrt{110}}{165}$	0	$-\frac{\sqrt{110}i}{330}$	0	0	$\frac{5\sqrt{11}}{132}$	0	0	$\frac{\sqrt{66}}{66}$	0
	0	0	$-\frac{\sqrt{165}}{220}$	0	0	$-\frac{\sqrt{110}i}{165}$	0	$-\frac{\sqrt{110}}{330}$	0	0	$-\frac{5\sqrt{11}}{132}$	0	0	$-\frac{\sqrt{66}i}{66}$
	0	0	0	$\frac{\sqrt{165}}{220}$	$\frac{\sqrt{110}i}{165}$	0	$-\frac{\sqrt{110}}{330}$	0	0	0	0	$\frac{5\sqrt{11}}{132}$	$\frac{\sqrt{66}i}{66}$	0
	0	$-\frac{\sqrt{55}}{660}$	0	$-\frac{\sqrt{55}i}{660}$	0	0	0	0	0	$\frac{\sqrt{33}}{44}$	0	$-\frac{\sqrt{33}i}{44}$	$\frac{5\sqrt{22}}{132}$	0
	$-\frac{\sqrt{55}}{660}$	0	$\frac{\sqrt{55}i}{660}$	0	0	0	0	0	$\frac{\sqrt{33}}{44}$	0	$\frac{\sqrt{33}i}{44}$	0	0	$-\frac{5\sqrt{22}}{132}$
821	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$												
$M_4^{(1,1;a)}(A, 2)$	0	$-\frac{5\sqrt{231}}{462}$	0	$\frac{5\sqrt{231}i}{462}$	$-\frac{19\sqrt{154}}{4620}$	0	0	0	0	$-\frac{\sqrt{385}}{1155}$	0	$-\frac{\sqrt{385}i}{1155}$	0	0
	$-\frac{5\sqrt{231}}{462}$	0	$-\frac{5\sqrt{231}i}{462}$	0	0	$\frac{19\sqrt{154}}{4620}$	0	0	$-\frac{\sqrt{385}}{1155}$	0	$\frac{\sqrt{385}i}{1155}$	0	0	0
	0	$\frac{\sqrt{231}i}{84}$	0	$\frac{\sqrt{231}}{84}$	0	0	$\frac{\sqrt{154}}{105}$	0	0	$\frac{\sqrt{385}i}{420}$	0	$-\frac{\sqrt{385}}{420}$	0	0
	$-\frac{\sqrt{231}i}{84}$	0	$\frac{\sqrt{231}}{84}$	0	0	0	0	$-\frac{\sqrt{154}}{105}$	$-\frac{\sqrt{385}i}{420}$	0	$-\frac{\sqrt{385}}{420}$	0	0	0
	$-\frac{\sqrt{231}}{220}$	0	0	0	0	$-\frac{2\sqrt{154}}{1155}$	0	$\frac{\sqrt{154}i}{210}$	$-\frac{5\sqrt{385}}{924}$	0	0	0	0	$\frac{\sqrt{2310}}{462}$
	0	$\frac{\sqrt{231}}{220}$	0	0	$-\frac{2\sqrt{154}}{1155}$	0	$-\frac{\sqrt{154}i}{210}$	0	0	$\frac{5\sqrt{385}}{924}$	0	0	$\frac{\sqrt{2310}}{462}$	0
	0	0	$\frac{\sqrt{231}}{220}$	0	0	$-\frac{2\sqrt{154}i}{1155}$	0	$-\frac{\sqrt{154}}{210}$	0	0	$-\frac{5\sqrt{385}}{924}$	0	0	$-\frac{\sqrt{2310}i}{462}$
	0	0	0	$-\frac{\sqrt{231}}{220}$	$\frac{2\sqrt{154}i}{1155}$	0	$-\frac{\sqrt{154}}{210}$	0	0	0	0	$\frac{5\sqrt{385}}{924}$	$\frac{\sqrt{2310}i}{462}$	0
	0	$\frac{\sqrt{77}}{660}$	0	$\frac{\sqrt{77}i}{660}$	0	0	0	0	0	$\frac{\sqrt{1155}}{308}$	0	$-\frac{\sqrt{1155}i}{308}$	$\frac{5\sqrt{770}}{924}$	0
	$\frac{\sqrt{77}}{660}$	0	$-\frac{\sqrt{77}i}{660}$	0	0	0	0	0	$\frac{\sqrt{1155}}{308}$	0	$\frac{\sqrt{1155}i}{308}$	0	0	$-\frac{5\sqrt{770}}{924}$
822	symmetry	$\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)$												

*continued ..*

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(A, 3)$	0	$\begin{bmatrix} 0 & \frac{\sqrt{77}}{1540} & 0 & \frac{\sqrt{77}i}{1540} & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{1155}}{4620} & 0 & \frac{17\sqrt{1155}i}{4620} & -\frac{\sqrt{770}}{220} & 0 \end{bmatrix}$
	$\frac{\sqrt{77}}{1540}$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{77}i}{1540} & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{1155}}{4620} & 0 & -\frac{17\sqrt{1155}i}{4620} & 0 & 0 & \frac{\sqrt{770}}{220} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & -\frac{\sqrt{77}i}{1540} & 0 & \frac{\sqrt{77}}{1540} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}i}{420} & 0 & 0 & \frac{\sqrt{1155}}{420} & 0 & 0 \end{bmatrix}$
	$\frac{\sqrt{77}i}{1540}$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{77}}{1540} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{420} & 0 & \frac{\sqrt{1155}}{420} & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\frac{\sqrt{77}}{220}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{17\sqrt{462}}{2310} & 0 & \frac{\sqrt{462}i}{210} & -\frac{\sqrt{1155}}{220} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{770}}{385} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & -\frac{\sqrt{77}}{220} & 0 & 0 & -\frac{17\sqrt{462}}{2310} & 0 & -\frac{\sqrt{462}i}{210} & 0 & 0 & \frac{\sqrt{1155}}{220} & 0 & 0 & \frac{\sqrt{770}}{385} & 0 \end{bmatrix}$
	0	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{77}}{220} & 0 & 0 & \frac{17\sqrt{462}i}{2310} & 0 & \frac{\sqrt{462}}{210} & 0 & 0 & \frac{\sqrt{1155}}{220} & 0 & 0 & \frac{\sqrt{770}i}{385} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{77}}{220} & -\frac{17\sqrt{462}i}{2310} & 0 & \frac{\sqrt{462}}{210} & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{220} & -\frac{\sqrt{770}i}{385} & 0 \end{bmatrix}$
	0	$\begin{bmatrix} 0 & -\frac{\sqrt{231}}{165} & 0 & \frac{\sqrt{231}i}{165} & -\frac{3\sqrt{154}}{220} & 0 & 0 & 0 & 0 & \frac{3\sqrt{385}}{770} & 0 & \frac{3\sqrt{385}i}{770} & 0 & 0 \end{bmatrix}$
	$-\frac{\sqrt{231}}{165}$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{231}i}{165} & 0 & 0 & \frac{3\sqrt{154}}{220} & 0 & 0 & \frac{3\sqrt{385}}{770} & 0 & -\frac{3\sqrt{385}i}{770} & 0 & 0 & 0 \end{bmatrix}$
823	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{M}_4^{(1,1;a)}(A, 4)$	$\frac{\sqrt{11}}{220}$	$\begin{bmatrix} \frac{\sqrt{11}}{220} & 0 & 0 & 0 & 0 & -\frac{7\sqrt{66}}{660} & 0 & \frac{3\sqrt{66}i}{440} & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{110} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & -\frac{\sqrt{11}}{220} & 0 & 0 & -\frac{7\sqrt{66}}{660} & 0 & -\frac{3\sqrt{66}i}{440} & 0 & 0 & \frac{\sqrt{165}}{132} & 0 & 0 & \frac{\sqrt{110}}{110} & 0 \end{bmatrix}$
	0	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{11}}{220} & 0 & 0 & \frac{3\sqrt{66}i}{440} & 0 & \frac{\sqrt{66}}{330} & 0 & 0 & -\frac{\sqrt{165}}{660} & 0 & 0 & -\frac{3\sqrt{110}i}{440} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{11}}{220} & -\frac{3\sqrt{66}i}{440} & 0 & \frac{\sqrt{66}}{330} & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{660} & \frac{3\sqrt{110}i}{440} & 0 \end{bmatrix}$
	0	$\begin{bmatrix} 0 & -\frac{\sqrt{11}}{44} & 0 & \frac{9\sqrt{11}i}{440} & -\frac{\sqrt{66}}{66} & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{60} & 0 & -\frac{3\sqrt{165}i}{440} & \frac{\sqrt{110}}{55} & 0 \end{bmatrix}$
	$-\frac{\sqrt{11}}{44}$	$\begin{bmatrix} 0 & 0 & -\frac{9\sqrt{11}i}{440} & 0 & 0 & \frac{\sqrt{66}}{66} & 0 & 0 & \frac{\sqrt{165}}{60} & 0 & \frac{3\sqrt{165}i}{440} & 0 & 0 & -\frac{\sqrt{110}}{55} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & \frac{3\sqrt{11}i}{440} & 0 & \frac{\sqrt{11}}{220} & 0 & 0 & -\frac{\sqrt{66}}{330} & 0 & 0 & -\frac{3\sqrt{165}i}{440} & 0 & -\frac{\sqrt{165}}{660} & 0 & 0 \end{bmatrix}$
	$-\frac{3\sqrt{11}i}{440}$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{11}}{220} & 0 & 0 & 0 & 0 & \frac{\sqrt{66}}{330} & \frac{3\sqrt{165}i}{440} & 0 & -\frac{\sqrt{165}}{660} & 0 & 0 & 0 \end{bmatrix}$
	$-\frac{\sqrt{33}}{165}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{3\sqrt{22}}{110} & 0 & -\frac{9\sqrt{22}i}{440} & \frac{3\sqrt{55}}{110} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{132} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & \frac{\sqrt{33}}{165} & 0 & 0 & \frac{3\sqrt{22}}{110} & 0 & \frac{9\sqrt{22}i}{440} & 0 & 0 & -\frac{3\sqrt{55}}{110} & 0 & 0 & -\frac{\sqrt{330}}{132} & 0 \end{bmatrix}$
824	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(A, 5)$	$\begin{bmatrix} -\frac{\sqrt{77}}{1540} & 0 & 0 & 0 & 0 & -\frac{29\sqrt{462}}{4620} & 0 & \frac{3\sqrt{462}i}{440} & -\frac{\sqrt{1155}}{420} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{77}}{1540} & 0 & 0 & -\frac{29\sqrt{462}}{4620} & 0 & -\frac{3\sqrt{462}i}{440} & 0 & 0 & \frac{\sqrt{1155}}{420} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{77}}{1540} & 0 & 0 & \frac{3\sqrt{462}i}{440} & 0 & \frac{17\sqrt{462}}{2310} & 0 & 0 & \frac{17\sqrt{1155}}{4620} & 0 & 0 & \frac{\sqrt{770}i}{440} \\ 0 & 0 & 0 & \frac{\sqrt{77}}{1540} & -\frac{3\sqrt{462}i}{440} & 0 & \frac{17\sqrt{462}}{2310} & 0 & 0 & 0 & 0 & -\frac{17\sqrt{1155}}{4620} & -\frac{\sqrt{770}i}{440} & 0 \\ 0 & -\frac{3\sqrt{77}}{220} & 0 & \frac{\sqrt{77}i}{88} & -\frac{\sqrt{462}}{210} & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{924} & 0 & \frac{\sqrt{1155}i}{440} & -\frac{\sqrt{770}}{385} & 0 \\ -\frac{3\sqrt{77}}{220} & 0 & -\frac{\sqrt{77}i}{88} & 0 & 0 & \frac{\sqrt{462}}{210} & 0 & 0 & -\frac{\sqrt{1155}}{924} & 0 & -\frac{\sqrt{1155}i}{440} & 0 & 0 & \frac{\sqrt{770}}{385} \\ 0 & \frac{7\sqrt{77}i}{440} & 0 & \frac{3\sqrt{77}}{220} & 0 & 0 & \frac{17\sqrt{462}}{2310} & 0 & 0 & \frac{\sqrt{1155}i}{440} & 0 & -\frac{\sqrt{1155}}{924} & 0 & 0 & 0 \\ -\frac{7\sqrt{77}i}{440} & 0 & \frac{3\sqrt{77}}{220} & 0 & 0 & 0 & 0 & -\frac{17\sqrt{462}}{2310} & -\frac{\sqrt{1155}i}{440} & 0 & -\frac{\sqrt{1155}}{924} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{231}}{165} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{154}i}{440} & -\frac{3\sqrt{385}}{770} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{924} \\ 0 & \frac{\sqrt{231}}{165} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{154}i}{440} & 0 & 0 & \frac{3\sqrt{385}}{770} & 0 & 0 & \frac{\sqrt{2310}}{924} & 0 & 0 \end{bmatrix}$	
	$\sqrt{35}yz(y-z)(y+z)/2$	
	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{11}}{220} & 0 & 0 & -\frac{7\sqrt{66}i}{660} & 0 & -\frac{3\sqrt{66}}{440} & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & -\frac{\sqrt{110}i}{110} \\ 0 & 0 & 0 & \frac{\sqrt{11}}{220} & \frac{7\sqrt{66}i}{660} & 0 & -\frac{3\sqrt{66}}{440} & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{132} & \frac{\sqrt{110}i}{110} & 0 \\ \frac{\sqrt{11}}{220} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{66}}{440} & 0 & \frac{\sqrt{66}i}{330} & \frac{\sqrt{165}}{660} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{110}}{440} \\ 0 & -\frac{\sqrt{11}}{220} & 0 & 0 & -\frac{3\sqrt{66}}{440} & 0 & -\frac{\sqrt{66}i}{330} & 0 & 0 & -\frac{\sqrt{165}}{660} & 0 & 0 & -\frac{3\sqrt{110}}{440} & 0 & 0 \\ 0 & -\frac{\sqrt{11}i}{220} & 0 & -\frac{3\sqrt{11}}{440} & 0 & 0 & \frac{\sqrt{66}}{330} & 0 & 0 & -\frac{\sqrt{165}i}{660} & 0 & -\frac{3\sqrt{165}}{440} & 0 & 0 & 0 \\ \frac{\sqrt{11}i}{220} & 0 & -\frac{3\sqrt{11}}{440} & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}}{330} & \frac{\sqrt{165}i}{660} & 0 & -\frac{3\sqrt{165}}{440} & 0 & 0 & 0 & 0 \\ 0 & -\frac{9\sqrt{11}}{440} & 0 & \frac{\sqrt{11}i}{44} & -\frac{\sqrt{66}}{66} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}}{440} & 0 & \frac{\sqrt{165}i}{60} & -\frac{\sqrt{110}}{55} & 0 & 0 \\ -\frac{9\sqrt{11}}{440} & 0 & -\frac{\sqrt{11}i}{44} & 0 & 0 & \frac{\sqrt{66}}{66} & 0 & 0 & -\frac{3\sqrt{165}}{440} & 0 & -\frac{\sqrt{165}i}{60} & 0 & 0 & \frac{\sqrt{110}}{55} \\ 0 & 0 & -\frac{\sqrt{33}}{165} & 0 & 0 & -\frac{3\sqrt{22}i}{110} & 0 & -\frac{9\sqrt{22}}{440} & 0 & 0 & -\frac{3\sqrt{55}}{110} & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{33}}{165} & \frac{3\sqrt{22}i}{110} & 0 & -\frac{9\sqrt{22}}{440} & 0 & 0 & 0 & \frac{3\sqrt{55}}{110} & \frac{\sqrt{330}i}{132} & 0 & 0 \end{bmatrix}$	
	$\sqrt{35}xy(x-y)(x+y)/2$	
825	symmetry	
$\mathbb{M}_4^{(1,1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{11}}{220} & 0 & 0 & -\frac{7\sqrt{66}i}{660} & 0 & -\frac{3\sqrt{66}}{440} & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & -\frac{\sqrt{110}i}{110} \\ 0 & 0 & 0 & \frac{\sqrt{11}}{220} & \frac{7\sqrt{66}i}{660} & 0 & -\frac{3\sqrt{66}}{440} & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{132} & \frac{\sqrt{110}i}{110} & 0 \\ \frac{\sqrt{11}}{220} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{66}}{440} & 0 & \frac{\sqrt{66}i}{330} & \frac{\sqrt{165}}{660} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{110}}{440} \\ 0 & -\frac{\sqrt{11}}{220} & 0 & 0 & -\frac{3\sqrt{66}}{440} & 0 & -\frac{\sqrt{66}i}{330} & 0 & 0 & -\frac{\sqrt{165}}{660} & 0 & 0 & -\frac{3\sqrt{110}}{440} & 0 & 0 \\ 0 & -\frac{\sqrt{11}i}{220} & 0 & -\frac{3\sqrt{11}}{440} & 0 & 0 & \frac{\sqrt{66}}{330} & 0 & 0 & -\frac{\sqrt{165}i}{660} & 0 & -\frac{3\sqrt{165}}{440} & 0 & 0 & 0 \\ \frac{\sqrt{11}i}{220} & 0 & -\frac{3\sqrt{11}}{440} & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}}{330} & \frac{\sqrt{165}i}{660} & 0 & -\frac{3\sqrt{165}}{440} & 0 & 0 & 0 & 0 \\ 0 & -\frac{9\sqrt{11}}{440} & 0 & \frac{\sqrt{11}i}{44} & -\frac{\sqrt{66}}{66} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{165}}{440} & 0 & \frac{\sqrt{165}i}{60} & -\frac{\sqrt{110}}{55} & 0 & 0 \\ -\frac{9\sqrt{11}}{440} & 0 & -\frac{\sqrt{11}i}{44} & 0 & 0 & \frac{\sqrt{66}}{66} & 0 & 0 & -\frac{3\sqrt{165}}{440} & 0 & -\frac{\sqrt{165}i}{60} & 0 & 0 & \frac{\sqrt{110}}{55} \\ 0 & 0 & -\frac{\sqrt{33}}{165} & 0 & 0 & -\frac{3\sqrt{22}i}{110} & 0 & -\frac{9\sqrt{22}}{440} & 0 & 0 & -\frac{3\sqrt{55}}{110} & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{33}}{165} & \frac{3\sqrt{22}i}{110} & 0 & -\frac{9\sqrt{22}}{440} & 0 & 0 & 0 & \frac{3\sqrt{55}}{110} & \frac{\sqrt{330}i}{132} & 0 & 0 \end{bmatrix}$	
	$\sqrt{35}xy(x-y)(x+y)/2$	
826	symmetry	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(B, 2)$	0	$\begin{bmatrix} 0 & \frac{3\sqrt{11}i}{44} & 0 & \frac{3\sqrt{11}}{44} & 0 & 0 & \frac{3\sqrt{66}}{220} & 0 & 0 & \frac{\sqrt{165}i}{660} & 0 & -\frac{\sqrt{165}}{660} & 0 & 0 \\ -\frac{3\sqrt{11}i}{44} & 0 & \frac{3\sqrt{11}}{44} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{66}}{220} & -\frac{\sqrt{165}i}{660} & 0 & -\frac{\sqrt{165}}{660} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{11}}{44} & 0 & -\frac{3\sqrt{11}i}{44} & \frac{3\sqrt{66}}{220} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{660} & 0 & -\frac{\sqrt{165}i}{660} & 0 & 0 \\ \frac{3\sqrt{11}}{44} & 0 & \frac{3\sqrt{11}i}{44} & 0 & 0 & -\frac{3\sqrt{66}}{220} & 0 & 0 & -\frac{\sqrt{165}}{660} & 0 & \frac{\sqrt{165}i}{660} & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{11}}{110} & 0 & 0 & \frac{\sqrt{66}i}{330} & 0 & -\frac{\sqrt{66}}{330} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{11}}{110} & -\frac{\sqrt{66}i}{330} & 0 & -\frac{\sqrt{66}}{330} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{11}}{110} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}}{330} & 0 & -\frac{\sqrt{66}i}{330} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{11}}{110} & 0 & 0 & -\frac{\sqrt{66}}{330} & 0 & \frac{\sqrt{66}i}{330} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{33}i}{330} & 0 & -\frac{\sqrt{33}}{330} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{33}i}{330} & 0 & -\frac{\sqrt{33}}{330} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	827	$\text{symmetry}$
		$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
	$\mathbb{M}_4^{(1,1;a)}(B, 3)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{77}}{1540} & 0 & 0 & \frac{29\sqrt{462}i}{4620} & 0 & \frac{3\sqrt{462}}{440} & 0 & 0 & \frac{\sqrt{1155}}{420} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{77}}{1540} & -\frac{29\sqrt{462}i}{4620} & 0 & \frac{3\sqrt{462}}{440} & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{420} & 0 & 0 \\ \frac{\sqrt{77}}{1540} & 0 & 0 & 0 & 0 & \frac{3\sqrt{462}}{440} & 0 & -\frac{17\sqrt{462}i}{2310} & \frac{17\sqrt{1155}}{4620} & 0 & 0 & 0 & 0 & -\frac{\sqrt{770}}{440} \\ 0 & -\frac{\sqrt{77}}{1540} & 0 & 0 & \frac{3\sqrt{462}}{440} & 0 & \frac{17\sqrt{462}i}{2310} & 0 & 0 & -\frac{17\sqrt{1155}}{4620} & 0 & 0 & -\frac{\sqrt{770}}{440} & 0 \\ 0 & \frac{3\sqrt{77}i}{220} & 0 & \frac{7\sqrt{77}}{440} & 0 & 0 & \frac{17\sqrt{462}}{2310} & 0 & 0 & \frac{\sqrt{1155}i}{924} & 0 & -\frac{\sqrt{1155}}{440} & 0 & 0 \\ -\frac{3\sqrt{77}i}{220} & 0 & \frac{7\sqrt{77}}{440} & 0 & 0 & 0 & 0 & -\frac{17\sqrt{462}}{2310} & -\frac{\sqrt{1155}i}{924} & 0 & -\frac{\sqrt{1155}}{440} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{77}}{88} & 0 & -\frac{3\sqrt{77}i}{220} & \frac{\sqrt{462}}{210} & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{440} & 0 & \frac{\sqrt{1155}i}{924} & -\frac{\sqrt{770}}{385} & 0 \\ \frac{\sqrt{77}}{88} & 0 & \frac{3\sqrt{77}i}{220} & 0 & 0 & -\frac{\sqrt{462}}{210} & 0 & 0 & -\frac{\sqrt{1155}}{440} & 0 & -\frac{\sqrt{1155}i}{924} & 0 & 0 & \frac{\sqrt{770}}{385} \\ 0 & 0 & \frac{\sqrt{231}}{165} & 0 & 0 & 0 & -\frac{3\sqrt{154}}{440} & 0 & 0 & -\frac{3\sqrt{385}}{770} & 0 & 0 & -\frac{\sqrt{2310}i}{924} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{231}}{165} & 0 & 0 & -\frac{3\sqrt{154}}{440} & 0 & 0 & 0 & \frac{3\sqrt{385}}{770} & \frac{\sqrt{2310}i}{924} & 0 & 0 \end{bmatrix}$
	828	$\text{symmetry}$
		$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(B, 4)$	0	$\frac{\sqrt{77}i}{1540}$ 0 $-\frac{\sqrt{77}}{1540}$ 0 0 0 0 0 $\frac{\sqrt{1155}i}{420}$ 0 $\frac{\sqrt{1155}}{420}$ 0 0
	$-\frac{\sqrt{77}i}{1540}$	0 $-\frac{\sqrt{77}}{1540}$ 0 0 0 0 0 $-\frac{\sqrt{1155}i}{420}$ 0 $\frac{\sqrt{1155}}{420}$ 0 0 0
	0	$\frac{\sqrt{77}}{1540}$ 0 $\frac{\sqrt{77}i}{1540}$ 0 0 0 0 0 $\frac{17\sqrt{1155}}{4620}$ 0 $-\frac{17\sqrt{1155}i}{4620}$ $\frac{\sqrt{770}}{220}$ 0
	$\frac{\sqrt{77}}{1540}$	0 $-\frac{\sqrt{77}i}{1540}$ 0 0 0 0 0 $\frac{17\sqrt{1155}}{4620}$ 0 $\frac{17\sqrt{1155}i}{4620}$ 0 0 $-\frac{\sqrt{770}}{220}$
	0	0 $-\frac{\sqrt{77}}{220}$ 0 0 $\frac{\sqrt{462}i}{210}$ 0 $\frac{17\sqrt{462}}{2310}$ 0 0 $\frac{\sqrt{1155}}{220}$ 0 0 $\frac{\sqrt{770}i}{385}$
	0	0 0 0 $\frac{\sqrt{77}}{220}$ $-\frac{\sqrt{462}i}{210}$ 0 $\frac{17\sqrt{462}}{2310}$ 0 0 0 $-\frac{\sqrt{1155}}{220}$ $-\frac{\sqrt{770}i}{385}$ 0
	$\frac{\sqrt{77}}{220}$	0 0 0 0 0 $\frac{\sqrt{462}}{210}$ 0 $-\frac{17\sqrt{462}i}{2310}$ $\frac{\sqrt{1155}}{220}$ 0 0 0 0 $-\frac{\sqrt{770}}{385}$
	0	$-\frac{\sqrt{77}}{220}$ 0 0 $\frac{\sqrt{462}}{210}$ 0 $\frac{17\sqrt{462}i}{2310}$ 0 0 $-\frac{\sqrt{1155}}{220}$ 0 0 $-\frac{\sqrt{770}}{385}$ 0
	0	$\frac{\sqrt{231}i}{165}$ 0 $\frac{\sqrt{231}}{165}$ 0 0 0 0 $-\frac{3\sqrt{154}}{220}$ $-\frac{3\sqrt{385}i}{770}$ 0 $-\frac{3\sqrt{385}}{770}$ 0 0
	$-\frac{\sqrt{231}i}{165}$	0 $\frac{\sqrt{231}}{165}$ 0 0 0 0 $-\frac{3\sqrt{154}}{220}$ $-\frac{3\sqrt{385}i}{770}$ 0 $-\frac{3\sqrt{385}}{770}$ 0 0

bra:  $= \langle f_2, \uparrow |, \langle f_2, \downarrow |, \langle f_1, \uparrow |, \langle f_1, \downarrow |, \langle f_{bz}, \uparrow |, \langle f_{bz}, \downarrow |, \langle f_3, \uparrow |, \langle f_3, \downarrow |, \langle f_{3x}, \uparrow |, \langle f_{3x}, \downarrow |, \langle f_{3y}, \uparrow |, \langle f_{3y}, \downarrow |, \langle f_{az}, \uparrow |, \langle f_{az}, \downarrow |$ ket:  $= |f_2, \uparrow \rangle, |f_2, \downarrow \rangle, |f_1, \uparrow \rangle, |f_1, \downarrow \rangle, |f_{bz}, \uparrow \rangle, |f_{bz}, \downarrow \rangle, |f_3, \uparrow \rangle, |f_3, \downarrow \rangle, |f_{3x}, \uparrow \rangle, |f_{3x}, \downarrow \rangle, |f_{3y}, \uparrow \rangle, |f_{3y}, \downarrow \rangle, |f_{az}, \uparrow \rangle, |f_{az}, \downarrow \rangle$ 

Table 10: (f,f) block.

No.	multipole	matrix
829	symmetry	1

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_0^{(a)}(A)$	$\frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0$	
830	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(A, 1)$	$-\frac{5\sqrt{42}}{84}$	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	$-\frac{5\sqrt{42}}{84}$ 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 $-\frac{5\sqrt{42}}{84}$ 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 $-\frac{5\sqrt{42}}{84}$ 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{5\sqrt{42}}{84}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{5\sqrt{42}}{84}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{5\sqrt{42}}{84}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{5\sqrt{42}}{84}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{5\sqrt{42}}{84}$ 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 $-\frac{5\sqrt{42}}{84}$ 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{42}}{84}$ 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{42}}{84}$ 0 0 0
831	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(A, 2)$	0	0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{42}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{42}$
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{210}}{84}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{14}}{14}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{210}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}}{14}$ 0 0 0 0 0
	0	0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}}{14}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}}{14}$ 0 0
	0	0 0 0 0 $-\frac{\sqrt{210}}{42}$ 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{210}}{42}$ 0 0 0 0 0 0 0 0 0 0

832 symmetry

 $\sqrt{3}xz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(A, 3)$	0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0	
	$\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0	
	0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0	
	0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0	
	0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0	
	0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$	
	0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0 0	
833	symmetry	$\sqrt{3}yz$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(B, 1)$	0	0 0 0 0 0 0 $-\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0
	0	0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 0
	0	0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0
	0	0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0
	$-\frac{5\sqrt{21}}{84}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0
	0	$-\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$
	0	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 0

834 symmetry

 $\sqrt{3}xy$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(B, 2)$	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{210}}{84}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{210}}{84}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{42}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{42}$ 0	
	0 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}}{14}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}}{14}$ 0 0 0	
	$\frac{\sqrt{210}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}}{14}$ 0 0 0 0 0	
	0 $\frac{\sqrt{210}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}}{14}$ 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{210}}{42}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{42}$ 0 0 0 0 0 0 0	
835	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A, 1)$	$\frac{\sqrt{33}}{44} 0 0 0 0 0 0 0 -\frac{\sqrt{55}}{44} 0 0 0 0 0$	
	$0 \frac{\sqrt{33}}{44} 0 0 0 0 0 0 0 -\frac{\sqrt{55}}{44} 0 0 0 0 0$	
	$0 0 \frac{\sqrt{33}}{44} 0 0 0 0 0 0 0 0 \frac{\sqrt{55}}{44} 0 0 0 0$	
	$0 0 0 \frac{\sqrt{33}}{44} 0 0 0 0 0 0 0 0 0 \frac{\sqrt{55}}{44} 0 0 0$	
	$0 0 0 0 -\frac{\sqrt{33}}{66} 0 0 0 0 0 0 0 0 0 0 0 0 0$	
	$0 0 0 0 0 -\frac{\sqrt{33}}{66} 0 0 0 0 0 0 0 0 0 0 0 0$	
	$0 0 0 0 0 0 -\frac{\sqrt{33}}{11} 0 0 0 0 0 0 0 0 0 0 0$	
	$0 0 0 0 0 0 0 -\frac{\sqrt{33}}{11} 0 0 0 0 0 0 0 0 0 0$	
	$-\frac{\sqrt{55}}{44} 0 0 0 0 0 0 0 0 \frac{\sqrt{33}}{132} 0 0 0 0 0 0 0 0$	
	$0 -\frac{\sqrt{55}}{44} 0 0 0 0 0 0 0 0 \frac{\sqrt{33}}{132} 0 0 0 0 0 0 0$	
	$0 0 \frac{\sqrt{55}}{44} 0 0 0 0 0 0 0 0 0 \frac{\sqrt{33}}{132} 0 0 0 0 0$	
	$0 0 0 \frac{\sqrt{55}}{44} 0 0 0 0 0 0 0 0 0 0 \frac{\sqrt{33}}{132} 0 0 0$	
	$0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 \frac{\sqrt{33}}{22} 0$	
	$0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 \frac{\sqrt{33}}{22}$	
836	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A, 2)$	$\frac{\sqrt{1155}}{308} \quad 0 \quad \frac{\sqrt{77}}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{1155}}{308} \quad 0 \quad \frac{\sqrt{77}}{44} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{1155}}{308} \quad 0 \quad -\frac{\sqrt{77}}{44} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{308} \quad 0 \quad -\frac{\sqrt{77}}{44} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{66} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{66} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$\frac{\sqrt{77}}{44} \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{77}}{44} \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{77}}{44} \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{77}}{44} \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{1155}}{154} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{1155}}{154}$	
837	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A, 3)$	0	0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{231}}{154}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{231}}{154}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{3\sqrt{231}}{154}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{385}}{77}$ 0 0 0 0 0
	0	$-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{385}}{77}$ 0 0 0 0
	0	0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 $\frac{\sqrt{385}}{77}$ 0 0 0
	0	0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 $\frac{\sqrt{385}}{77}$ 0 0
	0	0 0 0 0 $\frac{\sqrt{231}}{154}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{231}}{154}$ 0 0 0 0 0 0 0 0

838 symmetry

$$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A, 4)$	0	0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{330}}{88}$	0 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{22}}{88}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{22}}{88}$ 0 0 0
	0	0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{88}$ 0
	0	0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{88}$
	0	0 0 0 0 0 0 $\frac{5\sqrt{22}}{88}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{5\sqrt{22}}{88}$ 0 0 0 0 0 0 0
	$\frac{3\sqrt{22}}{88}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0
839	symmetry	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$

*continued ...*

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(a)}(A, 5)$	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	$\frac{3\sqrt{154}}{88}$	0	0	
	0	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	$\frac{3\sqrt{154}}{88}$	0	
	0	0	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	
	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	0	$-\frac{\sqrt{154}}{56}$	0	0	0	0	0	
	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	$-\frac{\sqrt{154}}{56}$	0	0	0	0	0	
	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	$\frac{3\sqrt{154}}{616}$	0	0	0	0	
	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	$\frac{3\sqrt{154}}{616}$	0	0	0	0	
	0	0	0	0	$-\frac{\sqrt{154}}{56}$	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	
	0	0	0	0	0	$-\frac{\sqrt{154}}{56}$	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{616}$	0	
	0	0	0	0	0	0	$\frac{3\sqrt{154}}{616}$	0	0	0	0	0	0	0	
	$\frac{3\sqrt{154}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	0	0	0	
$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$															
840	symmetry														

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(a)}(B, 1)$	0	0	0	0	0	0	$-\frac{\sqrt{330}}{88}$	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	$-\frac{\sqrt{330}}{88}$	0	0	0	0	0	0	0
	0	0	0	0	$\frac{\sqrt{330}}{88}$	0	0	0	0	0	0	0	$\frac{3\sqrt{22}}{88}$	0	0
	0	0	0	0	0	$\frac{\sqrt{330}}{88}$	0	0	0	0	0	0	0	$\frac{3\sqrt{22}}{88}$	0
	0	0	$\frac{\sqrt{330}}{88}$	0	0	0	0	0	0	0	$\frac{3\sqrt{22}}{88}$	0	0	0	0
	0	0	0	$\frac{\sqrt{330}}{88}$	0	0	0	0	0	0	$\frac{3\sqrt{22}}{88}$	0	0	0	0
	$-\frac{\sqrt{330}}{88}$	0	0	0	0	0	0	0	$-\frac{5\sqrt{22}}{88}$	0	0	0	0	0	0
	0	$-\frac{\sqrt{330}}{88}$	0	0	0	0	0	0	0	$-\frac{5\sqrt{22}}{88}$	0	0	0	0	0
	0	0	0	0	0	$-\frac{5\sqrt{22}}{88}$	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	$-\frac{5\sqrt{22}}{88}$	0	0	0	0	0	0	0	0
	0	0	0	0	$\frac{3\sqrt{22}}{88}$	0	0	0	0	0	0	$-\frac{\sqrt{330}}{88}$	0	0	0
	0	0	0	0	0	$\frac{3\sqrt{22}}{88}$	0	0	0	0	0	0	$-\frac{\sqrt{330}}{88}$	0	0
	0	0	$\frac{3\sqrt{22}}{88}$	0	0	0	0	0	0	$-\frac{\sqrt{330}}{88}$	0	0	0	0	0
	0	0	0	$\frac{3\sqrt{22}}{88}$	0	0	0	0	0	$-\frac{\sqrt{330}}{88}$	0	0	0	0	0
841	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$													

*continued ...*

Table 10

No.	multipole	matrix											
$\mathbb{Q}_4^{(a)}(B, 2)$	0 0 0 0 0 0 0 0 0 0 - $\frac{\sqrt{33}}{22}$ 0 0 0												
	0 0 0 0 0 0 0 0 0 0 0 - $\frac{\sqrt{33}}{22}$ 0 0 0												
	0 0 0 0 0 0 0 0 - $\frac{\sqrt{33}}{22}$ 0 0 0 0 0 0												
	0 0 0 0 0 0 0 0 0 - $\frac{\sqrt{33}}{22}$ 0 0 0 0 0												
	0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0 0 0 0 0 0												
	0 0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0 0 0 0 0												
	0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0 0 0 0 0 0 0 0												
	0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0 0 0 0 0 0 0 0												
	0 0 - $\frac{\sqrt{33}}{22}$ 0 0 0 0 0 0 0 0 0 0 0 0												
	0 0 0 - $\frac{\sqrt{33}}{22}$ 0 0 0 0 0 0 0 0 0 0 0												
	- $\frac{\sqrt{33}}{22}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0												
	0 - $\frac{\sqrt{33}}{22}$ 0 0 0 0 0 0 0 0 0 0 0 0 0												
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0												
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0												
842	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$											

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(B, 3)$	0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{154}}{88}$ 0	
	0 0 0 0 0 $\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{154}}{88}$	
	0 0 $\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $\frac{\sqrt{154}}{56}$ 0 0 0	
	0 0 0 $\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $\frac{\sqrt{154}}{56}$ 0 0 0	
	$-\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{154}}{616}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{154}}{616}$ 0 0 0 0 0	
	0 0 0 0 0 $\frac{3\sqrt{154}}{616}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{3\sqrt{154}}{616}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{154}}{56}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0	
	0 0 0 0 0 $\frac{\sqrt{154}}{56}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$	
	0 0 $-\frac{3\sqrt{154}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0 0 0	
	0 0 0 $-\frac{3\sqrt{154}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0 0 0	
843	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(B, 4)$	0 0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0	
	0 0 0 0 0 0 0 0 $\frac{3\sqrt{231}}{154}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{3\sqrt{231}}{154}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{231}}{154}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{231}}{154}$	
	0 0 $\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 $\frac{\sqrt{385}}{77}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 $\frac{\sqrt{385}}{77}$ 0 0 0	
	$-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 $\frac{\sqrt{385}}{77}$ 0 0 0 0 0	
	0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 $\frac{\sqrt{385}}{77}$ 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{231}}{154}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{231}}{154}$ 0 0 0 0 0 0	
844	symmetry	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A, 1)$	$-\frac{\sqrt{231}}{1848}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{385}}{88}$ 0 0 0 0 0
	0	$-\frac{\sqrt{231}}{1848}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{385}}{88}$ 0 0 0 0 0
	0	0 $-\frac{\sqrt{231}}{1848}$ 0 0 0 0 0 0 0 $\frac{\sqrt{385}}{88}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{231}}{1848}$ 0 0 0 0 0 0 $\frac{\sqrt{385}}{88}$ 0 0 0
	0	0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{2\sqrt{231}}{77}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{2\sqrt{231}}{77}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{385}}{88}$	0 0 0 0 0 0 0 0 $-\frac{5\sqrt{231}}{616}$ 0 0 0 0 0
	0	$-\frac{\sqrt{385}}{88}$ 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{231}}{616}$ 0 0 0 0
	0	0 0 $\frac{\sqrt{385}}{88}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{231}}{616}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{385}}{88}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{231}}{616}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{231}}{462}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{231}}{462}$
845	symmetry	$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$

*continued ...*

Table 10

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
846	symmetry	$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A, 3)$	$-\frac{\sqrt{33}}{264} \quad 0 \quad \frac{\sqrt{55}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{33}}{264} \quad 0 \quad \frac{\sqrt{55}}{88} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{33}}{264} \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{264} \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$\frac{\sqrt{55}}{88} \quad 0 \quad -\frac{5\sqrt{33}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{55}}{88} \quad 0 \quad -\frac{5\sqrt{33}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0 \quad -\frac{5\sqrt{33}}{88} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0 \quad -\frac{5\sqrt{33}}{88} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{5\sqrt{33}}{66} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{5\sqrt{33}}{66} \quad 0$	
847	symmetry	$\frac{\sqrt{42}(x-y)(x+y)(x^4-9x^2y^2-5x^2z^2+y^4-5y^2z^2+5z^4)}{8}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A, 4)$	$\frac{\sqrt{11}}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0
	0 $\frac{\sqrt{11}}{8}$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0
	0 0 $-\frac{\sqrt{11}}{8}$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0
	0 0 0 $-\frac{\sqrt{11}}{8}$	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0
	0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{165}}{66}$ 0
	0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{165}}{66}$
	0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{165}}{264}$	0 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$ 0 0 0 0 0
	0 $-\frac{\sqrt{165}}{264}$	0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$ 0 0 0 0
	0 0 $-\frac{\sqrt{165}}{264}$	0 0 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0
	0 0 0 $-\frac{\sqrt{165}}{264}$	0 0 0 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0
	0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$		

848 symmetry

Table 10

No.	multipole	matrix														
$\mathbb{Q}_6^{(a)}(A, 5)$	0	0	0	0	$\frac{5\sqrt{11}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0	
	0	0	0	0	0	$\frac{5\sqrt{11}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0
	0	0	0	0	0	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	0	0	0
	$\frac{5\sqrt{11}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0	0	0	0	0	0
	0	$\frac{5\sqrt{11}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0	0	0	0	0
	0	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{44}$	0	0	0	0	0
	0	0	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	0	$\frac{\sqrt{165}}{44}$	0	0	0	0	0
	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0	0	0	0	0	0	$-\frac{5\sqrt{11}}{88}$	0	0	0
	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0	0	0	0	0	0	$-\frac{5\sqrt{11}}{88}$	0	0
	0	0	0	0	0	0	$\frac{\sqrt{165}}{44}$	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{44}$	0	0	0	0	0	0	0	0
849	symmetry															$\frac{\sqrt{462}xz(x^2-3z^2)(3x^2-z^2)}{16}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A, 6)$	0 0 0 0 $\frac{\sqrt{6}}{32}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{10}}{32}$ 0
	0 0 0 0 0	$\frac{\sqrt{6}}{32}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{10}}{32}$
	0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	$\frac{\sqrt{6}}{32}$ 0 0 0 0	0 0 0 $-\frac{3\sqrt{10}}{32}$ 0 0 0 0 0 0
	0 $\frac{\sqrt{6}}{32}$ 0 0 0	0 0 0 0 0 $-\frac{3\sqrt{10}}{32}$ 0 0 0 0
	0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 $-\frac{3\sqrt{10}}{32}$	0 0 0 0 0 0 0 0 $\frac{5\sqrt{6}}{32}$ 0
	0 0 0 0 0	$-\frac{3\sqrt{10}}{32}$ 0 0 0 0 0 0 0 0 $\frac{5\sqrt{6}}{32}$
	0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{10}}{32}$ 0 0 0 0	0 0 0 0 0 $\frac{5\sqrt{6}}{32}$ 0 0 0 0
	0 $-\frac{\sqrt{10}}{32}$ 0 0 0	0 0 0 0 0 0 $\frac{5\sqrt{6}}{32}$ 0 0 0 0
850	symmetry	$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A, 7)$	0	0 0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $\frac{9\sqrt{22}}{352}$ 0
	0	0 0 0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $\frac{9\sqrt{22}}{352}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0
	$\frac{17\sqrt{330}}{1056}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0
	0	$\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{22}}{32}$ 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$ 0
	0	0 0 0 0 0 0 $\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0 0 0 0
	$\frac{9\sqrt{22}}{352}$	0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$ 0 0 0 0 0
	0	$\frac{9\sqrt{22}}{352}$ 0 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$ 0 0 0 0 0
$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$		
851	symmetry	

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(B, 1)$	0 0 0 0 0 0 $-\frac{3\sqrt{11}}{44}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{3\sqrt{11}}{44}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0	
	0 0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{88}$	
	0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0	
	0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0	
	$-\frac{3\sqrt{11}}{44}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{44}$ 0 0 0 0 0	
	0 $-\frac{3\sqrt{11}}{44}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{44}$ 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{165}}{44}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{44}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$	
	0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$ 0 0 0	
$\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$		
852	symmetry	

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(B, 2)$	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{66}}{22}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{66}}{22}$ 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{66}}{22}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{66}}{22}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
853	symmetry	$\frac{\sqrt{462}yz(y^2-3z^2)(3y^2-z^2)}{16}$

*continued ...*

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{32} \\ 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{32} \\ 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{32} & 0 \end{bmatrix}$
854	symmetry	$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$

*continued ...*

Table 10

No.	multipole	matrix
855	$\mathbb{Q}_6^{(a)}(B, 4)$	$\begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$ $\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(B, 5)$	0 0 0 0 0 0 $\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0	
	0 0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $-\frac{9\sqrt{22}}{352}$ 0	
	0 0 0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $-\frac{9\sqrt{22}}{352}$	
	0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{32}$ 0 0 0	
	0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{32}$ 0 0	
	$\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0 0	
	0 $\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$	
	0 0 0 $-\frac{9\sqrt{22}}{352}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $-\frac{9\sqrt{22}}{352}$ 0 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$ 0 0	
856	symmetry	$\frac{\sqrt{210}xy(x^4+2x^2y^2-16x^2z^2+y^4-16y^2z^2+16z^4)}{16}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(B, 6)$	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{33}}{66}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{33}}{66}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{2\sqrt{33}}{33}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{2\sqrt{33}}{33}$	
	0 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0	
	$\frac{\sqrt{33}}{66}$ 0 0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0 0 0 0	
	0 $\frac{\sqrt{33}}{66}$ 0 0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{2\sqrt{33}}{33}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{2\sqrt{33}}{33}$ 0 0 0 0 0 0 0	
857	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(A, 1)$	0 0 $-\frac{\sqrt{21}i}{14}$ 0 0 $-\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{21}i}{14}$ $\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{21}i}{14}$ 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{21}i}{14}$ 0 0 $\frac{\sqrt{14}i}{56}$ 0 $\frac{\sqrt{14}}{56}$ 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $-\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0	
	$-\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 $\frac{\sqrt{21}i}{21}$ $\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0	
	0 $\frac{\sqrt{14}i}{56}$ 0 $\frac{\sqrt{14}}{56}$ $\frac{\sqrt{21}i}{21}$ 0 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 0	
	$\frac{\sqrt{14}i}{56}$ 0 $-\frac{\sqrt{14}}{56}$ 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{14}}{28}$	
	0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$ $\frac{\sqrt{14}}{28}$ 0	
	0 0 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ $\frac{\sqrt{21}i}{42}$ 0 0 0 0 $\frac{\sqrt{14}i}{28}$	
	0 0 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{14}i}{28}$ 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0	
$\frac{\sqrt{3}(x-y)(x+y)}{2}$		

858 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(A, 2)$	0 0 0 0 0 $-\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0	
	$-\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0	
	0 $-\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0	
	$-\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}}{28}$	
	0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{42}}{28}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$	
	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}}{28}$ 0 $\frac{\sqrt{42}i}{28}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}}{28}$ 0 $\frac{\sqrt{42}i}{28}$ 0 0 0	

859 symmetry

 $\sqrt{3}xz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1:a)}(A, 3)$	0	0 0 0 $-\frac{3\sqrt{7}i}{28}$ 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0
	0	0 0 $-\frac{3\sqrt{7}i}{28}$ 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0
	0	$\frac{3\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0 0 0
	$\frac{3\sqrt{7}i}{28}$	0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0
	$-\frac{\sqrt{42}i}{56}$	0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0
	0	$\frac{\sqrt{42}i}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{42}i}{28}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 $\frac{\sqrt{42}i}{28}$
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 0 0

860 symmetry

 $\sqrt{3}yz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(B, 1)$	0	0 0 0 $-\frac{3\sqrt{7}}{28}$ $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 $\frac{3\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0 0
	0	$\frac{3\sqrt{7}}{28}$ 0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0
	$-\frac{3\sqrt{7}}{28}$	0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{42}i}{56}$	0 0 0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0
	0	$\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 0 0 $\frac{\sqrt{42}i}{56}$ $-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0
	0	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ $\frac{\sqrt{42}i}{28}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{42}i}{28}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{7}}{28}$ 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0
861 symmetry		$\sqrt{3}xy$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(B, 2)$	0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0	
	$-\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0	
	0 $-\frac{\sqrt{42}}{56}$ 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0	
	$\frac{\sqrt{42}}{56}$ 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$	
	0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0	
	0 0 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}}{28}$	
	0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{42}}{28}$ 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{28}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 $-\frac{\sqrt{42}}{28}$ 0 0 0	
$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$		

862 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A, 1)$	0	$0 \ 0 \ \frac{i}{6} \ 0 \ 0 \ \frac{\sqrt{6}}{24} \ 0 \ \frac{\sqrt{6}i}{24} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{10}}{24}$
	0	$0 \ 0 \ 0 \ -\frac{i}{6} \ -\frac{\sqrt{6}}{24} \ 0 \ \frac{\sqrt{6}i}{24} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{10}}{24} \ 0$
	$-\frac{i}{6}$	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{6}i}{24} \ 0 \ \frac{\sqrt{6}}{24} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{10}i}{24}$
	0	$\frac{i}{6} \ 0 \ 0 \ 0 \ -\frac{\sqrt{6}i}{24} \ 0 \ -\frac{\sqrt{6}}{24} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{10}i}{24} \ 0$
	0	$0 \ -\frac{\sqrt{6}}{24} \ 0 \ \frac{\sqrt{6}i}{24} \ 0 \ 0 \ -\frac{i}{6} \ 0 \ 0 \ -\frac{\sqrt{10}}{24} \ 0 \ -\frac{\sqrt{10}i}{24} \ 0 \ 0$
	$\frac{\sqrt{6}}{24}$	$0 \ \frac{\sqrt{6}i}{24} \ 0 \ 0 \ 0 \ 0 \ \frac{i}{6} \ \frac{\sqrt{10}}{24} \ 0 \ -\frac{\sqrt{10}i}{24} \ 0 \ 0 \ 0 \ 0$
	0	$-\frac{\sqrt{6}i}{24} \ 0 \ -\frac{\sqrt{6}}{24} \ \frac{i}{6} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{10}i}{24} \ 0 \ \frac{\sqrt{10}}{24} \ 0 \ 0 \ 0$
	$-\frac{\sqrt{6}i}{24}$	$0 \ \frac{\sqrt{6}}{24} \ 0 \ 0 \ -\frac{i}{6} \ 0 \ 0 \ -\frac{\sqrt{10}i}{24} \ 0 \ 0 \ -\frac{\sqrt{10}}{24} \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{10}}{24} \ 0 \ \frac{\sqrt{10}i}{24} \ 0 \ 0 \ -\frac{i}{6} \ 0 \ 0 \ -\frac{\sqrt{6}}{24}$
	0	$0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{10}}{24} \ 0 \ \frac{\sqrt{10}i}{24} \ 0 \ 0 \ 0 \ \frac{i}{6} \ \frac{\sqrt{6}}{24} \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{10}i}{24} \ 0 \ -\frac{\sqrt{10}}{24} \ \frac{i}{6} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{6}i}{24}$
	0	$0 \ 0 \ 0 \ 0 \ \frac{\sqrt{10}i}{24} \ 0 \ \frac{\sqrt{10}}{24} \ 0 \ 0 \ -\frac{i}{6} \ 0 \ 0 \ \frac{\sqrt{6}i}{24} \ 0$
	$-\frac{\sqrt{10}}{24}$	$0 \ -\frac{\sqrt{10}i}{24} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{6}}{24} \ 0 \ -\frac{\sqrt{6}i}{24} \ 0 \ 0$
	$\frac{\sqrt{10}}{24}$	$0 \ -\frac{\sqrt{10}i}{24} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{6}}{24} \ 0 \ 0 \ -\frac{\sqrt{6}i}{24} \ 0 \ 0$

863 symmetry

$$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,-1;a)}(A, 2)$	0	0	$\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	0	0	0	$-\frac{\sqrt{14}}{24}$	
	0	0	0	$-\frac{\sqrt{35}i}{42}$	$-\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	0	0	0	$\frac{\sqrt{14}}{24}$	0	
	$-\frac{\sqrt{35}i}{42}$	0	0	0	0	$-\frac{\sqrt{210}i}{168}$	0	$\frac{\sqrt{210}}{168}$	0	0	0	0	0	$-\frac{\sqrt{14}i}{24}$	
	0	$\frac{\sqrt{35}i}{42}$	0	0	$-\frac{\sqrt{210}i}{168}$	0	$-\frac{\sqrt{210}}{168}$	0	0	0	0	0	$-\frac{\sqrt{14}i}{24}$	0	
	0	$-\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{14}}{24}$	0	$\frac{\sqrt{14}i}{24}$	0	0	
	$\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	0	0	$\frac{\sqrt{35}i}{42}$	$-\frac{\sqrt{14}}{24}$	0	$\frac{\sqrt{14}i}{24}$	0	0	0	
	0	$-\frac{\sqrt{210}i}{168}$	0	$-\frac{\sqrt{210}}{168}$	$\frac{\sqrt{35}i}{42}$	0	0	0	$\frac{\sqrt{14}i}{24}$	0	$-\frac{\sqrt{14}}{24}$	0	0	0	
	$-\frac{\sqrt{210}i}{168}$	0	$\frac{\sqrt{210}}{168}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{14}i}{24}$	0	$\frac{\sqrt{14}}{24}$	0	0	0	
	0	0	0	0	0	$-\frac{\sqrt{14}}{24}$	0	$-\frac{\sqrt{14}i}{24}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$-\frac{\sqrt{210}}{168}$	
	0	0	0	0	$\frac{\sqrt{14}}{24}$	0	$-\frac{\sqrt{14}i}{24}$	0	$\frac{\sqrt{14}}{24}$	$\frac{\sqrt{35}i}{42}$	0	0	0	$\frac{\sqrt{210}}{168}$	
	0	0	0	0	$-\frac{\sqrt{14}i}{24}$	0	$-\frac{\sqrt{14}}{24}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{210}}{168}$	0	
	0	$\frac{\sqrt{14}}{24}$	0	$\frac{\sqrt{14}i}{24}$	0	0	0	0	$\frac{\sqrt{210}}{168}$	0	$-\frac{\sqrt{210}i}{168}$	0	0	0	
	$-\frac{\sqrt{14}}{24}$	0	$\frac{\sqrt{14}i}{24}$	0	0	0	0	$-\frac{\sqrt{210}}{168}$	0	$-\frac{\sqrt{210}i}{168}$	0	0	0	0	
$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$															
864	symmetry														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A, 3)$	0	0 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{42}}{168}$
	0	0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{42}}{168}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{42}i}{168}$
	0	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}i}{168}$ 0
	0	$\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0
	$-\frac{\sqrt{70}}{56}$	0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0
	0	$-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ $\frac{\sqrt{7}i}{14}$ 0
	$-\frac{\sqrt{70}i}{56}$	0 $-\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 $\frac{\sqrt{42}}{168}$ 0 0 $-\frac{\sqrt{7}i}{14}$
	0	0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}}{56}$
	$\frac{\sqrt{7}i}{14}$	0 0 0 $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{70}}{56}$
	0	$-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$
	0	$\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0
	$-\frac{\sqrt{42}}{168}$	0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0

865 symmetry

$$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,-1;a)}(A, 4)$	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	0	$-\frac{i}{8}$	0	0	
	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	0	$\frac{\sqrt{10}i}{16}$	0	0	$-\frac{i}{8}$	0	0	0	
	0	$-\frac{\sqrt{15}i}{24}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0	0	$\frac{i}{8}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	
	$-\frac{\sqrt{15}i}{24}$	0	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	$\frac{i}{8}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	
	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	
	0	0	0	$\frac{\sqrt{10}i}{16}$	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	
	$\frac{\sqrt{10}i}{16}$	0	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$\frac{i}{8}$	
	0	$-\frac{\sqrt{10}i}{16}$	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$\frac{i}{8}$	0	0	
	0	0	0	$-\frac{i}{8}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	
	0	0	$-\frac{i}{8}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	0	
	0	$\frac{i}{8}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	
	$\frac{i}{8}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	0	$\frac{\sqrt{10}i}{16}$	
	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$-\frac{i}{8}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0	
	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$-\frac{i}{8}$	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	

866 symmetry

$$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A, 5)$	0 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{70}i}{112}$ 0 0 $\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0	
	0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{70}i}{112}$ $-\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0	
	0 $\frac{\sqrt{105}i}{168}$ 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{42}i}{48}$ 0	
	$\frac{\sqrt{105}i}{168}$ 0 0 0 0 $\frac{\sqrt{70}i}{112}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{42}i}{48}$	
	0 0 $\frac{\sqrt{70}i}{112}$ 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 $\frac{\sqrt{7}}{14}$	
	0 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{42}i}{48}$ $-\frac{\sqrt{7}}{14}$ 0	
	$-\frac{\sqrt{70}i}{112}$ 0 0 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$	
	0 $\frac{\sqrt{70}i}{112}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{42}i}{48}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0	
	0 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{42}i}{48}$ 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0	
	$\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0	
	0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{42}i}{48}$ 0 0 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{70}i}{112}$ 0	
	$\frac{3\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{70}i}{112}$	
	0 0 $\frac{\sqrt{42}i}{48}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{42}i}{48}$ $\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{70}i}{112}$ 0 0	

867 symmetry

 $\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(B, 1)$	0	0 0 0 $-\frac{\sqrt{15}}{24}$ $\frac{\sqrt{10}i}{16}$ 0 0 0 0 0 0 $-\frac{1}{8}$ $\frac{\sqrt{6}i}{48}$ 0
	0	0 0 $\frac{\sqrt{15}}{24}$ 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 0 0 $\frac{1}{8}$ 0 0 $-\frac{\sqrt{6}i}{48}$
	0	$\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 $\frac{1}{8}$ 0 0 0 0
	$-\frac{\sqrt{15}}{24}$	0 0 0 0 0 0 $-\frac{\sqrt{10}i}{16}$ $-\frac{1}{8}$ 0 0 0 0 0
	$-\frac{\sqrt{10}i}{16}$	0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{6}i}{48}$ 0 0 0 0 0
	0	$\frac{\sqrt{10}i}{16}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{6}i}{48}$ 0 0 0 0
	0	0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 $\frac{\sqrt{6}i}{48}$ 0 0 $\frac{1}{8}$
	0	0 0 0 $\frac{\sqrt{10}i}{16}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $-\frac{\sqrt{6}i}{48}$ $-\frac{1}{8}$ 0
	0	0 0 0 $-\frac{1}{8}$ $\frac{\sqrt{6}i}{48}$ 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{10}i}{16}$ 0
	0	0 $\frac{1}{8}$ 0 0 $-\frac{\sqrt{6}i}{48}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{10}i}{16}$
	0	$\frac{1}{8}$ 0 0 0 0 $-\frac{\sqrt{6}i}{48}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0
	$-\frac{1}{8}$	0 0 0 0 0 0 $\frac{\sqrt{6}i}{48}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0
	$-\frac{\sqrt{6}i}{48}$	0 0 0 0 0 0 $-\frac{1}{8}$ $\frac{\sqrt{10}i}{16}$ 0 0 0 0 0
	0	$\frac{\sqrt{6}i}{48}$ 0 0 0 0 $\frac{1}{8}$ 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 0 0

868 symmetry

 $\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{Q}_4^{(1,-1;a)}(B, 2)$		0	0	0	0	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{6}i}{12}$	
		0	0	0	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{6}i}{12}$	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	$\frac{\sqrt{6}}{12}$	
		0	0	0	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{6}}{12}$	0	
		0	0	0	0	0	0	0	0	$\frac{\sqrt{6}i}{12}$	0	$-\frac{\sqrt{6}}{12}$	0	0	0	
		0	0	0	0	0	0	0	$\frac{\sqrt{6}i}{12}$	0	$\frac{\sqrt{6}}{12}$	0	0	0	0	
		0	0	0	0	0	0	0	0	$-\frac{\sqrt{6}}{12}$	0	$-\frac{\sqrt{6}i}{12}$	0	0	0	
		0	0	0	0	0	0	0	$\frac{\sqrt{6}}{12}$	0	$-\frac{\sqrt{6}i}{12}$	0	0	0	0	
		0	0	0	0	0	$-\frac{\sqrt{6}i}{12}$	0	$\frac{\sqrt{6}}{12}$	0	0	0	0	0	0	
		0	0	0	0	$-\frac{\sqrt{6}i}{12}$	0	$-\frac{\sqrt{6}}{12}$	0	0	0	0	0	0	0	
		0	0	0	0	0	$\frac{\sqrt{6}}{12}$	0	$\frac{\sqrt{6}i}{12}$	0	0	0	0	0	0	
		0	0	0	0	$-\frac{\sqrt{6}}{12}$	0	$\frac{\sqrt{6}i}{12}$	0	0	0	0	0	0	0	
		0	$\frac{\sqrt{6}i}{12}$	0	$-\frac{\sqrt{6}}{12}$	0	0	0	0	0	0	0	0	0	0	
$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$																
869	symmetry															

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(B, 3)$	0	0 0 0 $-\frac{\sqrt{105}}{168}$ $\frac{\sqrt{70}i}{112}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 $\frac{3\sqrt{7}}{56}$ $-\frac{\sqrt{42}i}{48}$ 0
	0	0 0 $\frac{\sqrt{105}}{168}$ 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{42}i}{48}$
	0	$\frac{\sqrt{105}}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{112}$ 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0
	$-\frac{\sqrt{105}}{168}$	0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{112}$ $\frac{3\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0
	$-\frac{\sqrt{70}i}{112}$	0 0 0 0 0 0 0 $\frac{\sqrt{105}}{168}$ $\frac{\sqrt{42}i}{48}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$
	0	$\frac{\sqrt{70}i}{112}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 0 $-\frac{\sqrt{42}i}{48}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0
	0	0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 0 0 $-\frac{\sqrt{42}i}{48}$ 0 0 $-\frac{3\sqrt{7}}{56}$
	0	0 0 0 $\frac{\sqrt{70}i}{112}$ $\frac{\sqrt{105}}{168}$ 0 0 0 0 0 $\frac{\sqrt{42}i}{48}$ $\frac{3\sqrt{7}}{56}$ 0
	0	$-\frac{\sqrt{7}i}{14}$ 0 $\frac{3\sqrt{7}}{56}$ $-\frac{\sqrt{42}i}{48}$ 0 0 0 0 0 0 $\frac{\sqrt{105}}{168}$ $-\frac{\sqrt{70}i}{112}$ 0
	$-\frac{\sqrt{7}i}{14}$	0 $-\frac{3\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 $\frac{\sqrt{70}i}{112}$
	0	$-\frac{3\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 0 0
	$\frac{3\sqrt{7}}{56}$	0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{48}$ $\frac{\sqrt{105}}{168}$ 0 0 0 0 0
	$\frac{\sqrt{42}i}{48}$	0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{3\sqrt{7}}{56}$ $\frac{\sqrt{70}i}{112}$ 0 0 0 0 0
	0	$-\frac{\sqrt{42}i}{48}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 0 0 0

870 symmetry

$$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(B, 4)$	0	0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{42}i}{168}$
	0	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}i}{168}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}}{168}$
	0	0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{42}}{168}$ 0
	0	$\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ $\frac{\sqrt{7}i}{14}$ 0
	$\frac{\sqrt{70}i}{56}$	0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 $\frac{\sqrt{42}}{168}$ 0 0 $-\frac{\sqrt{7}i}{14}$
	0	$\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ 0 0 0
	$-\frac{\sqrt{70}}{56}$	0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ 0 0 0 0
	$-\frac{\sqrt{7}i}{14}$	0 0 0 0 $\frac{\sqrt{42}i}{168}$ 0 $\frac{\sqrt{42}}{168}$ 0 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$
	0	$\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0
	0	0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{70}}{56}$
	0	0 0 0 $\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0
	0	$-\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0
	$-\frac{\sqrt{42}i}{168}$	0 $\frac{\sqrt{42}}{168}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0

871 symmetry

$$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_6^{(1,-1;a)}(A, 1)$	0	0	$-\frac{\sqrt{154}i}{616}$	0	0	$\frac{\sqrt{231}}{1848}$	0	$-\frac{\sqrt{231}i}{308}$	0	0	$\frac{\sqrt{2310}i}{264}$	0	0	$\frac{\sqrt{385}}{88}$	
	0	0	0	$\frac{\sqrt{154}i}{616}$	$-\frac{\sqrt{231}}{1848}$	0	$-\frac{\sqrt{231}i}{308}$	0	0	0	$-\frac{\sqrt{2310}i}{264}$	$-\frac{\sqrt{385}}{88}$	0	0	
	$\frac{\sqrt{154}i}{616}$	0	0	0	0	$-\frac{\sqrt{231}i}{1848}$	0	$-\frac{\sqrt{231}}{308}$	$\frac{\sqrt{2310}i}{264}$	0	0	0	0	$\frac{\sqrt{385}i}{88}$	
	0	$-\frac{\sqrt{154}i}{616}$	0	0	$-\frac{\sqrt{231}i}{1848}$	0	$\frac{\sqrt{231}}{308}$	0	0	$-\frac{\sqrt{2310}i}{264}$	0	0	$\frac{\sqrt{385}i}{88}$	0	
	0	$-\frac{\sqrt{231}}{1848}$	0	$\frac{\sqrt{231}i}{1848}$	0	0	$\frac{\sqrt{154}i}{154}$	0	0	$\frac{5\sqrt{385}}{616}$	0	$\frac{5\sqrt{385}i}{616}$	0	0	
	$\frac{\sqrt{231}}{1848}$	0	$\frac{\sqrt{231}i}{1848}$	0	0	0	0	$-\frac{\sqrt{154}i}{154}$	$-\frac{5\sqrt{385}}{616}$	0	$\frac{5\sqrt{385}i}{616}$	0	0	0	
	0	$\frac{\sqrt{231}i}{308}$	0	$\frac{\sqrt{231}}{308}$	$-\frac{\sqrt{154}i}{154}$	0	0	0	0	$\frac{\sqrt{385}i}{308}$	0	$-\frac{\sqrt{385}}{308}$	0	0	
	$\frac{\sqrt{231}i}{308}$	0	$-\frac{\sqrt{231}}{308}$	0	0	$\frac{\sqrt{154}i}{154}$	0	0	$\frac{\sqrt{385}i}{308}$	0	$\frac{\sqrt{385}}{308}$	0	0	0	
	0	0	$-\frac{\sqrt{2310}i}{264}$	0	0	$-\frac{5\sqrt{385}}{616}$	0	$-\frac{\sqrt{385}i}{308}$	0	0	$-\frac{5\sqrt{154}i}{616}$	0	0	$-\frac{5\sqrt{231}}{1848}$	
	0	0	0	$\frac{\sqrt{2310}i}{264}$	$\frac{5\sqrt{385}}{616}$	0	$-\frac{\sqrt{385}i}{308}$	0	0	0	$\frac{5\sqrt{154}i}{616}$	$\frac{5\sqrt{231}}{1848}$	0	0	
	$-\frac{\sqrt{2310}i}{264}$	0	0	0	0	$-\frac{5\sqrt{385}i}{616}$	0	$\frac{\sqrt{385}}{308}$	$\frac{5\sqrt{154}i}{616}$	0	0	0	0	$\frac{5\sqrt{231}i}{1848}$	
	0	$\frac{\sqrt{2310}i}{264}$	0	0	$-\frac{5\sqrt{385}i}{616}$	0	$-\frac{\sqrt{385}}{308}$	0	0	$-\frac{5\sqrt{154}i}{616}$	0	0	$\frac{5\sqrt{231}i}{1848}$	0	
	0	$-\frac{\sqrt{385}}{88}$	0	$-\frac{\sqrt{385}i}{88}$	0	0	0	0	0	$\frac{5\sqrt{231}}{1848}$	0	$-\frac{5\sqrt{231}i}{1848}$	0	0	
	$\frac{\sqrt{385}}{88}$	0	$-\frac{\sqrt{385}i}{88}$	0	0	0	0	0	$-\frac{5\sqrt{231}}{1848}$	0	$-\frac{5\sqrt{231}i}{1848}$	0	0	0	

872 symmetry

$$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1:a)}(A, 2)$	0 0 0 0 0 $-\frac{\sqrt{5}}{24}$ 0 $-\frac{\sqrt{5}i}{12}$ 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 $\frac{\sqrt{3}}{24}$	
	0 0 0 0 $\frac{\sqrt{5}}{24}$ 0 $-\frac{\sqrt{5}i}{12}$ 0 0 0 0 $-\frac{\sqrt{2}i}{12}$ $-\frac{\sqrt{3}}{24}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{5}i}{24}$ 0 $\frac{\sqrt{5}}{12}$ $-\frac{\sqrt{2}i}{12}$ 0 0 0 0 $-\frac{\sqrt{3}i}{24}$	
	0 0 0 0 $-\frac{\sqrt{5}i}{24}$ 0 $-\frac{\sqrt{5}}{12}$ 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 $-\frac{\sqrt{3}i}{24}$ 0	
	0 $\frac{\sqrt{5}}{24}$ 0 $\frac{\sqrt{5}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{24}$ 0 0	
	$-\frac{\sqrt{5}}{24}$ 0 $\frac{\sqrt{5}i}{24}$ 0 0 0 0 0 $\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{24}$ 0 0 0	
	0 $\frac{\sqrt{5}i}{12}$ 0 $-\frac{\sqrt{5}}{12}$ 0 0 0 0 0 $-\frac{\sqrt{3}i}{12}$ 0 $-\frac{\sqrt{3}}{12}$ $-\frac{\sqrt{2}i}{6}$ 0	
	$\frac{\sqrt{5}i}{12}$ 0 $\frac{\sqrt{5}}{12}$ 0 0 0 0 0 $-\frac{\sqrt{3}i}{12}$ 0 $\frac{\sqrt{3}}{12}$ 0 0 $-\frac{\sqrt{2}i}{6}$	
	0 0 $\frac{\sqrt{2}i}{12}$ 0 0 $\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 $\frac{\sqrt{5}}{24}$	
	0 0 0 $-\frac{\sqrt{2}i}{12}$ $-\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 $-\frac{\sqrt{5}}{24}$ 0	
	$-\frac{\sqrt{2}i}{12}$ 0 0 0 0 $-\frac{\sqrt{3}i}{24}$ 0 $\frac{\sqrt{3}}{12}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{24}$	
	0 $\frac{\sqrt{2}i}{12}$ 0 0 $-\frac{\sqrt{3}i}{24}$ 0 $-\frac{\sqrt{3}}{12}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{24}$ 0	
	0 $-\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{24}$ 0 0 $-\frac{\sqrt{2}i}{6}$ 0 0 $-\frac{\sqrt{5}}{24}$ 0 $-\frac{\sqrt{5}i}{24}$ 0 0	
	$\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{24}$ 0 0 0 0 $\frac{\sqrt{2}i}{6}$ $\frac{\sqrt{5}}{24}$ 0 $-\frac{\sqrt{5}i}{24}$ 0 0 0	
873	symmetry	$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(A,3)$	0 0 $-\frac{\sqrt{22}i}{88}$ 0 0 $-\frac{\sqrt{33}}{88}$ 0 $-\frac{\sqrt{33}i}{132}$ 0 0 $-\frac{\sqrt{330}i}{264}$ 0 0 $-\frac{\sqrt{55}}{88}$	
	0 0 0 $\frac{\sqrt{22}i}{88}$ $\frac{\sqrt{33}}{88}$ 0 $-\frac{\sqrt{33}i}{132}$ 0 0 0 0 $\frac{\sqrt{330}i}{264}$ $\frac{\sqrt{55}}{88}$ 0	
	$\frac{\sqrt{22}i}{88}$ 0 0 0 0 $\frac{\sqrt{33}i}{88}$ 0 $-\frac{\sqrt{33}}{132}$ $-\frac{\sqrt{330}i}{264}$ 0 0 0 0 $-\frac{\sqrt{55}i}{88}$	
	0 $-\frac{\sqrt{22}i}{88}$ 0 0 $\frac{\sqrt{33}i}{88}$ 0 $\frac{\sqrt{33}}{132}$ 0 0 $\frac{\sqrt{330}i}{264}$ 0 0 $-\frac{\sqrt{55}i}{88}$ 0	
	0 $\frac{\sqrt{33}}{88}$ 0 $-\frac{\sqrt{33}i}{88}$ 0 0 $\frac{\sqrt{22}i}{22}$ 0 0 $\frac{\sqrt{55}}{88}$ 0 $\frac{\sqrt{55}i}{88}$ 0 0	
	$-\frac{\sqrt{33}}{88}$ 0 $-\frac{\sqrt{33}i}{88}$ 0 0 0 0 $-\frac{\sqrt{22}i}{22}$ $-\frac{\sqrt{55}}{88}$ 0 $\frac{\sqrt{55}i}{88}$ 0 0	
	0 $\frac{\sqrt{33}i}{132}$ 0 $\frac{\sqrt{33}}{132}$ $-\frac{\sqrt{22}i}{22}$ 0 0 0 0 $-\frac{\sqrt{55}i}{44}$ 0 $\frac{\sqrt{55}}{44}$ 0 0	
	$\frac{\sqrt{33}i}{132}$ 0 $-\frac{\sqrt{33}}{132}$ 0 0 $\frac{\sqrt{22}i}{22}$ 0 0 $-\frac{\sqrt{55}i}{44}$ 0 $-\frac{\sqrt{55}}{44}$ 0 0	
	0 0 $\frac{\sqrt{330}i}{264}$ 0 0 $-\frac{\sqrt{55}}{88}$ 0 $\frac{\sqrt{55}i}{44}$ 0 0 $-\frac{5\sqrt{22}i}{88}$ 0 0 $-\frac{5\sqrt{33}}{264}$	
	0 0 0 $-\frac{\sqrt{330}i}{264}$ $\frac{\sqrt{55}}{88}$ 0 $\frac{\sqrt{55}i}{44}$ 0 0 0 0 $\frac{5\sqrt{22}i}{88}$ $\frac{5\sqrt{33}}{264}$ 0	
	$\frac{\sqrt{330}i}{264}$ 0 0 0 0 $-\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{44}$ $\frac{5\sqrt{22}i}{88}$ 0 0 0 0 $\frac{5\sqrt{33}i}{264}$	
	0 $-\frac{\sqrt{330}i}{264}$ 0 0 $-\frac{\sqrt{55}i}{88}$ 0 $\frac{\sqrt{55}}{44}$ 0 0 $-\frac{5\sqrt{22}i}{88}$ 0 0 $\frac{5\sqrt{33}i}{264}$ 0	
	0 $\frac{\sqrt{55}}{88}$ 0 $\frac{\sqrt{55}i}{88}$ 0 0 0 0 0 $\frac{5\sqrt{33}}{264}$ 0 $-\frac{5\sqrt{33}i}{264}$ 0 0	
	$-\frac{\sqrt{55}}{88}$ 0 $\frac{\sqrt{55}i}{88}$ 0 0 0 0 0 $-\frac{5\sqrt{33}}{264}$ 0 $-\frac{5\sqrt{33}i}{264}$ 0 0	
$\frac{\sqrt{42}(x-y)(x+y)(x^4-9x^2y^2-5x^2z^2+y^4-5y^2z^2+5z^4)}{8}$		
874	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(A, 4)$	0	0 0 0 0 0 $-\frac{19\sqrt{11}}{264}$ 0 $-\frac{7\sqrt{11}i}{132}$ 0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 $-\frac{\sqrt{165}}{264}$
	0	0 0 0 0 $\frac{19\sqrt{11}}{264}$ 0 $-\frac{7\sqrt{11}i}{132}$ 0 0 0 0 $\frac{\sqrt{110}i}{132}$ $\frac{\sqrt{165}}{264}$ 0
	0	0 0 0 0 0 $-\frac{19\sqrt{11}i}{264}$ 0 $\frac{7\sqrt{11}}{132}$ $\frac{\sqrt{110}i}{132}$ 0 0 0 0 $\frac{\sqrt{165}i}{264}$
	0	0 0 0 0 $-\frac{19\sqrt{11}i}{264}$ 0 $-\frac{7\sqrt{11}}{132}$ 0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 $\frac{\sqrt{165}i}{264}$ 0
	0	$\frac{19\sqrt{11}}{264}$ 0 $\frac{19\sqrt{11}i}{264}$ 0 0 0 0 0 $\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{264}$ 0 0
	$-\frac{19\sqrt{11}}{264}$	0 $\frac{19\sqrt{11}i}{264}$ 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{264}$ 0 0 0
	0	$\frac{7\sqrt{11}i}{132}$ 0 $-\frac{7\sqrt{11}}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{165}i}{132}$ 0 $\frac{\sqrt{165}}{132}$ $-\frac{\sqrt{110}i}{66}$ 0
	$\frac{7\sqrt{11}i}{132}$	0 $\frac{7\sqrt{11}}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{165}i}{132}$ 0 $-\frac{\sqrt{165}}{132}$ 0 0 $\frac{\sqrt{110}i}{66}$
	0	0 $-\frac{\sqrt{110}i}{132}$ 0 0 $-\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $-\frac{5\sqrt{11}}{264}$
	0	0 0 0 $\frac{\sqrt{110}i}{132}$ $\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $\frac{5\sqrt{11}}{264}$ 0
	$\frac{\sqrt{110}i}{132}$	0 0 0 0 0 $\frac{\sqrt{165}i}{264}$ 0 $-\frac{\sqrt{165}}{132}$ 0 0 0 0 0 $-\frac{5\sqrt{11}i}{264}$
	0	$-\frac{\sqrt{110}i}{132}$ 0 0 $\frac{\sqrt{165}i}{264}$ 0 $\frac{\sqrt{165}}{132}$ 0 0 0 0 0 $-\frac{5\sqrt{11}i}{264}$ 0
	0	$\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{264}$ 0 0 0 0 $-\frac{\sqrt{110}i}{66}$ $-\frac{5\sqrt{11}}{264}$ 0 $\frac{5\sqrt{11}i}{264}$ 0 0
	$-\frac{\sqrt{165}}{264}$	0 $-\frac{\sqrt{165}i}{264}$ 0 0 0 0 0 $-\frac{\sqrt{110}i}{66}$ $-\frac{5\sqrt{11}}{264}$ 0 $\frac{5\sqrt{11}i}{264}$ 0 0
875	symmetry	$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1:a)}(A, 5)$	0 0 0 $\frac{\sqrt{11}i}{176}$ 0 0 $-\frac{\sqrt{66}i}{66}$ 0 0 $-\frac{\sqrt{165}}{66}$ 0 $-\frac{5\sqrt{165}i}{528}$ 0 0	
	0 0 $\frac{\sqrt{11}i}{176}$ 0 0 0 0 $\frac{\sqrt{66}i}{66}$ $\frac{\sqrt{165}}{66}$ 0 $-\frac{5\sqrt{165}i}{528}$ 0 0 0	
	0 $-\frac{\sqrt{11}i}{176}$ 0 0 $-\frac{\sqrt{66}i}{176}$ 0 0 0 0 $-\frac{3\sqrt{165}i}{176}$ 0 0 0 $\frac{3\sqrt{110}i}{176}$ 0	
	$-\frac{\sqrt{11}i}{176}$ 0 0 0 0 $\frac{\sqrt{66}i}{176}$ 0 0 $-\frac{3\sqrt{165}i}{176}$ 0 0 0 0 $-\frac{3\sqrt{110}i}{176}$	
	0 0 $\frac{\sqrt{66}i}{176}$ 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 0 $\frac{3\sqrt{110}i}{176}$ 0 0 $\frac{\sqrt{165}}{66}$	
	0 0 0 $-\frac{\sqrt{66}i}{176}$ 0 0 $-\frac{\sqrt{11}i}{44}$ 0 0 0 0 $-\frac{3\sqrt{110}i}{176}$ $-\frac{\sqrt{165}}{66}$ 0	
	$\frac{\sqrt{66}i}{66}$ 0 0 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 0 0 0 0 0 $\frac{\sqrt{165}i}{132}$	
	0 $-\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 0 0 0 0 0 $\frac{\sqrt{165}i}{132}$ 0	
	0 $\frac{\sqrt{165}}{66}$ 0 $\frac{3\sqrt{165}i}{176}$ 0 0 0 0 0 0 $\frac{5\sqrt{11}i}{176}$ 0 0 0	
	$-\frac{\sqrt{165}}{66}$ 0 $\frac{3\sqrt{165}i}{176}$ 0 0 0 0 0 0 $\frac{5\sqrt{11}i}{176}$ 0 0 0	
	0 $\frac{5\sqrt{165}i}{528}$ 0 0 $-\frac{3\sqrt{110}i}{176}$ 0 0 0 0 $-\frac{5\sqrt{11}i}{176}$ 0 0 $\frac{5\sqrt{66}i}{528}$ 0	
	$\frac{5\sqrt{165}i}{528}$ 0 0 0 0 $\frac{3\sqrt{110}i}{176}$ 0 0 $-\frac{5\sqrt{11}i}{176}$ 0 0 0 0 $-\frac{5\sqrt{66}i}{528}$	
	0 0 $-\frac{3\sqrt{110}i}{176}$ 0 0 $-\frac{\sqrt{165}}{66}$ 0 $-\frac{\sqrt{165}i}{132}$ 0 0 $-\frac{5\sqrt{66}i}{528}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{110}i}{176}$ $\frac{\sqrt{165}}{66}$ 0 $-\frac{\sqrt{165}i}{132}$ 0 0 0 0 $\frac{5\sqrt{66}i}{528}$ 0 0	
$\frac{\sqrt{462xz}(x^2 - 3z^2)(3x^2 - z^2)}{16}$		
876	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_6^{(1,-1:a)}(A, 6)$	0	0	0	$-\frac{\sqrt{6}i}{64}$	0	0	$\frac{i}{16}$	0	0	0	0	$\frac{\sqrt{10}i}{64}$	0	0	
	0	0	$-\frac{\sqrt{6}i}{64}$	0	0	0	0	$-\frac{i}{16}$	0	0	$\frac{\sqrt{10}i}{64}$	0	0	0	
	0	$\frac{\sqrt{6}i}{64}$	0	0	$-\frac{3i}{32}$	0	0	0	0	$-\frac{3\sqrt{10}i}{64}$	0	0	$\frac{\sqrt{15}i}{32}$	0	
	$\frac{\sqrt{6}i}{64}$	0	0	0	0	$\frac{3i}{32}$	0	0	$-\frac{3\sqrt{10}i}{64}$	0	0	0	0	$-\frac{\sqrt{15}i}{32}$	
	0	0	$\frac{3i}{32}$	0	0	0	0	$\frac{\sqrt{6}i}{16}$	0	0	$-\frac{\sqrt{15}i}{32}$	0	0	0	
	0	0	0	$-\frac{3i}{32}$	0	0	$\frac{\sqrt{6}i}{16}$	0	0	0	$\frac{\sqrt{15}i}{32}$	0	0	0	
	$-\frac{i}{16}$	0	0	0	0	$-\frac{\sqrt{6}i}{16}$	0	0	$\frac{\sqrt{15}i}{16}$	0	0	0	0	$\frac{\sqrt{10}i}{16}$	
	0	$\frac{i}{16}$	0	0	$-\frac{\sqrt{6}i}{16}$	0	0	0	$-\frac{\sqrt{15}i}{16}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	
	0	0	0	$\frac{3\sqrt{10}i}{64}$	0	0	$-\frac{\sqrt{15}i}{16}$	0	0	0	0	$-\frac{5\sqrt{6}i}{64}$	0	0	
	0	0	$\frac{3\sqrt{10}i}{64}$	0	0	0	0	$\frac{\sqrt{15}i}{16}$	0	0	$-\frac{5\sqrt{6}i}{64}$	0	0	0	
	0	$-\frac{\sqrt{10}i}{64}$	0	0	$\frac{\sqrt{15}i}{32}$	0	0	0	0	$\frac{5\sqrt{6}i}{64}$	0	0	$-\frac{5i}{32}$	0	
	$-\frac{\sqrt{10}i}{64}$	0	0	0	$-\frac{\sqrt{15}i}{32}$	0	0	$\frac{5\sqrt{6}i}{64}$	0	0	0	$\frac{5i}{32}$	0	0	
	0	0	$-\frac{\sqrt{15}i}{32}$	0	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	$\frac{5i}{32}$	0	0	0	
	0	0	0	$\frac{\sqrt{15}i}{32}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	0	$-\frac{5i}{32}$	0	0	

877 symmetry

$$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(A, 7)$	0	0 0 0 $-\frac{\sqrt{330}i}{2112}$ 0 0 $-\frac{7\sqrt{55}i}{528}$ 0 0 $-\frac{\sqrt{22}}{33}$ 0 $-\frac{91\sqrt{22}i}{2112}$ 0 0
	0	0 0 $-\frac{\sqrt{330}i}{2112}$ 0 0 0 0 $\frac{7\sqrt{55}i}{528}$ $\frac{\sqrt{22}}{33}$ 0 $-\frac{91\sqrt{22}i}{2112}$ 0 0 0
	0	$\frac{\sqrt{330}i}{2112}$ 0 0 $-\frac{19\sqrt{55}i}{1056}$ 0 0 0 0 $-\frac{47\sqrt{22}i}{2112}$ 0 $\frac{2\sqrt{22}}{33}$ $-\frac{9\sqrt{33}i}{352}$ 0
	$\frac{\sqrt{330}i}{2112}$	0 0 0 0 0 $\frac{19\sqrt{55}i}{1056}$ 0 0 $-\frac{47\sqrt{22}i}{2112}$ 0 $-\frac{2\sqrt{22}}{33}$ 0 0 $\frac{9\sqrt{33}i}{352}$
	0	0 0 $\frac{19\sqrt{55}i}{1056}$ 0 0 0 0 $\frac{\sqrt{330}i}{528}$ 0 0 $-\frac{7\sqrt{33}i}{352}$ 0 0 $-\frac{\sqrt{22}}{33}$
	0	0 0 0 $-\frac{19\sqrt{55}i}{1056}$ 0 0 $\frac{\sqrt{330}i}{528}$ 0 0 0 0 $\frac{7\sqrt{33}i}{352}$ $\frac{\sqrt{22}}{33}$ 0
	$\frac{7\sqrt{55}i}{528}$	0 0 0 0 0 $-\frac{\sqrt{330}i}{528}$ 0 0 $-\frac{\sqrt{33}i}{176}$ 0 0 0 0 $0$ $-\frac{\sqrt{22}i}{48}$
	0	$-\frac{7\sqrt{55}i}{528}$ 0 0 $-\frac{\sqrt{330}i}{528}$ 0 0 0 0 $\frac{\sqrt{33}i}{176}$ 0 0 $-\frac{\sqrt{22}i}{48}$ 0
	0	$\frac{\sqrt{22}}{33}$ 0 $\frac{47\sqrt{22}i}{2112}$ 0 0 $\frac{\sqrt{33}i}{176}$ 0 0 0 0 $-\frac{5\sqrt{330}i}{2112}$ 0 0
	$-\frac{\sqrt{22}}{33}$	0 $\frac{47\sqrt{22}i}{2112}$ 0 0 0 0 $-\frac{\sqrt{33}i}{176}$ 0 0 $-\frac{5\sqrt{330}i}{2112}$ 0 0 0
	0	$\frac{91\sqrt{22}i}{2112}$ 0 $-\frac{2\sqrt{22}}{33}$ $\frac{7\sqrt{33}i}{352}$ 0 0 0 0 $\frac{5\sqrt{330}i}{2112}$ 0 0 $-\frac{5\sqrt{55}i}{1056}$ 0
	$\frac{91\sqrt{22}i}{2112}$	0 $\frac{2\sqrt{22}}{33}$ 0 0 $-\frac{7\sqrt{33}i}{352}$ 0 0 $\frac{5\sqrt{330}i}{2112}$ 0 0 0 0 $\frac{5\sqrt{55}i}{1056}$
	0	0 0 $\frac{9\sqrt{33}i}{352}$ 0 0 $\frac{\sqrt{22}}{33}$ 0 $\frac{\sqrt{22}i}{48}$ 0 0 $\frac{5\sqrt{55}i}{1056}$ 0 0 0
	0	0 0 0 $-\frac{9\sqrt{33}i}{352}$ $-\frac{\sqrt{22}}{33}$ 0 $\frac{\sqrt{22}i}{48}$ 0 0 0 0 $-\frac{5\sqrt{55}i}{1056}$ 0 0
$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$		

878 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_6^{(1,-1;a)}(B, 1)$	0	0	0	$-\frac{\sqrt{11}}{176}$	$-\frac{\sqrt{66}i}{176}$	0	0	0	0	0	$\frac{3\sqrt{165}}{176}$	$-\frac{3\sqrt{110}i}{176}$	0		
	0	0	$\frac{\sqrt{11}}{176}$	0	0	$\frac{\sqrt{66}i}{176}$	0	0	0	0	$-\frac{3\sqrt{165}}{176}$	0	0	$\frac{3\sqrt{110}i}{176}$	
	0	$\frac{\sqrt{11}}{176}$	0	0	0	0	$\frac{\sqrt{66}i}{66}$	0	0	$\frac{5\sqrt{165}}{528}$	0	$\frac{\sqrt{165}i}{66}$	0	0	0
	$-\frac{\sqrt{11}}{176}$	0	0	0	0	0	0	$-\frac{\sqrt{66}i}{66}$	$-\frac{5\sqrt{165}}{528}$	0	$\frac{\sqrt{165}i}{66}$	0	0	0	0
	$\frac{\sqrt{66}i}{176}$	0	0	0	0	0	0	$\frac{\sqrt{11}}{44}$	$-\frac{3\sqrt{110}i}{176}$	0	0	0	0	$-\frac{\sqrt{165}i}{66}$	
	0	$-\frac{\sqrt{66}i}{176}$	0	0	0	0	$-\frac{\sqrt{11}}{44}$	0	0	$\frac{3\sqrt{110}i}{176}$	0	0	$-\frac{\sqrt{165}i}{66}$	0	
	0	0	$-\frac{\sqrt{66}i}{66}$	0	0	$-\frac{\sqrt{11}}{44}$	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{132}$	
	0	0	0	$\frac{\sqrt{66}i}{66}$	$\frac{\sqrt{11}}{44}$	0	0	0	0	0	0	$-\frac{\sqrt{165}}{132}$	0		
	0	0	0	$-\frac{5\sqrt{165}}{528}$	$\frac{3\sqrt{110}i}{176}$	0	0	0	0	0	$-\frac{5\sqrt{11}}{176}$	$\frac{5\sqrt{66}i}{528}$	0		
	0	0	$\frac{5\sqrt{165}}{528}$	0	0	$-\frac{3\sqrt{110}i}{176}$	0	0	0	0	$\frac{5\sqrt{11}}{176}$	0	0	$-\frac{5\sqrt{66}i}{528}$	
	0	$-\frac{3\sqrt{165}}{176}$	0	$-\frac{\sqrt{165}i}{66}$	0	0	0	0	0	$\frac{5\sqrt{11}}{176}$	0	0	0	0	
	$\frac{3\sqrt{165}}{176}$	0	$-\frac{\sqrt{165}i}{66}$	0	0	0	0	0	$-\frac{5\sqrt{11}}{176}$	0	0	0	0	0	
	$\frac{3\sqrt{110}i}{176}$	0	0	0	0	$\frac{\sqrt{165}i}{66}$	0	$-\frac{\sqrt{165}}{132}$	$-\frac{5\sqrt{66}i}{528}$	0	0	0	0	0	
	0	$-\frac{3\sqrt{110}i}{176}$	0	0	$\frac{\sqrt{165}i}{66}$	0	$\frac{\sqrt{165}}{132}$	0	0	$\frac{5\sqrt{66}i}{528}$	0	0	0	0	
879	symmetry	$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$													

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(B, 2)$	0	0 0 0 0 0 $-\frac{\sqrt{66}i}{264}$ 0 $-\frac{\sqrt{66}}{264}$ $\frac{\sqrt{165}i}{66}$ 0 0 0 0 $\frac{\sqrt{110}i}{44}$
	0	0 0 0 0 $-\frac{\sqrt{66}i}{264}$ 0 $\frac{\sqrt{66}}{264}$ 0 0 $-\frac{\sqrt{165}i}{66}$ 0 0 $\frac{\sqrt{110}i}{44}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{66}}{264}$ 0 $\frac{\sqrt{66}i}{264}$ 0 0 $-\frac{\sqrt{165}i}{66}$ 0 0 $-\frac{\sqrt{110}i}{44}$
	0	0 0 0 0 $\frac{\sqrt{66}}{264}$ 0 $\frac{\sqrt{66}i}{264}$ 0 0 0 0 $\frac{\sqrt{165}i}{66}$ $\frac{\sqrt{110}}{44}$ 0
	0	$\frac{\sqrt{66}i}{264}$ 0 $\frac{\sqrt{66}}{264}$ 0 0 0 0 0 $\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0
	$\frac{\sqrt{66}i}{264}$	0 $-\frac{\sqrt{66}}{264}$ 0 0 0 0 0 $\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 0
	0	$\frac{\sqrt{66}}{264}$ 0 $-\frac{\sqrt{66}i}{264}$ 0 0 0 0 0 $-\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ 0 0
	$-\frac{\sqrt{66}}{264}$	0 $-\frac{\sqrt{66}i}{264}$ 0 0 0 0 0 $\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ 0 0 0
	$-\frac{\sqrt{165}i}{66}$	0 0 0 0 0 $-\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 0 0 0
	0	$\frac{\sqrt{165}i}{66}$ 0 0 $-\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{165}i}{66}$ 0 0 $\frac{\sqrt{110}}{88}$ 0 $\frac{\sqrt{110}i}{88}$ 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{165}i}{66}$ $-\frac{\sqrt{110}}{88}$ 0 $\frac{\sqrt{110}i}{88}$ 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{110}i}{44}$ 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{110}i}{44}$	0 $-\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0

880 symmetry

$$\frac{\sqrt{462}yz(y^2-3z^2)(3y^2-z^2)}{16}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(B,3)$	0	0 0 0 $-\frac{\sqrt{6}}{64}$ $\frac{3i}{32}$ 0 0 0 0 0 0 $-\frac{3\sqrt{10}}{64}$ $\frac{\sqrt{15}i}{32}$ 0
	0	0 0 $\frac{\sqrt{6}}{64}$ 0 0 $-\frac{3i}{32}$ 0 0 0 0 $\frac{3\sqrt{10}}{64}$ 0 0 $-\frac{\sqrt{15}i}{32}$
	0	$\frac{\sqrt{6}}{64}$ 0 0 0 0 0 $\frac{i}{16}$ 0 0 $\frac{\sqrt{10}}{64}$ 0 0 0 0
	$-\frac{\sqrt{6}}{64}$	0 0 0 0 0 0 0 $-\frac{i}{16}$ $-\frac{\sqrt{10}}{64}$ 0 0 0 0 0
	$-\frac{3i}{32}$	0 0 0 0 0 0 0 $\frac{\sqrt{6}}{16}$ $-\frac{\sqrt{15}i}{32}$ 0 0 0 0 0
	0	$\frac{3i}{32}$ 0 0 0 0 0 $-\frac{\sqrt{6}}{16}$ 0 0 $\frac{\sqrt{15}i}{32}$ 0 0 0 0
	0	0 0 $-\frac{i}{16}$ 0 0 $-\frac{\sqrt{6}}{16}$ 0 0 0 0 $-\frac{\sqrt{15}i}{16}$ 0 0 $-\frac{\sqrt{10}}{16}$
	0	0 0 0 $\frac{i}{16}$ $\frac{\sqrt{6}}{16}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{16}$ $\frac{\sqrt{10}}{16}$ 0
	0	0 0 0 $-\frac{\sqrt{10}}{64}$ $\frac{\sqrt{15}i}{32}$ 0 0 0 0 0 0 $-\frac{5\sqrt{6}}{64}$ $\frac{5i}{32}$ 0
	0	0 $\frac{\sqrt{10}}{64}$ 0 0 0 $-\frac{\sqrt{15}i}{32}$ 0 0 0 0 0 $\frac{5\sqrt{6}}{64}$ 0 0 $-\frac{5i}{32}$
	0	$\frac{3\sqrt{10}}{64}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{16}$ 0 0 $\frac{5\sqrt{6}}{64}$ 0 0 0 0
	$-\frac{3\sqrt{10}}{64}$	0 0 0 0 0 0 $-\frac{\sqrt{15}i}{16}$ $-\frac{5\sqrt{6}}{64}$ 0 0 0 0 0
	$-\frac{\sqrt{15}i}{32}$	0 0 0 0 0 0 $\frac{\sqrt{10}}{16}$ $-\frac{5i}{32}$ 0 0 0 0 0
	0	$\frac{\sqrt{15}i}{32}$ 0 0 0 0 $-\frac{\sqrt{10}}{16}$ 0 0 $\frac{5i}{32}$ 0 0 0 0
$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$		
881	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(B, 4)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{4} & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
882	symmetry	$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$

*continued ...*

Table 10

No.	multipole	matrix															
$\mathbb{Q}_6^{(1,-1;a)}(B, 5)$	0	0	0	$-\frac{\sqrt{330}}{2112}$	$\frac{19\sqrt{55}i}{1056}$	0	0	0	$\frac{2\sqrt{22}i}{33}$	0	$-\frac{47\sqrt{22}}{2112}$	$-\frac{9\sqrt{33}i}{352}$	0				
	0	0	$\frac{\sqrt{330}}{2112}$	0	0	$-\frac{19\sqrt{55}i}{1056}$	0	0	$\frac{2\sqrt{22}i}{33}$	0	$\frac{47\sqrt{22}}{2112}$	0	0	$\frac{9\sqrt{33}i}{352}$			
	0	$\frac{\sqrt{330}}{2112}$	0	0	0	0	$-\frac{7\sqrt{55}i}{528}$	0	0	$-\frac{91\sqrt{22}}{2112}$	0	$-\frac{\sqrt{22}i}{33}$	0	0	0		
	$-\frac{\sqrt{330}}{2112}$	0	0	0	0	0	0	$\frac{7\sqrt{55}i}{528}$	$\frac{91\sqrt{22}}{2112}$	0	$-\frac{\sqrt{22}i}{33}$	0	0	0			
	$-\frac{19\sqrt{55}i}{1056}$	0	0	0	0	0	0	$\frac{\sqrt{330}}{528}$	$-\frac{7\sqrt{33}i}{352}$	0	0	0	0	$-\frac{\sqrt{22}i}{33}$			
	0	$\frac{19\sqrt{55}i}{1056}$	0	0	0	0	$-\frac{\sqrt{330}}{528}$	0	0	$\frac{7\sqrt{33}i}{352}$	0	0	$-\frac{\sqrt{22}i}{33}$	0			
	0	0	$\frac{7\sqrt{55}i}{528}$	0	0	$-\frac{\sqrt{330}}{528}$	0	0	0	0	$\frac{\sqrt{33}i}{176}$	0	0	$\frac{\sqrt{22}}{48}$			
	0	0	0	$-\frac{7\sqrt{55}i}{528}$	$\frac{\sqrt{330}}{528}$	0	0	0	0	0	$-\frac{\sqrt{33}i}{176}$	$-\frac{\sqrt{22}}{48}$	0				
	0	$-\frac{2\sqrt{22}i}{33}$	0	$\frac{91\sqrt{22}}{2112}$	$\frac{7\sqrt{33}i}{352}$	0	0	0	0	0	0	$-\frac{5\sqrt{330}}{2112}$	$\frac{5\sqrt{55}i}{1056}$	0			
	$-\frac{2\sqrt{22}i}{33}$	0	$-\frac{91\sqrt{22}}{2112}$	0	0	$-\frac{7\sqrt{33}i}{352}$	0	0	0	0	$\frac{5\sqrt{330}}{2112}$	0	0	$-\frac{5\sqrt{55}i}{1056}$			
	0	$\frac{47\sqrt{22}}{2112}$	0	$\frac{\sqrt{22}i}{33}$	0	0	$-\frac{\sqrt{33}i}{176}$	0	0	$\frac{5\sqrt{330}}{2112}$	0	0	0	0			
	$-\frac{47\sqrt{22}}{2112}$	0	$\frac{\sqrt{22}i}{33}$	0	0	0	0	$\frac{\sqrt{33}i}{176}$	$-\frac{5\sqrt{330}}{2112}$	0	0	0	0	0			
	$\frac{9\sqrt{33}i}{352}$	0	0	0	0	$\frac{\sqrt{22}i}{33}$	0	$-\frac{\sqrt{22}}{48}$	$-\frac{5\sqrt{55}i}{1056}$	0	0	0	0	0			
	0	$-\frac{9\sqrt{33}i}{352}$	0	0	$\frac{\sqrt{22}i}{33}$	0	$\frac{\sqrt{22}}{48}$	0	0	$\frac{5\sqrt{55}i}{1056}$	0	0	0	0			

$$\frac{\sqrt{210}xy(x^4+2x^2y^2-16x^2z^2+y^4-16y^2z^2+16z^4)}{16}$$

883 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(B, 6)$	0	0 0 0 0 0 $\frac{\sqrt{55}i}{132}$ 0 $\frac{\sqrt{55}}{132}$ $-\frac{\sqrt{22}i}{33}$ 0 0 0 0 $-\frac{\sqrt{33}i}{66}$
	0	0 0 0 0 $\frac{\sqrt{55}i}{132}$ 0 $-\frac{\sqrt{55}}{132}$ 0 0 $\frac{\sqrt{22}i}{33}$ 0 0 $-\frac{\sqrt{33}i}{66}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{55}}{132}$ 0 $\frac{\sqrt{55}i}{132}$ 0 0 $-\frac{\sqrt{22}i}{33}$ 0 0 $-\frac{\sqrt{33}}{66}$
	0	0 0 0 0 $\frac{\sqrt{55}}{132}$ 0 $\frac{\sqrt{55}i}{132}$ 0 0 0 0 $\frac{\sqrt{22}i}{33}$ $\frac{\sqrt{33}}{66}$ 0
	0	$-\frac{\sqrt{55}i}{132}$ 0 $\frac{\sqrt{55}}{132}$ 0 0 0 0 0 $-\frac{\sqrt{33}i}{33}$ 0 $-\frac{\sqrt{33}}{33}$ $\frac{2\sqrt{22}i}{33}$ 0
	$-\frac{\sqrt{55}i}{132}$	0 $-\frac{\sqrt{55}}{132}$ 0 0 0 0 0 $-\frac{\sqrt{33}i}{33}$ 0 $\frac{\sqrt{33}}{33}$ 0 0 $-\frac{2\sqrt{22}i}{33}$
	0	$-\frac{\sqrt{55}}{132}$ 0 $-\frac{\sqrt{55}i}{132}$ 0 0 0 0 0 $\frac{\sqrt{33}}{66}$ 0 $-\frac{\sqrt{33}i}{66}$ 0 0 0
	$\frac{\sqrt{55}}{132}$	0 $-\frac{\sqrt{55}i}{132}$ 0 0 0 0 0 $-\frac{\sqrt{33}}{66}$ 0 $-\frac{\sqrt{33}i}{66}$ 0 0 0
	$\frac{\sqrt{22}i}{33}$	0 0 0 0 0 $\frac{\sqrt{33}i}{33}$ 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0 0 $\frac{\sqrt{55}i}{66}$
	0	$-\frac{\sqrt{22}i}{33}$ 0 0 0 $\frac{\sqrt{33}i}{33}$ 0 $\frac{\sqrt{33}}{66}$ 0 0 0 0 0 $\frac{\sqrt{55}i}{66}$
	0	0 $\frac{\sqrt{22}i}{33}$ 0 0 0 $\frac{\sqrt{33}}{33}$ 0 $\frac{\sqrt{33}i}{66}$ 0 0 0 0 0 $-\frac{\sqrt{55}}{66}$
	0	0 0 0 $-\frac{\sqrt{22}i}{33}$ $-\frac{\sqrt{33}}{33}$ 0 $\frac{\sqrt{33}i}{66}$ 0 0 0 0 0 $\frac{\sqrt{55}}{66}$ 0
	0	$\frac{\sqrt{33}i}{66}$ 0 $\frac{\sqrt{33}}{66}$ $-\frac{2\sqrt{22}i}{33}$ 0 0 0 0 $-\frac{\sqrt{55}i}{66}$ 0 $\frac{\sqrt{55}}{66}$ 0 0
	$\frac{\sqrt{33}i}{66}$	0 $-\frac{\sqrt{33}}{66}$ 0 0 0 $\frac{2\sqrt{22}i}{33}$ 0 0 $-\frac{\sqrt{55}i}{66}$ 0 $-\frac{\sqrt{55}}{66}$ 0 0 0

884 symmetry

1

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_0^{(1,1;a)}(A)$	0	0	$-\frac{\sqrt{42}i}{28}$	0	0	$\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	0	0	0	0	0
	0	0	0	$\frac{\sqrt{42}i}{28}$	$-\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	0	0	0	0	0	0
	$\frac{\sqrt{42}i}{28}$	0	0	0	0	$-\frac{\sqrt{7}i}{28}$	0	$\frac{\sqrt{7}}{28}$	0	0	0	0	0	0	0
	0	$-\frac{\sqrt{42}i}{28}$	0	0	$-\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	0	0	0	0	0	0
	0	$-\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	$-\frac{\sqrt{42}i}{42}$	0	0	$\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	0	0	0
	$\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	0	0	$\frac{\sqrt{42}i}{42}$	$-\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	0	0	0	0
	0	$-\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	$\frac{\sqrt{42}i}{42}$	0	0	0	0	$-\frac{\sqrt{105}i}{84}$	0	$\frac{\sqrt{105}}{84}$	0	0	0
	$-\frac{\sqrt{7}i}{28}$	0	$\frac{\sqrt{7}}{28}$	0	0	$-\frac{\sqrt{42}i}{42}$	0	0	$-\frac{\sqrt{105}i}{84}$	0	$-\frac{\sqrt{105}}{84}$	0	0	0	0
	0	0	0	0	0	$-\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	0	0	$-\frac{\sqrt{42}i}{84}$	0	0	$\frac{\sqrt{7}}{14}$	
	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	0	0	0	$\frac{\sqrt{42}i}{84}$	$-\frac{\sqrt{7}}{14}$	0		
	0	0	0	0	0	$-\frac{\sqrt{105}i}{84}$	0	$-\frac{\sqrt{105}}{84}$	$\frac{\sqrt{42}i}{84}$	0	0	0	0	$-\frac{\sqrt{7}i}{14}$	
	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{42}i}{14}$	0	$\frac{\sqrt{7}i}{14}$	0	0	0
	0	0	0	0	0	0	0	$\frac{\sqrt{7}}{14}$	0	$\frac{\sqrt{7}i}{14}$	0	0	0	0	0
885	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$													

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,1;a)}(A, 1)$	0	0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{42}}{42}$ 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{7}i}{14}$	0 0 0 0 0 $\frac{\sqrt{42}i}{42}$ 0 $-\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0
	0	$\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}i}{42}$ 0 $\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0 0
	0	$\frac{\sqrt{42}}{42}$ 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{42}}{42}$	0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0
	0	$\frac{\sqrt{42}i}{42}$ 0 $\frac{\sqrt{42}}{42}$ $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 0 0 0
	$\frac{\sqrt{42}i}{42}$	0 $-\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}}{42}$
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{42}}{42}$ 0
	0	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}}{42}$ 0 $\frac{\sqrt{42}i}{42}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}}{42}$ 0 $\frac{\sqrt{42}i}{42}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

886 symmetry

 $\frac{\sqrt{3}(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,1;a)}(A, 2)$	0 0 0 0 0 $-\frac{\sqrt{14}}{84}$ 0 $\frac{\sqrt{14}i}{84}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{210}}{84}$	
	0 0 0 0 $\frac{\sqrt{14}}{84}$ 0 $\frac{\sqrt{14}i}{84}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{210}}{84}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{14}i}{84}$ 0 $-\frac{\sqrt{14}}{84}$ $-\frac{\sqrt{35}i}{42}$ 0 0 0 0 $\frac{\sqrt{210}i}{84}$	
	0 0 0 0 $-\frac{\sqrt{14}i}{84}$ 0 $\frac{\sqrt{14}}{84}$ 0 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{210}i}{84}$ 0	
	0 $\frac{\sqrt{14}}{84}$ 0 $\frac{\sqrt{14}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{210}}{84}$ 0 $-\frac{\sqrt{210}i}{84}$ 0 0	
	$-\frac{\sqrt{14}}{84}$ 0 $\frac{\sqrt{14}i}{84}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 $-\frac{\sqrt{210}i}{84}$ 0 0 0	
	0 $-\frac{\sqrt{14}i}{84}$ 0 $\frac{\sqrt{14}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{84}$ 0 $-\frac{\sqrt{210}}{84}$ $-\frac{\sqrt{35}i}{42}$ 0	
	$-\frac{\sqrt{14}i}{84}$ 0 $-\frac{\sqrt{14}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{84}$ 0 $\frac{\sqrt{210}}{84}$ 0 0 $\frac{\sqrt{35}i}{42}$	
	0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{210}}{84}$ 0 $\frac{\sqrt{210}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{14}}{84}$	
	0 0 0 $-\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{210}}{84}$ 0 $\frac{\sqrt{210}i}{84}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{84}$ 0	
	$-\frac{\sqrt{35}i}{42}$ 0 0 0 0 $\frac{\sqrt{210}i}{84}$ 0 $\frac{\sqrt{210}}{84}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{84}$	
	0 $\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{210}i}{84}$ 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{84}$ 0	
	0 $\frac{\sqrt{210}}{84}$ 0 $-\frac{\sqrt{210}i}{84}$ 0 0 0 $-\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{14}}{84}$ 0 $-\frac{\sqrt{14}i}{84}$ 0 0 0	
	$-\frac{\sqrt{210}}{84}$ 0 $-\frac{\sqrt{210}i}{84}$ 0 0 0 0 $-\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{14}}{84}$ 0 $-\frac{\sqrt{14}i}{84}$ 0 0 0	

887 symmetry

 $\sqrt{3}xz$ 

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_2^{(1,1;a)}(A, 3)$	0	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	$\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0
	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	0	0	$\frac{\sqrt{14}i}{21}$	$-\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0	0
	0	$\frac{\sqrt{21}i}{42}$	0	0	$\frac{\sqrt{14}i}{21}$	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	0
	$\frac{\sqrt{21}i}{42}$	0	0	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	0	0	0	0
	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	0	0	$\frac{\sqrt{21}i}{42}$	0	0	0	0	0	$\frac{\sqrt{35}}{42}$	0
	0	0	0	$\frac{\sqrt{14}i}{21}$	0	0	$\frac{\sqrt{21}i}{42}$	0	0	0	0	0	$-\frac{\sqrt{35}}{42}$	0	0
	$\frac{\sqrt{14}i}{21}$	0	0	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	0	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	0
	0	$-\frac{\sqrt{14}i}{21}$	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	0
	0	$-\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0	0	0	0	$\frac{\sqrt{21}i}{42}$	0	0	0	0
	$\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0	0	0	0	$\frac{\sqrt{21}i}{42}$	0	0	0	0	0
	0	$-\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	0	0	0	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	$-\frac{\sqrt{14}i}{21}$	0	0
	$-\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	0	0	$\frac{\sqrt{14}i}{21}$	0	0
	0	0	0	0	0	$-\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{14}i}{21}$	0	0	0	0
	0	0	0	0	$\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	0

888 symmetry

 $\sqrt{3}yz$ 

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_2^{(1,1;a)}(B, 1)$	0	0	0	$-\frac{\sqrt{21}}{42}$	$-\frac{\sqrt{14}i}{21}$	0	0	0	$\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	0	0	0	0
	0	0	$\frac{\sqrt{21}}{42}$	0	0	$\frac{\sqrt{14}i}{21}$	0	0	$\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	0	0
	0	$\frac{\sqrt{21}}{42}$	0	0	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	$\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0
	$-\frac{\sqrt{21}}{42}$	0	0	0	0	0	0	$\frac{\sqrt{14}i}{21}$	$-\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0	0
	$\frac{\sqrt{14}i}{21}$	0	0	0	0	0	0	$\frac{\sqrt{21}}{42}$	0	0	0	0	0	$\frac{\sqrt{35}i}{42}$	0
	0	$-\frac{\sqrt{14}i}{21}$	0	0	0	0	$-\frac{\sqrt{21}}{42}$	0	0	0	0	0	$\frac{\sqrt{35}i}{42}$	0	0
	0	0	$\frac{\sqrt{14}i}{21}$	0	0	$-\frac{\sqrt{21}}{42}$	0	0	0	0	0	0	0	0	$\frac{\sqrt{35}}{42}$
	0	0	0	$-\frac{\sqrt{14}i}{21}$	$\frac{\sqrt{21}}{42}$	0	0	0	0	0	0	$-\frac{\sqrt{35}}{42}$	0	0	0
	0	$-\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	0	0	0	0	0	0	$\frac{\sqrt{21}}{42}$	$\frac{\sqrt{14}i}{21}$	0	0	0
	$-\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	0	0	0	0	0	$-\frac{\sqrt{21}}{42}$	0	0	$-\frac{\sqrt{14}i}{21}$	0
	0	$\frac{\sqrt{35}}{42}$	0	$-\frac{\sqrt{35}i}{42}$	0	0	0	0	0	$-\frac{\sqrt{21}}{42}$	0	0	0	0	0
	$-\frac{\sqrt{35}}{42}$	0	$-\frac{\sqrt{35}i}{42}$	0	0	0	0	0	$\frac{\sqrt{21}}{42}$	0	0	0	0	0	0
	0	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	$-\frac{\sqrt{14}i}{21}$	0	0	0	0	0	0
	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	$\frac{\sqrt{14}i}{21}$	0	0	0	0	0

889 symmetry

 $\sqrt{3}xy$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,1;a)}(B, 2)$	0 0 0 0 0 $\frac{\sqrt{14}i}{84}$ 0 $\frac{\sqrt{14}}{84}$ $\frac{\sqrt{35}i}{42}$ 0 0 0 0 $-\frac{\sqrt{210}i}{84}$	
	0 0 0 0 0 $\frac{\sqrt{14}i}{84}$ 0 $-\frac{\sqrt{14}}{84}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{210}i}{84}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{14}}{84}$ 0 $\frac{\sqrt{14}i}{84}$ 0 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{210}}{84}$	
	0 0 0 0 0 $\frac{\sqrt{14}}{84}$ 0 $\frac{\sqrt{14}i}{84}$ 0 0 0 0 $-\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{210}}{84}$ 0	
	0 $-\frac{\sqrt{14}i}{84}$ 0 $\frac{\sqrt{14}}{84}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{84}$ 0 $\frac{\sqrt{210}}{84}$ $\frac{\sqrt{35}i}{42}$ 0	
	$-\frac{\sqrt{14}i}{84}$ 0 $-\frac{\sqrt{14}}{84}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{84}$ 0 $-\frac{\sqrt{210}}{84}$ 0 0 $-\frac{\sqrt{35}i}{42}$	
	0 $-\frac{\sqrt{14}}{84}$ 0 $-\frac{\sqrt{14}i}{84}$ 0 0 0 0 0 0 $\frac{\sqrt{210}}{84}$ 0 $-\frac{\sqrt{210}i}{84}$ 0 0	
	$\frac{\sqrt{14}}{84}$ 0 $-\frac{\sqrt{14}i}{84}$ 0 0 0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 $-\frac{\sqrt{210}i}{84}$ 0 0 0	
	$-\frac{\sqrt{35}i}{42}$ 0 0 0 0 $-\frac{\sqrt{210}i}{84}$ 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{84}$	
	0 $\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{210}i}{84}$ 0 $\frac{\sqrt{210}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{84}$ 0	
	0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{210}}{84}$ 0 $\frac{\sqrt{210}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{14}}{84}$	
	0 0 0 $\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{210}}{84}$ 0 $\frac{\sqrt{210}i}{84}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{84}$ 0	
	0 $\frac{\sqrt{210}i}{84}$ 0 $\frac{\sqrt{210}}{84}$ $-\frac{\sqrt{35}i}{42}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{84}$ 0 $-\frac{\sqrt{14}}{84}$ 0 0	
	$\frac{\sqrt{210}i}{84}$ 0 $-\frac{\sqrt{210}}{84}$ 0 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 0 $\frac{\sqrt{14}i}{84}$ 0 $\frac{\sqrt{14}}{84}$ 0 0 0	

890 symmetry

$$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,1;a)}(A, 1)$	0	0	$-\frac{\sqrt{110}i}{264}$	0	0	$\frac{\sqrt{165}}{66}$	0	$-\frac{\sqrt{165}i}{132}$	0	0	$-\frac{\sqrt{66}i}{88}$	0	0	$\frac{\sqrt{11}}{132}$	
	0	0	0	$\frac{\sqrt{110}i}{264}$	$-\frac{\sqrt{165}}{66}$	0	$-\frac{\sqrt{165}i}{132}$	0	0	0	$\frac{\sqrt{66}i}{88}$	$-\frac{\sqrt{11}}{132}$	0		
	$\frac{\sqrt{110}i}{264}$	0	0	0	0	$-\frac{\sqrt{165}i}{66}$	0	$-\frac{\sqrt{165}}{132}$	$-\frac{\sqrt{66}i}{88}$	0	0	0	0	$\frac{\sqrt{11}i}{132}$	
	0	$-\frac{\sqrt{110}i}{264}$	0	0	$-\frac{\sqrt{165}i}{66}$	0	$\frac{\sqrt{165}}{132}$	0	0	$\frac{\sqrt{66}i}{88}$	0	0	$\frac{\sqrt{11}i}{132}$	0	
	0	$-\frac{\sqrt{165}}{66}$	0	$\frac{\sqrt{165}i}{66}$	0	0	$\frac{\sqrt{110}i}{66}$	0	0	$-\frac{\sqrt{11}}{33}$	0	$-\frac{\sqrt{11}i}{33}$	0	0	
	$\frac{\sqrt{165}}{66}$	0	$\frac{\sqrt{165}i}{66}$	0	0	0	0	$-\frac{\sqrt{110}i}{66}$	$\frac{\sqrt{11}}{33}$	0	$-\frac{\sqrt{11}i}{33}$	0	0	0	
	0	$\frac{\sqrt{165}i}{132}$	0	$\frac{\sqrt{165}}{132}$	$-\frac{\sqrt{110}i}{66}$	0	0	0	0	$\frac{5\sqrt{11}i}{132}$	0	$-\frac{5\sqrt{11}}{132}$	0	0	
	$\frac{\sqrt{165}i}{132}$	0	$-\frac{\sqrt{165}}{132}$	0	0	$\frac{\sqrt{110}i}{66}$	0	0	$\frac{5\sqrt{11}i}{132}$	0	$\frac{5\sqrt{11}}{132}$	0	0	0	
	0	0	$\frac{\sqrt{66}i}{88}$	0	0	$\frac{\sqrt{11}}{33}$	0	$-\frac{5\sqrt{11}i}{132}$	0	0	$-\frac{5\sqrt{110}i}{264}$	0	0	$\frac{\sqrt{165}}{132}$	
	0	0	0	$-\frac{\sqrt{66}i}{88}$	$-\frac{\sqrt{11}}{33}$	0	$-\frac{5\sqrt{11}i}{132}$	0	0	0	$\frac{5\sqrt{110}i}{264}$	$-\frac{\sqrt{165}}{132}$	0		
	$\frac{\sqrt{66}i}{88}$	0	0	0	0	$\frac{\sqrt{11}i}{33}$	0	$\frac{5\sqrt{11}}{132}$	$\frac{5\sqrt{110}i}{264}$	0	0	0	0	$-\frac{\sqrt{165}i}{132}$	
	0	$-\frac{\sqrt{66}i}{88}$	0	0	$\frac{\sqrt{11}i}{33}$	0	$-\frac{5\sqrt{11}}{132}$	0	0	$-\frac{5\sqrt{110}i}{264}$	0	0	$-\frac{\sqrt{165}i}{132}$	0	
	0	$-\frac{\sqrt{11}}{132}$	0	$-\frac{\sqrt{11}i}{132}$	0	0	0	0	$-\frac{\sqrt{165}}{132}$	0	$\frac{\sqrt{165}i}{132}$	0	0	0	
	$\frac{\sqrt{11}}{132}$	0	$-\frac{\sqrt{11}i}{132}$	0	0	0	0	0	$\frac{\sqrt{165}}{132}$	0	$\frac{\sqrt{165}i}{132}$	0	0	0	

$$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$$

891 symmetry

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{Q}_4^{(1,1;a)}(A, 2)$	0	0	$-\frac{5\sqrt{154}i}{1848}$	0	0	$-\frac{2\sqrt{231}}{231}$	0	$\frac{13\sqrt{231}i}{924}$	0	0	$\frac{\sqrt{2310}i}{440}$	0	0	$-\frac{\sqrt{385}}{660}$		
	0	0	0	$\frac{5\sqrt{154}i}{1848}$	$\frac{2\sqrt{231}}{231}$	0	$\frac{13\sqrt{231}i}{924}$	0	0	0	$-\frac{\sqrt{2310}i}{440}$	$\frac{\sqrt{385}}{660}$	0	0		
	$\frac{5\sqrt{154}i}{1848}$	0	0	0	0	$\frac{2\sqrt{231}i}{231}$	0	$\frac{13\sqrt{231}i}{924}$	$\frac{\sqrt{2310}i}{440}$	0	0	0	0	$-\frac{\sqrt{385}i}{660}$		
	0	$-\frac{5\sqrt{154}i}{1848}$	0	0	$\frac{2\sqrt{231}i}{231}$	0	$-\frac{13\sqrt{231}}{924}$	0	0	$-\frac{\sqrt{2310}i}{440}$	0	0	$-\frac{\sqrt{385}i}{660}$	0		
	0	$\frac{2\sqrt{231}}{231}$	0	$-\frac{2\sqrt{231}i}{231}$	0	0	$\frac{5\sqrt{154}i}{462}$	0	0	$-\frac{13\sqrt{385}}{2310}$	0	$-\frac{13\sqrt{385}i}{2310}$	0	0		
	$-\frac{2\sqrt{231}}{231}$	0	$-\frac{2\sqrt{231}i}{231}$	0	0	0	0	$-\frac{5\sqrt{154}i}{462}$	$\frac{13\sqrt{385}}{2310}$	0	$-\frac{13\sqrt{385}i}{2310}$	0	0	0		
	0	$-\frac{13\sqrt{231}i}{924}$	0	$-\frac{13\sqrt{231}}{924}$	$-\frac{5\sqrt{154}i}{462}$	0	0	0	0	$\frac{19\sqrt{385}i}{4620}$	0	$-\frac{19\sqrt{385}}{4620}$	0	0		
	$-\frac{13\sqrt{231}i}{924}$	0	$\frac{13\sqrt{231}}{924}$	0	0	$\frac{5\sqrt{154}i}{462}$	0	0	$\frac{19\sqrt{385}i}{4620}$	0	$\frac{19\sqrt{385}}{4620}$	0	0	0		
	0	0	$-\frac{\sqrt{2310}i}{440}$	0	0	$\frac{13\sqrt{385}}{2310}$	0	$-\frac{19\sqrt{385}i}{4620}$	0	0	$-\frac{25\sqrt{154}i}{1848}$	0	0	$\frac{5\sqrt{231}}{924}$		
	0	0	0	$\frac{\sqrt{2310}i}{440}$	$-\frac{13\sqrt{385}}{2310}$	0	$-\frac{19\sqrt{385}i}{4620}$	0	0	0	$\frac{25\sqrt{154}i}{1848}$	$-\frac{5\sqrt{231}}{924}$	0			
	$-\frac{\sqrt{2310}i}{440}$	0	0	0	0	$\frac{13\sqrt{385}i}{2310}$	0	$\frac{19\sqrt{385}}{4620}$	$\frac{25\sqrt{154}i}{1848}$	0	0	0	0	$-\frac{5\sqrt{231}i}{924}$		
	0	$\frac{\sqrt{2310}i}{440}$	0	0	$\frac{13\sqrt{385}i}{2310}$	0	$-\frac{19\sqrt{385}}{4620}$	0	0	$-\frac{25\sqrt{154}i}{1848}$	0	0	$-\frac{5\sqrt{231}i}{924}$	0		
	0	$\frac{\sqrt{385}}{660}$	0	$\frac{\sqrt{385}i}{660}$	0	0	0	0	$-\frac{5\sqrt{231}}{924}$	0	$\frac{5\sqrt{231}i}{924}$	0	0	0		
	$-\frac{\sqrt{385}}{660}$	0	$\frac{\sqrt{385}i}{660}$	0	0	0	0	0	$\frac{5\sqrt{231}}{924}$	0	$\frac{5\sqrt{231}i}{924}$	0	0	0		

892 symmetry

$$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$$

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{Q}_4^{(1,1;a)}(A, 3)$	0 0 0 0 0 $-\frac{\sqrt{77}}{308}$ 0 $\frac{\sqrt{77}i}{308}$ 0 0 $\frac{\sqrt{770}i}{220}$ 0 0 $-\frac{\sqrt{1155}}{165}$															
	0 0 0 0 $\frac{\sqrt{77}}{308}$ 0 $\frac{\sqrt{77}i}{308}$ 0 0 0 0 $-\frac{\sqrt{770}i}{220}$ $\frac{\sqrt{1155}}{165}$ 0															
	0 0 0 0 0 $-\frac{\sqrt{77}i}{308}$ 0 $-\frac{\sqrt{77}}{308}$ 0 $-\frac{\sqrt{770}i}{220}$ 0 0 0 $\frac{\sqrt{1155}i}{165}$															
	0 0 0 0 $-\frac{\sqrt{77}i}{308}$ 0 $\frac{\sqrt{77}}{308}$ 0 0 0 $\frac{\sqrt{770}i}{220}$ 0 0 $\frac{\sqrt{1155}i}{165}$ 0															
	0 $\frac{\sqrt{77}}{308}$ 0 $\frac{\sqrt{77}i}{308}$ 0 0 0 0 0 $-\frac{\sqrt{1155}}{924}$ 0 $\frac{\sqrt{1155}i}{924}$ 0 0															
	$-\frac{\sqrt{77}}{308}$ 0 $\frac{\sqrt{77}i}{308}$ 0 0 0 0 0 $\frac{\sqrt{1155}}{924}$ 0 $\frac{\sqrt{1155}i}{924}$ 0 0 0															
	0 $-\frac{\sqrt{77}i}{308}$ 0 $\frac{\sqrt{77}}{308}$ 0 0 0 0 0 $\frac{23\sqrt{1155}i}{4620}$ 0 $\frac{23\sqrt{1155}}{4620}$ $\frac{\sqrt{770}i}{110}$ 0															
	$-\frac{\sqrt{77}i}{308}$ 0 $-\frac{\sqrt{77}}{308}$ 0 0 0 0 0 $\frac{23\sqrt{1155}i}{4620}$ 0 $-\frac{23\sqrt{1155}}{4620}$ 0 0 $-\frac{\sqrt{770}i}{110}$															
	0 0 $\frac{\sqrt{770}i}{220}$ 0 0 $\frac{\sqrt{1155}}{924}$ 0 $-\frac{23\sqrt{1155}i}{4620}$ 0 0 0 0 0 $-\frac{\sqrt{77}}{154}$ 0															
	0 0 0 $-\frac{\sqrt{770}i}{220}$ $-\frac{\sqrt{1155}}{924}$ 0 $-\frac{23\sqrt{1155}i}{4620}$ 0 0 0 0 0 0 $-\frac{\sqrt{77}}{154}$ 0															
	$-\frac{\sqrt{770}i}{220}$ 0 0 0 0 $-\frac{\sqrt{1155}i}{924}$ 0 $-\frac{23\sqrt{1155}i}{4620}$ 0 0 0 0 0 0 $-\frac{\sqrt{77}i}{154}$															
	0 $\frac{\sqrt{770}i}{220}$ 0 0 $-\frac{\sqrt{1155}i}{924}$ 0 $\frac{23\sqrt{1155}}{4620}$ 0 0 0 0 0 0 $-\frac{\sqrt{77}i}{154}$ 0															
	0 $\frac{\sqrt{1155}}{165}$ 0 $-\frac{\sqrt{1155}i}{165}$ 0 0 $-\frac{\sqrt{770}i}{110}$ 0 0 0 $\frac{\sqrt{77}}{154}$ 0 $\frac{\sqrt{77}i}{154}$ 0 0															
	$-\frac{\sqrt{1155}}{165}$ 0 $-\frac{\sqrt{1155}i}{165}$ 0 0 0 0 $\frac{\sqrt{770}i}{110}$ $-\frac{\sqrt{77}}{154}$ 0 $\frac{\sqrt{77}i}{154}$ 0 0 0															
893	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,1;a)}(A, 4)$	0	0 0 0 $\frac{\sqrt{66}i}{264}$ 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{3\sqrt{110}}{220}$ 0 $-\frac{\sqrt{110}i}{440}$ 0 0
	0	0 0 $\frac{\sqrt{66}i}{264}$ 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ $\frac{3\sqrt{110}}{220}$ 0 $-\frac{\sqrt{110}i}{440}$ 0 0 0
	0	$-\frac{\sqrt{66}i}{264}$ 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 0 0 0 $\frac{7\sqrt{110}i}{440}$ 0 0 $\frac{\sqrt{165}i}{165}$ 0
	$-\frac{\sqrt{66}i}{264}$	0 0 0 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 $\frac{7\sqrt{110}i}{440}$ 0 0 0 0 $-\frac{\sqrt{165}i}{165}$
	0	0 0 $\frac{\sqrt{11}i}{44}$ 0 0 0 0 $-\frac{\sqrt{66}i}{66}$ 0 0 $-\frac{7\sqrt{165}i}{660}$ 0 0 $\frac{3\sqrt{110}}{220}$
	0	0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{66}i}{66}$ 0 0 0 0 $\frac{7\sqrt{165}i}{660}$ $-\frac{3\sqrt{110}}{220}$ 0
	$-\frac{\sqrt{11}i}{44}$	0 0 0 0 0 $\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{165}i}{60}$ 0 0 0 0 $-\frac{\sqrt{110}i}{55}$
	0	$\frac{\sqrt{11}i}{44}$ 0 0 $\frac{\sqrt{66}i}{66}$ 0 0 0 0 $-\frac{\sqrt{165}i}{60}$ 0 0 $-\frac{\sqrt{110}i}{55}$ 0
	0	$\frac{3\sqrt{110}}{220}$ 0 $-\frac{7\sqrt{110}i}{440}$ 0 0 $-\frac{\sqrt{165}i}{60}$ 0 0 0 0 $\frac{5\sqrt{66}i}{264}$ 0 0
	$-\frac{3\sqrt{110}}{220}$	0 $-\frac{7\sqrt{110}i}{440}$ 0 0 0 0 $\frac{\sqrt{165}i}{60}$ 0 0 $\frac{5\sqrt{66}i}{264}$ 0 0 0
	0	$\frac{\sqrt{110}i}{440}$ 0 0 $\frac{7\sqrt{165}i}{660}$ 0 0 0 0 $-\frac{5\sqrt{66}i}{264}$ 0 0 $-\frac{\sqrt{11}i}{22}$ 0
	$\frac{\sqrt{110}i}{440}$	0 0 0 0 $-\frac{7\sqrt{165}i}{660}$ 0 0 $-\frac{5\sqrt{66}i}{264}$ 0 0 0 0 $\frac{\sqrt{11}i}{22}$
	0	0 0 $-\frac{\sqrt{165}i}{165}$ 0 0 $-\frac{3\sqrt{110}}{220}$ 0 $\frac{\sqrt{110}i}{55}$ 0 0 $\frac{\sqrt{11}i}{22}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{165}i}{165}$ $\frac{3\sqrt{110}}{220}$ 0 $\frac{\sqrt{110}i}{55}$ 0 0 0 0 $-\frac{\sqrt{11}i}{22}$ 0 0

894 symmetry

$$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,1;a)}(A, 5)$	0	0	0	$-\frac{\sqrt{462}i}{1848}$	0	0	$-\frac{\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{770}}{220}$	0	$\frac{3\sqrt{770}i}{440}$	0	0	
	0	0	$-\frac{\sqrt{462}i}{1848}$	0	0	0	0	$\frac{\sqrt{77}i}{308}$	$\frac{\sqrt{770}}{220}$	0	$\frac{3\sqrt{770}i}{440}$	0	0	0	
	0	$\frac{\sqrt{462}i}{1848}$	0	0	$\frac{\sqrt{77}i}{308}$	0	0	0	0	$\frac{3\sqrt{770}i}{440}$	0	$\frac{\sqrt{770}}{110}$	$\frac{\sqrt{1155}i}{165}$	0	
	$\frac{\sqrt{462}i}{1848}$	0	0	0	0	$-\frac{\sqrt{77}i}{308}$	0	0	$\frac{3\sqrt{770}i}{440}$	0	$-\frac{\sqrt{770}}{110}$	0	0	$-\frac{\sqrt{1155}i}{165}$	
	0	0	$-\frac{\sqrt{77}i}{308}$	0	0	0	0	$\frac{\sqrt{462}i}{462}$	0	0	$\frac{23\sqrt{1155}i}{4620}$	0	0	$-\frac{\sqrt{770}}{220}$	
	0	0	0	$\frac{\sqrt{77}i}{308}$	0	0	$\frac{\sqrt{462}i}{462}$	0	0	0	$-\frac{23\sqrt{1155}i}{4620}$	$\frac{\sqrt{770}}{220}$	0	0	
	$\frac{\sqrt{77}i}{308}$	0	0	0	0	$-\frac{\sqrt{462}i}{462}$	0	0	$\frac{\sqrt{1155}i}{924}$	0	0	0	0	0	
	0	$-\frac{\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{462}i}{462}$	0	0	0	0	$-\frac{\sqrt{1155}i}{924}$	0	0	0	0	
	0	$\frac{\sqrt{770}}{220}$	0	$-\frac{3\sqrt{770}i}{440}$	0	0	$-\frac{\sqrt{1155}i}{924}$	0	0	0	$-\frac{5\sqrt{462}i}{1848}$	0	0	0	
	$-\frac{\sqrt{770}}{220}$	0	$-\frac{3\sqrt{770}i}{440}$	0	0	0	0	$\frac{\sqrt{1155}i}{924}$	0	0	$-\frac{5\sqrt{462}i}{1848}$	0	0	0	
	0	$-\frac{3\sqrt{770}i}{440}$	0	$-\frac{\sqrt{770}}{110}$	$-\frac{23\sqrt{1155}i}{4620}$	0	0	0	0	$\frac{5\sqrt{462}i}{1848}$	0	0	$\frac{\sqrt{77}i}{154}$	0	
	$-\frac{3\sqrt{770}i}{440}$	0	$\frac{\sqrt{770}}{110}$	0	0	$\frac{23\sqrt{1155}i}{4620}$	0	0	$\frac{5\sqrt{462}i}{1848}$	0	0	0	0	$-\frac{\sqrt{77}i}{154}$	
	0	0	$-\frac{\sqrt{1155}i}{165}$	0	0	$\frac{\sqrt{770}}{220}$	0	0	0	0	$-\frac{\sqrt{77}i}{154}$	0	0	0	
	0	0	0	$\frac{\sqrt{1155}i}{165}$	$-\frac{\sqrt{770}}{220}$	0	0	0	0	0	$\frac{\sqrt{77}i}{154}$	0	0	0	

895 symmetry

 $\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,1;a)}(B, 1)$	0	0 0 0 $-\frac{\sqrt{66}}{264}$ $-\frac{\sqrt{11}i}{44}$ 0 0 0 0 0 $-\frac{7\sqrt{110}}{440}$ $-\frac{\sqrt{165}i}{165}$ 0
	0	0 0 $\frac{\sqrt{66}}{264}$ 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 0 0 $\frac{7\sqrt{110}}{440}$ 0 0 $\frac{\sqrt{165}i}{165}$
	0	$\frac{\sqrt{66}}{264}$ 0 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 0 $\frac{\sqrt{110}}{440}$ 0 $\frac{3\sqrt{110}i}{220}$ 0 0
	$-\frac{\sqrt{66}}{264}$	0 0 0 0 0 0 0 $\frac{\sqrt{11}i}{44}$ $-\frac{\sqrt{110}}{440}$ 0 $\frac{3\sqrt{110}i}{220}$ 0 0 0
	$\frac{\sqrt{11}i}{44}$	0 0 0 0 0 0 0 $\frac{\sqrt{66}}{66}$ $\frac{7\sqrt{165}i}{660}$ 0 0 0 0 $-\frac{3\sqrt{110}i}{220}$
	0	$-\frac{\sqrt{11}i}{44}$ 0 0 0 0 0 $-\frac{\sqrt{66}}{66}$ 0 0 $-\frac{7\sqrt{165}i}{660}$ 0 0 $-\frac{3\sqrt{110}i}{220}$ 0
	0	0 0 $\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{66}}{66}$ 0 0 0 0 $\frac{\sqrt{165}i}{60}$ 0 0 $-\frac{\sqrt{110}}{55}$
	0	0 0 0 $-\frac{\sqrt{11}i}{44}$ $\frac{\sqrt{66}}{66}$ 0 0 0 0 0 $-\frac{\sqrt{165}i}{60}$ $\frac{\sqrt{110}}{55}$ 0
	0	0 0 0 $-\frac{\sqrt{110}}{440}$ $-\frac{7\sqrt{165}i}{660}$ 0 0 0 0 0 $-\frac{5\sqrt{66}}{264}$ $-\frac{\sqrt{11}i}{22}$ 0
	0	0 0 $\frac{\sqrt{110}}{440}$ 0 0 $\frac{7\sqrt{165}i}{660}$ 0 0 0 0 $\frac{5\sqrt{66}}{264}$ 0 0 $\frac{\sqrt{11}i}{22}$
	0	$\frac{7\sqrt{110}}{440}$ 0 $-\frac{3\sqrt{110}i}{220}$ 0 0 $-\frac{\sqrt{165}i}{60}$ 0 0 $\frac{5\sqrt{66}}{264}$ 0 0 0 0
	$-\frac{7\sqrt{110}}{440}$	0 $-\frac{3\sqrt{110}i}{220}$ 0 0 0 0 $\frac{\sqrt{165}i}{60}$ $-\frac{5\sqrt{66}}{264}$ 0 0 0 0 0
	$\frac{\sqrt{165}i}{165}$	0 0 0 0 0 $\frac{3\sqrt{110}i}{220}$ 0 $\frac{\sqrt{110}}{55}$ $\frac{\sqrt{11}i}{22}$ 0 0 0 0 0
	0	$-\frac{\sqrt{165}i}{165}$ 0 0 $\frac{3\sqrt{110}i}{220}$ 0 $-\frac{\sqrt{110}}{55}$ 0 0 $-\frac{\sqrt{11}i}{22}$ 0 0 0 0

896 symmetry

 $\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,1;a)}(B, 2)$	0	0	0	0	0	$\frac{3\sqrt{11}i}{44}$	0	$\frac{3\sqrt{11}}{44}$	$\frac{3\sqrt{110}i}{220}$	0	0	0	0	$-\frac{\sqrt{165}i}{330}$	
	0	0	0	0	$\frac{3\sqrt{11}i}{44}$	0	$-\frac{3\sqrt{11}}{44}$	0	0	$-\frac{3\sqrt{110}i}{220}$	0	0	$-\frac{\sqrt{165}i}{330}$	0	
	0	0	0	0	0	$\frac{3\sqrt{11}}{44}$	0	$-\frac{3\sqrt{11}i}{44}$	0	0	$-\frac{3\sqrt{110}i}{220}$	0	0	$\frac{\sqrt{165}}{330}$	
	0	0	0	0	$-\frac{3\sqrt{11}}{44}$	0	$-\frac{3\sqrt{11}i}{44}$	0	0	0	0	$\frac{3\sqrt{110}i}{220}$	$-\frac{\sqrt{165}}{330}$	0	
	0	$-\frac{3\sqrt{11}i}{44}$	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	$-\frac{\sqrt{165}i}{660}$	0	$\frac{\sqrt{165}}{660}$	0	0	
	$-\frac{3\sqrt{11}i}{44}$	0	$\frac{3\sqrt{11}}{44}$	0	0	0	0	0	$-\frac{\sqrt{165}i}{660}$	0	$-\frac{\sqrt{165}}{660}$	0	0	0	
	0	$-\frac{3\sqrt{11}}{44}$	0	$\frac{3\sqrt{11}i}{44}$	0	0	0	0	0	$\frac{\sqrt{165}}{660}$	0	$\frac{\sqrt{165}i}{660}$	0	0	
	$\frac{3\sqrt{11}}{44}$	0	$\frac{3\sqrt{11}i}{44}$	0	0	0	0	0	$-\frac{\sqrt{165}i}{660}$	0	$\frac{\sqrt{165}i}{660}$	0	0	0	
	$-\frac{3\sqrt{110}i}{220}$	0	0	0	0	$\frac{\sqrt{165}i}{660}$	0	$-\frac{\sqrt{165}}{660}$	0	0	0	0	0	0	
	0	$\frac{3\sqrt{110}i}{220}$	0	0	$\frac{\sqrt{165}i}{660}$	0	$\frac{\sqrt{165}}{660}$	0	0	0	0	0	0	0	
	0	0	$\frac{3\sqrt{110}i}{220}$	0	0	$-\frac{\sqrt{165}}{660}$	0	$-\frac{\sqrt{165}i}{660}$	0	0	0	0	0	0	
	0	0	0	$-\frac{3\sqrt{110}i}{220}$	$\frac{\sqrt{165}}{660}$	0	$-\frac{\sqrt{165}i}{660}$	0	0	0	0	0	0	0	
	0	$\frac{\sqrt{165}i}{330}$	0	$-\frac{\sqrt{165}}{330}$	0	0	0	0	0	0	0	0	0	0	
	$\frac{\sqrt{165}i}{330}$	0	$\frac{\sqrt{165}}{330}$	0	0	0	0	0	0	0	0	0	0	0	

897 symmetry

$$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$$

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{Q}_4^{(1,1;a)}(B, 3)$	0	0	0	$-\frac{\sqrt{462}}{1848}$	$-\frac{\sqrt{77}i}{308}$	0	0	0	0	$\frac{\sqrt{770}i}{110}$	0	$\frac{3\sqrt{770}}{440}$	$\frac{\sqrt{1155}i}{165}$	0		
	0	0	$\frac{\sqrt{462}}{1848}$	0	0	$\frac{\sqrt{77}i}{308}$	0	0	$\frac{\sqrt{770}i}{110}$	0	$-\frac{3\sqrt{770}}{440}$	0	0	$-\frac{\sqrt{1155}i}{165}$		
	0	$\frac{\sqrt{462}}{1848}$	0	0	0	0	$-\frac{\sqrt{77}i}{308}$	0	0	$\frac{3\sqrt{770}}{440}$	0	$-\frac{\sqrt{770}i}{220}$	0	0		
	$-\frac{\sqrt{462}}{1848}$	0	0	0	0	0	0	$\frac{\sqrt{77}i}{308}$	$-\frac{3\sqrt{770}}{440}$	0	$-\frac{\sqrt{770}i}{220}$	0	0	0		
	$\frac{\sqrt{77}i}{308}$	0	0	0	0	0	0	$\frac{\sqrt{462}}{462}$	$\frac{23\sqrt{1155}i}{4620}$	0	0	0	0	$-\frac{\sqrt{770}i}{220}$		
	0	$-\frac{\sqrt{77}i}{308}$	0	0	0	0	$-\frac{\sqrt{462}}{462}$	0	0	$-\frac{23\sqrt{1155}i}{4620}$	0	0	$-\frac{\sqrt{770}i}{220}$	0		
	0	0	$\frac{\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{462}}{462}$	0	0	0	0	$-\frac{\sqrt{1155}i}{924}$	0	0	0		
	0	0	0	$-\frac{\sqrt{77}i}{308}$	$\frac{\sqrt{462}}{462}$	0	0	0	0	0	$\frac{\sqrt{1155}i}{924}$	0	0			
	0	$-\frac{\sqrt{770}i}{110}$	0	$-\frac{3\sqrt{770}}{440}$	$-\frac{23\sqrt{1155}i}{4620}$	0	0	0	0	0	$-\frac{5\sqrt{462}}{1848}$	$-\frac{\sqrt{77}i}{154}$	0			
	$-\frac{\sqrt{770}i}{110}$	0	$\frac{3\sqrt{770}}{440}$	0	0	$\frac{23\sqrt{1155}i}{4620}$	0	0	0	0	$\frac{5\sqrt{462}}{1848}$	0	0	$\frac{\sqrt{77}i}{154}$		
	0	$-\frac{3\sqrt{770}}{440}$	0	$\frac{\sqrt{770}i}{220}$	0	0	$\frac{\sqrt{1155}i}{924}$	0	0	$\frac{5\sqrt{462}}{1848}$	0	0	0	0		
	$\frac{3\sqrt{770}}{440}$	0	$\frac{\sqrt{770}i}{220}$	0	0	0	0	$-\frac{\sqrt{1155}i}{924}$	$-\frac{5\sqrt{462}}{1848}$	0	0	0	0	0		
	$-\frac{\sqrt{1155}i}{165}$	0	0	0	0	$\frac{\sqrt{770}i}{220}$	0	0	$\frac{\sqrt{77}i}{154}$	0	0	0	0	0	0	
	0	$\frac{\sqrt{1155}i}{165}$	0	0	$\frac{\sqrt{770}i}{220}$	0	0	0	0	$-\frac{\sqrt{77}i}{154}$	0	0	0	0	0	
$\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$																
898	symmetry															

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,1;a)}(B, 4)$	0	0	0	0	0	$-\frac{\sqrt{77}i}{308}$	0	$-\frac{\sqrt{77}}{308}$	$-\frac{\sqrt{770}i}{220}$	0	0	0	0	$\frac{\sqrt{1155}i}{165}$	
	0	0	0	0	$-\frac{\sqrt{77}i}{308}$	0	$\frac{\sqrt{77}}{308}$	0	0	$\frac{\sqrt{770}i}{220}$	0	0	$\frac{\sqrt{1155}i}{165}$	0	
	0	0	0	0	0	$\frac{\sqrt{77}}{308}$	0	$-\frac{\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{770}i}{220}$	0	0	$\frac{\sqrt{1155}i}{165}$	
	0	0	0	0	$-\frac{\sqrt{77}}{308}$	0	$-\frac{\sqrt{77}i}{308}$	0	0	0	0	$\frac{\sqrt{770}i}{220}$	$-\frac{\sqrt{1155}i}{165}$	0	
	0	$\frac{\sqrt{77}i}{308}$	0	$-\frac{\sqrt{77}}{308}$	0	0	0	0	0	$\frac{23\sqrt{1155}i}{4620}$	0	$\frac{23\sqrt{1155}}{4620}$	$\frac{\sqrt{770}i}{110}$	0	
	$\frac{\sqrt{77}i}{308}$	0	$\frac{\sqrt{77}}{308}$	0	0	0	0	0	$\frac{23\sqrt{1155}i}{4620}$	0	$-\frac{23\sqrt{1155}}{4620}$	0	0	$-\frac{\sqrt{770}i}{110}$	
	0	$\frac{\sqrt{77}}{308}$	0	$\frac{\sqrt{77}i}{308}$	0	0	0	0	0	$\frac{\sqrt{1155}}{924}$	0	$-\frac{\sqrt{1155}i}{924}$	0	0	
	$-\frac{\sqrt{77}}{308}$	0	$\frac{\sqrt{77}i}{308}$	0	0	0	0	0	$-\frac{\sqrt{1155}}{924}$	0	$-\frac{\sqrt{1155}i}{924}$	0	0	0	
	$\frac{\sqrt{770}i}{220}$	0	0	0	0	$-\frac{23\sqrt{1155}i}{4620}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	0	0	$-\frac{\sqrt{77}i}{154}$	
	0	$-\frac{\sqrt{770}i}{220}$	0	0	$-\frac{23\sqrt{1155}i}{4620}$	0	$\frac{\sqrt{1155}}{924}$	0	0	0	0	0	$-\frac{\sqrt{77}i}{154}$	0	
	0	0	$\frac{\sqrt{770}i}{220}$	0	0	$-\frac{23\sqrt{1155}}{4620}$	0	$\frac{\sqrt{1155}i}{924}$	0	0	0	0	0	$\frac{\sqrt{77}}{154}$	
	0	0	0	$-\frac{\sqrt{770}i}{220}$	$\frac{23\sqrt{1155}}{4620}$	0	$\frac{\sqrt{1155}i}{924}$	0	0	0	0	0	$-\frac{\sqrt{77}}{154}$	0	
	0	$-\frac{\sqrt{1155}i}{165}$	0	$-\frac{\sqrt{1155}}{165}$	$-\frac{\sqrt{770}i}{110}$	0	0	0	0	$\frac{\sqrt{77}i}{154}$	0	$-\frac{\sqrt{77}}{154}$	0	0	
	$-\frac{\sqrt{1155}i}{165}$	0	$\frac{\sqrt{1155}}{165}$	0	0	$\frac{\sqrt{770}i}{110}$	0	0	$\frac{\sqrt{77}i}{154}$	0	$\frac{\sqrt{77}}{154}$	0	0	0	

899 symmetry

y

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_1^{(1,0;a)}(A)$	0	0 0 0 $\frac{3\sqrt{7}i}{28}$ 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0
	0	0 0 $\frac{3\sqrt{7}i}{28}$ 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0
	0	- $\frac{3\sqrt{7}i}{28}$ 0 0 - $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{3\sqrt{7}i}{28}$	0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 0 0 - $\frac{\sqrt{42}i}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0
	$-\frac{\sqrt{42}i}{56}$	0 0 0 0 0 - $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 0 0
	0	$\frac{\sqrt{42}i}{56}$ 0 0 - $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0
	0	0 0 0 0 - $\frac{\sqrt{70}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 0 0 0

900 symmetry

x

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{G}_1^{(1,0;a)}(B,1)$	0	0	0	$-\frac{3\sqrt{7}}{28}$	$-\frac{\sqrt{42}i}{56}$	0	0	0	0	0	0	0	0	0	0
	0	0	$\frac{3\sqrt{7}}{28}$	0	0	$\frac{\sqrt{42}i}{56}$	0	0	0	0	0	0	0	0	0
	0	$\frac{3\sqrt{7}}{28}$	0	0	0	0	$-\frac{\sqrt{42}i}{56}$	0	0	0	0	0	0	0	0
	$-\frac{3\sqrt{7}}{28}$	0	0	0	0	0	0	$\frac{\sqrt{42}i}{56}$	0	0	0	0	0	0	0
	$\frac{\sqrt{42}i}{56}$	0	0	0	0	0	0	$-\frac{\sqrt{7}}{14}$	$-\frac{\sqrt{70}i}{56}$	0	0	0	0	0	0
	0	$-\frac{\sqrt{42}i}{56}$	0	0	0	0	$\frac{\sqrt{7}}{14}$	0	0	$\frac{\sqrt{70}i}{56}$	0	0	0	0	0
	0	0	$\frac{\sqrt{42}i}{56}$	0	0	$\frac{\sqrt{7}}{14}$	0	0	0	0	$-\frac{\sqrt{70}i}{56}$	0	0	0	0
	0	0	0	$-\frac{\sqrt{42}i}{56}$	$-\frac{\sqrt{7}}{14}$	0	0	0	0	0	$\frac{\sqrt{70}i}{56}$	0	0	0	0
	0	0	0	0	$\frac{\sqrt{70}i}{56}$	0	0	0	0	0	$-\frac{\sqrt{7}}{28}$	$-\frac{\sqrt{42}i}{28}$	0	0	0
	0	0	0	0	0	$-\frac{\sqrt{70}i}{56}$	0	0	0	$\frac{\sqrt{7}}{28}$	0	0	$\frac{\sqrt{42}i}{28}$	0	0
	0	0	0	0	0	0	$\frac{\sqrt{70}i}{56}$	0	0	$\frac{\sqrt{7}}{28}$	0	0	0	0	0
	0	0	0	0	0	0	0	$-\frac{\sqrt{70}i}{56}$	$-\frac{\sqrt{7}}{28}$	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	$\frac{\sqrt{42}i}{28}$	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{42}i}{28}$	0	0	0	0	0

901 symmetry

z

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_1^{(1,0;a)}(B, 2)$	0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0	
	$-\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0	
	0 $\frac{\sqrt{42}}{56}$ 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0	
	$-\frac{\sqrt{42}}{56}$ 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$	
	0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0	
	0 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{42}}{28}$	
	0 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{42}}{28}$ 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 $-\frac{\sqrt{42}}{28}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{28}$ 0 0 0	

902 symmetry

 $\sqrt{15}xyz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(A, 1)$	0	0 0 0 0 0 $-\frac{\sqrt{10}}{24}$ 0 $\frac{\sqrt{10}i}{24}$ 0 0 $\frac{i}{6}$ 0 0 $\frac{\sqrt{6}}{24}$
	0	0 0 0 0 $\frac{\sqrt{10}}{24}$ 0 $\frac{\sqrt{10}i}{24}$ 0 0 0 0 $-\frac{i}{6}$ $-\frac{\sqrt{6}}{24}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{10}i}{24}$ 0 $-\frac{\sqrt{10}}{24}$ $-\frac{i}{6}$ 0 0 0 0 $-\frac{\sqrt{6}i}{24}$
	0	0 0 0 0 $-\frac{\sqrt{10}i}{24}$ 0 $\frac{\sqrt{10}}{24}$ 0 0 $\frac{i}{6}$ 0 0 $-\frac{\sqrt{6}i}{24}$ 0
	0	$\frac{\sqrt{10}}{24}$ 0 $\frac{\sqrt{10}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0
	$-\frac{\sqrt{10}}{24}$	0 $\frac{\sqrt{10}i}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 0
	0	$-\frac{\sqrt{10}i}{24}$ 0 $\frac{\sqrt{10}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ $-\frac{i}{6}$ 0
	$-\frac{\sqrt{10}i}{24}$	0 $-\frac{\sqrt{10}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 $\frac{i}{6}$
	0	0 $\frac{i}{6}$ 0 0 $\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{10}}{24}$
	0	0 0 $-\frac{i}{6}$ $-\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{10}}{24}$ 0
	$-\frac{i}{6}$	0 0 0 0 0 $-\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 0 0 0 $\frac{\sqrt{10}i}{24}$
	0	$\frac{i}{6}$ 0 0 $-\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{10}i}{24}$ 0
	0	$-\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 $\frac{i}{6}$ 0 0 $-\frac{\sqrt{10}}{24}$ 0 $-\frac{\sqrt{10}i}{24}$ 0 0
	$\frac{\sqrt{6}}{24}$	0 $\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 $-\frac{i}{6}$ $\frac{\sqrt{10}}{24}$ 0 $-\frac{\sqrt{10}i}{24}$ 0 0 0
$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$		

903 symmetry

continued ...

Table 10

No.	multipole	matrix												
$\mathbb{G}_3^{(1,0;a)}(A, 2)$	0	0	0	$\frac{i}{8}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0
	0	0	$\frac{i}{8}$	0	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0
	0	$-\frac{i}{8}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0
	$-\frac{i}{8}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	0	$\frac{\sqrt{10}i}{16}$	0
	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$-\frac{i}{8}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0
	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$-\frac{i}{8}$	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0
	$-\frac{\sqrt{6}i}{48}$	0	0	0	0	$\frac{i}{8}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0	$-\frac{\sqrt{15}i}{24}$	0
	0	$\frac{\sqrt{6}i}{48}$	0	0	$\frac{i}{8}$	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	$-\frac{\sqrt{15}i}{24}$	0	0
	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	$-\frac{i}{8}$	0	0	0
	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	$\frac{\sqrt{10}i}{16}$	0	0	$-\frac{i}{8}$	0	0	0	0
	0	$-\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	$\frac{i}{8}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0
	$-\frac{\sqrt{15}i}{24}$	0	0	0	$\frac{\sqrt{10}i}{16}$	0	0	$\frac{i}{8}$	0	0	0	0	$-\frac{\sqrt{6}i}{48}$	0
	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	0	0
	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0

904 symmetry

$$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(A, 3)$	0	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{48} & \frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 & \frac{i}{24} & 0 & -\frac{1}{6} & -\frac{\sqrt{6}i}{16} & 0 \\ \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & \frac{i}{24} & 0 & \frac{1}{6} & 0 & 0 & \frac{\sqrt{6}i}{16} \\ 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & -\frac{1}{6} \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{48} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & \frac{1}{6} & 0 \\ \frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & \frac{i}{24} \\ 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & \frac{i}{24} & 0 \\ 0 & \frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 \\ -\frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 \\ 0 & \frac{i}{24} & 0 & \frac{1}{6} & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 \\ \frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{48} \\ 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & \frac{\sqrt{10}i}{48} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & -\frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 \end{bmatrix}$
	905	symmetry
		$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{G}_3^{(1,0;a)}(B,1)$	0	0	0	$-\frac{1}{8}$	$-\frac{\sqrt{6}i}{48}$	0	0	0	0	0	0	$\frac{\sqrt{15}}{24}$	$\frac{\sqrt{10}i}{16}$	0		
	0	0	$\frac{1}{8}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$-\frac{\sqrt{15}}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$		
	0	$\frac{1}{8}$	0	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$-\frac{\sqrt{15}}{24}$	0	0	0	0		
	$-\frac{1}{8}$	0	0	0	0	0	0	$\frac{\sqrt{6}i}{48}$	$\frac{\sqrt{15}}{24}$	0	0	0	0	0		
	$\frac{\sqrt{6}i}{48}$	0	0	0	0	0	0	$\frac{1}{8}$	$-\frac{\sqrt{10}i}{16}$	0	0	0	0	0		
	0	$-\frac{\sqrt{6}i}{48}$	0	0	0	0	$-\frac{1}{8}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0	0		
	0	0	$\frac{\sqrt{6}i}{48}$	0	0	$-\frac{1}{8}$	0	0	0	0	$\frac{\sqrt{10}i}{16}$	0	0	$-\frac{\sqrt{15}}{24}$		
	0	0	0	$-\frac{\sqrt{6}i}{48}$	$\frac{1}{8}$	0	0	0	0	0	0	$-\frac{\sqrt{10}i}{16}$	$\frac{\sqrt{15}}{24}$	0		
	0	0	0	$\frac{\sqrt{15}}{24}$	$\frac{\sqrt{10}i}{16}$	0	0	0	0	0	0	$\frac{1}{8}$	$\frac{\sqrt{6}i}{48}$	0		
	0	0	$-\frac{\sqrt{15}}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	0	$-\frac{1}{8}$	0	0	$-\frac{\sqrt{6}i}{48}$		
	0	$-\frac{\sqrt{15}}{24}$	0	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	$-\frac{1}{8}$	0	0	0		
	$\frac{\sqrt{15}}{24}$	0	0	0	0	0	0	$\frac{\sqrt{10}i}{16}$	$\frac{1}{8}$	0	0	0	0	0		
	$-\frac{\sqrt{10}i}{16}$	0	0	0	0	0	0	$\frac{\sqrt{15}}{24}$	$-\frac{\sqrt{6}i}{48}$	0	0	0	0	0		
	0	$\frac{\sqrt{10}i}{16}$	0	0	0	0	$-\frac{\sqrt{15}}{24}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0		
906	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(B, 2)$	0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 $\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 $-\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{6}}{12}$ 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{6}i}{12}$ 0 $\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{6}i}{12}$ 0 $-\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{6}}{12}$ 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{6}}{12}$ 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}}{12}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 $-\frac{\sqrt{6}}{12}$ 0 0	
907	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(B,3)$	0	$0 \ 0 \ 0 \ -\frac{\sqrt{15}}{24} \ -\frac{\sqrt{10}i}{48} \ 0 \ 0 \ 0 \ 0 \ -\frac{i}{6} \ 0 \ \frac{1}{24} \ -\frac{\sqrt{6}i}{16} \ 0$
	0	$0 \ 0 \ \frac{\sqrt{15}}{24} \ 0 \ 0 \ \frac{\sqrt{10}i}{48} \ 0 \ 0 \ -\frac{i}{6} \ 0 \ -\frac{1}{24} \ 0 \ 0 \ \frac{\sqrt{6}i}{16}$
	0	$\frac{\sqrt{15}}{24} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{10}i}{48} \ 0 \ 0 \ -\frac{1}{24} \ 0 \ -\frac{i}{6} \ 0 \ 0 \ 0$
	$-\frac{\sqrt{15}}{24}$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{10}i}{48} \ \frac{1}{24} \ 0 \ -\frac{i}{6} \ 0 \ 0 \ 0$
	$\frac{\sqrt{10}i}{48}$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{15}}{24} \ \frac{\sqrt{6}i}{16} \ 0 \ 0 \ 0 \ 0 \ -\frac{i}{6}$
	0	$-\frac{\sqrt{10}i}{48} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}}{24} \ 0 \ 0 \ -\frac{\sqrt{6}i}{16} \ 0 \ 0 \ -\frac{i}{6} \ 0 \ 0$
	0	$0 \ 0 \ \frac{\sqrt{10}i}{48} \ 0 \ 0 \ -\frac{\sqrt{15}}{24} \ 0 \ 0 \ 0 \ -\frac{\sqrt{6}i}{16} \ 0 \ 0 \ 0 \ -\frac{1}{24}$
	0	$0 \ 0 \ 0 \ -\frac{\sqrt{10}i}{48} \ \frac{\sqrt{15}}{24} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{6}i}{16} \ \frac{1}{24} \ 0$
	0	$\frac{i}{6} \ 0 \ \frac{1}{24} \ -\frac{\sqrt{6}i}{16} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{15}}{24} \ \frac{\sqrt{10}i}{48} \ 0$
	$\frac{i}{6}$	$0 \ -\frac{1}{24} \ 0 \ 0 \ 0 \ \frac{\sqrt{6}i}{16} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}}{24} \ 0 \ 0 \ -\frac{\sqrt{10}i}{48}$
	0	$-\frac{1}{24} \ 0 \ \frac{i}{6} \ 0 \ 0 \ 0 \ \frac{\sqrt{6}i}{16} \ 0 \ 0 \ -\frac{\sqrt{15}}{24} \ 0 \ 0 \ 0 \ 0$
	$\frac{1}{24}$	$0 \ \frac{i}{6} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{6}i}{16} \ \frac{\sqrt{15}}{24} \ 0 \ 0 \ 0 \ 0 \ 0$
	$\frac{\sqrt{6}i}{16}$	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{i}{6} \ 0 \ \frac{1}{24} \ -\frac{\sqrt{10}i}{48} \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$-\frac{\sqrt{6}i}{16} \ 0 \ 0 \ \frac{i}{6} \ 0 \ -\frac{1}{24} \ 0 \ 0 \ 0 \ \frac{\sqrt{10}i}{48} \ 0 \ 0 \ 0 \ 0$

908 symmetry

 $\frac{\sqrt{15}z(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(B, 4)$	0	0 0 0 0 0 $-\frac{\sqrt{10}i}{24}$ 0 $-\frac{\sqrt{10}}{24}$ $-\frac{i}{6}$ 0 0 0 0 $-\frac{\sqrt{6}i}{24}$
	0	0 0 0 0 $-\frac{\sqrt{10}i}{24}$ 0 $\frac{\sqrt{10}}{24}$ 0 0 $\frac{i}{6}$ 0 0 $-\frac{\sqrt{6}i}{24}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{10}}{24}$ 0 $-\frac{\sqrt{10}i}{24}$ 0 0 $-\frac{i}{6}$ 0 0 $-\frac{\sqrt{6}}{24}$
	0	0 0 0 0 $-\frac{\sqrt{10}}{24}$ 0 $-\frac{\sqrt{10}i}{24}$ 0 0 0 0 $\frac{i}{6}$ $\frac{\sqrt{6}}{24}$ 0
	0	$\frac{\sqrt{10}i}{24}$ 0 $-\frac{\sqrt{10}}{24}$ 0 0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ $-\frac{i}{6}$ 0
	$\frac{\sqrt{10}i}{24}$	0 $\frac{\sqrt{10}}{24}$ 0 0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 $\frac{i}{6}$
	0	$\frac{\sqrt{10}}{24}$ 0 $\frac{\sqrt{10}i}{24}$ 0 0 0 0 0 $\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0
	$-\frac{\sqrt{10}}{24}$	0 $\frac{\sqrt{10}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0
	$\frac{i}{6}$	0 0 0 0 $-\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 0 0 0 $\frac{\sqrt{10}i}{24}$
	0	$-\frac{i}{6}$ 0 0 $-\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ 0 0 0 0 0 $\frac{\sqrt{10}i}{24}$
	0	0 $\frac{i}{6}$ 0 0 0 $-\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{10}}{24}$
	0	0 0 0 $-\frac{i}{6}$ $\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 $\frac{\sqrt{10}}{24}$
	0	$\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ $\frac{i}{6}$ 0 0 0 0 $-\frac{\sqrt{10}i}{24}$ 0 $\frac{\sqrt{10}}{24}$ 0 0
	$\frac{\sqrt{6}i}{24}$	0 $-\frac{\sqrt{6}}{24}$ 0 0 0 $-\frac{i}{6}$ 0 0 $-\frac{\sqrt{10}i}{24}$ 0 $-\frac{\sqrt{10}}{24}$ 0 0 0

909 symmetry

 $\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(A, 1)$	0 0 0 0 0 $-\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{10}}{20}$	
	0 0 0 0 $\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 0 0 $\frac{\sqrt{15}i}{15}$ $-\frac{\sqrt{10}}{20}$ 0	
	0 0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ $-\frac{\sqrt{15}i}{15}$ 0 0 0 $\frac{\sqrt{10}}{20}$	
	0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{10}}{20}$ 0	
	0 $\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 $\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0	
	$-\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0 0	
	0 $-\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0	
	$-\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{40}$ 0 0 0	
	0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{10}}{40}$ 0 $-\frac{\sqrt{10}i}{40}$ 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{15}$ $\frac{\sqrt{10}}{40}$ 0 $-\frac{\sqrt{10}i}{40}$ 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{15}i}{15}$ 0 0 0 0 $-\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{40}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$		
910	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(A, 2)$	0	0 0 0 0 0 $-\frac{\sqrt{2}}{24}$ 0 $\frac{\sqrt{2}i}{24}$ 0 0 $\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{30}}{30}$
	0	0 0 0 0 $\frac{\sqrt{2}}{24}$ 0 $\frac{\sqrt{2}i}{24}$ 0 0 0 0 $-\frac{\sqrt{5}i}{30}$ $-\frac{\sqrt{30}}{30}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{2}i}{24}$ 0 $-\frac{\sqrt{2}}{24}$ $-\frac{\sqrt{5}i}{30}$ 0 0 0 0 $-\frac{\sqrt{30}i}{30}$
	0	0 0 0 0 $-\frac{\sqrt{2}i}{24}$ 0 $\frac{\sqrt{2}}{24}$ 0 0 $\frac{\sqrt{5}i}{30}$ 0 0 $-\frac{\sqrt{30}i}{30}$ 0
	0	$\frac{\sqrt{2}}{24}$ 0 $\frac{\sqrt{2}i}{24}$ 0 0 0 0 0 $\frac{\sqrt{30}}{24}$ 0 $-\frac{\sqrt{30}i}{24}$ 0 0
	$-\frac{\sqrt{2}}{24}$	0 $\frac{\sqrt{2}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{30}}{24}$ 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0
	0	$-\frac{\sqrt{2}i}{24}$ 0 $\frac{\sqrt{2}}{24}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{120}$ 0 $\frac{\sqrt{30}}{120}$ $\frac{\sqrt{5}i}{15}$ 0
	$-\frac{\sqrt{2}i}{24}$	0 $-\frac{\sqrt{2}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{30}i}{120}$ 0 $-\frac{\sqrt{30}}{120}$ 0 0 $-\frac{\sqrt{5}i}{15}$
	0	0 $\frac{\sqrt{5}i}{30}$ 0 0 $-\frac{\sqrt{30}}{24}$ 0 $-\frac{\sqrt{30}i}{120}$ 0 0 0 0 0 $-\frac{\sqrt{2}}{12}$
	0	0 0 $-\frac{\sqrt{5}i}{30}$ $\frac{\sqrt{30}}{24}$ 0 $-\frac{\sqrt{30}i}{120}$ 0 0 0 0 0 $\frac{\sqrt{2}}{12}$ 0
	$-\frac{\sqrt{5}i}{30}$	0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 $-\frac{\sqrt{30}}{120}$ 0 0 0 0 0 $-\frac{\sqrt{2}i}{12}$
	0	$\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{30}i}{24}$ 0 $\frac{\sqrt{30}}{120}$ 0 0 0 0 0 $-\frac{\sqrt{2}i}{12}$ 0
	0	$-\frac{\sqrt{30}}{30}$ 0 $\frac{\sqrt{30}i}{30}$ 0 0 $-\frac{\sqrt{5}i}{15}$ 0 0 $\frac{\sqrt{2}}{12}$ 0 $\frac{\sqrt{2}i}{12}$ 0 0
	$\frac{\sqrt{30}}{30}$	0 $\frac{\sqrt{30}i}{30}$ 0 0 0 0 $\frac{\sqrt{5}i}{15}$ $-\frac{\sqrt{2}}{12}$ 0 $\frac{\sqrt{2}i}{12}$ 0 0 0

$$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$$

911 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(A, 3)$	0 0 0 $\frac{\sqrt{35}i}{224}$ 0 0 $-\frac{5\sqrt{210}i}{336}$ 0 0 0 0 $\frac{5\sqrt{21}i}{96}$ 0 0	
	0 0 $\frac{\sqrt{35}i}{224}$ 0 0 0 0 $\frac{5\sqrt{210}i}{336}$ 0 0 $\frac{5\sqrt{21}i}{96}$ 0 0 0	
	0 $-\frac{\sqrt{35}i}{224}$ 0 0 $-\frac{11\sqrt{210}i}{672}$ 0 0 0 0 $\frac{\sqrt{21}i}{96}$ 0 0 $-\frac{\sqrt{14}i}{32}$ 0	
	$-\frac{\sqrt{35}i}{224}$ 0 0 0 0 $\frac{11\sqrt{210}i}{672}$ 0 0 $\frac{\sqrt{21}i}{96}$ 0 0 0 0 $\frac{\sqrt{14}i}{32}$	
	0 0 $\frac{11\sqrt{210}i}{672}$ 0 0 0 0 $-\frac{\sqrt{35}i}{56}$ 0 0 $-\frac{5\sqrt{14}i}{224}$ 0 0 0	
	0 0 0 $-\frac{11\sqrt{210}i}{672}$ 0 0 0 $-\frac{\sqrt{35}i}{56}$ 0 0 0 0 $\frac{5\sqrt{14}i}{224}$ 0 0	
	$\frac{5\sqrt{210}i}{336}$ 0 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 $-\frac{\sqrt{14}i}{112}$ 0 0 0 0 $\frac{\sqrt{21}i}{24}$	
	0 $-\frac{5\sqrt{210}i}{336}$ 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 0 0 $\frac{\sqrt{14}i}{112}$ 0 0 $\frac{\sqrt{21}i}{24}$ 0	
	0 0 0 $-\frac{\sqrt{21}i}{96}$ 0 0 $\frac{\sqrt{14}i}{112}$ 0 0 0 0 $\frac{5\sqrt{35}i}{224}$ 0 0	
	0 0 $-\frac{\sqrt{21}i}{96}$ 0 0 0 0 $-\frac{\sqrt{14}i}{112}$ 0 0 0 0 $\frac{5\sqrt{35}i}{224}$ 0 0	
	$-\frac{5\sqrt{21}i}{96}$ 0 0 0 0 $-\frac{5\sqrt{14}i}{224}$ 0 0 0 0 $-\frac{5\sqrt{35}i}{224}$ 0 0 $-\frac{\sqrt{210}i}{672}$ 0	
	0 0 $\frac{\sqrt{14}i}{32}$ 0 0 0 0 $-\frac{\sqrt{21}i}{24}$ 0 0 $\frac{\sqrt{210}i}{672}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{14}i}{32}$ 0 0 $-\frac{\sqrt{21}i}{24}$ 0 0 0 0 $-\frac{\sqrt{210}i}{672}$ 0 0	
$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$		
912	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{G}_5^{(1,0;a)}(A, 4)$	0	0	0	$\frac{i}{32}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$\frac{\sqrt{15}}{15}$	0	$-\frac{13\sqrt{15}i}{480}$	0	0	
	0	0	$\frac{i}{32}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	$-\frac{\sqrt{15}}{15}$	0	$-\frac{13\sqrt{15}i}{480}$	0	0	0	
	0	$-\frac{i}{32}$	0	0	$-\frac{\sqrt{6}i}{32}$	0	0	0	0	$-\frac{3\sqrt{15}i}{160}$	0	0	$\frac{9\sqrt{10}i}{160}$	0	
	$-\frac{i}{32}$	0	0	0	0	$\frac{\sqrt{6}i}{32}$	0	0	$-\frac{3\sqrt{15}i}{160}$	0	0	0	0	$-\frac{9\sqrt{10}i}{160}$	
	0	0	$\frac{\sqrt{6}i}{32}$	0	0	0	0	$-\frac{i}{8}$	0	0	$\frac{3\sqrt{10}i}{160}$	0	0	$-\frac{\sqrt{15}}{15}$	
	0	0	0	$-\frac{\sqrt{6}i}{32}$	0	0	$-\frac{i}{8}$	0	0	0	$-\frac{3\sqrt{10}i}{160}$	$\frac{\sqrt{15}}{15}$	0	0	
	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$\frac{i}{8}$	0	0	$\frac{3\sqrt{10}i}{80}$	0	0	0	0	$-\frac{\sqrt{15}i}{120}$	
	0	$-\frac{\sqrt{6}i}{48}$	0	0	$\frac{i}{8}$	0	0	0	0	$-\frac{3\sqrt{10}i}{80}$	0	0	$-\frac{\sqrt{15}i}{120}$	0	
	0	$-\frac{\sqrt{15}}{15}$	0	$\frac{3\sqrt{15}i}{160}$	0	0	$-\frac{3\sqrt{10}i}{80}$	0	0	0	0	$\frac{5i}{32}$	0	0	
	$\frac{\sqrt{15}}{15}$	0	$\frac{3\sqrt{15}i}{160}$	0	0	0	0	$\frac{3\sqrt{10}i}{80}$	0	0	$\frac{5i}{32}$	0	0	0	
	0	$\frac{13\sqrt{15}i}{480}$	0	0	$-\frac{3\sqrt{10}i}{160}$	0	0	0	0	$-\frac{5i}{32}$	0	0	$-\frac{\sqrt{6}i}{96}$	0	
	$\frac{13\sqrt{15}i}{480}$	0	0	0	0	$\frac{3\sqrt{10}i}{160}$	0	0	$-\frac{5i}{32}$	0	0	0	0	$\frac{\sqrt{6}i}{96}$	
	0	0	$-\frac{9\sqrt{10}i}{160}$	0	0	$\frac{\sqrt{15}}{15}$	0	$\frac{\sqrt{15}i}{120}$	0	0	$\frac{\sqrt{6}i}{96}$	0	0	0	
	0	0	0	$\frac{9\sqrt{10}i}{160}$	$-\frac{\sqrt{15}}{15}$	0	$\frac{\sqrt{15}i}{120}$	0	0	0	0	$-\frac{\sqrt{6}i}{96}$	0	0	
$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$															
913	symmetry														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(A, 5)$	0	0 0 0 $-\frac{\sqrt{3}i}{48}$ 0 0 $-\frac{\sqrt{2}i}{6}$ 0 0 $\frac{\sqrt{5}}{30}$ 0 $-\frac{7\sqrt{5}i}{240}$ 0 0
	0	0 0 $-\frac{\sqrt{3}i}{48}$ 0 0 0 0 $\frac{\sqrt{2}i}{6}$ $-\frac{\sqrt{5}}{30}$ 0 $-\frac{7\sqrt{5}i}{240}$ 0 0 0
	0	$\frac{\sqrt{3}i}{48}$ 0 0 0 $-\frac{7\sqrt{2}i}{48}$ 0 0 0 0 $\frac{13\sqrt{5}i}{240}$ 0 $-\frac{\sqrt{5}}{15}$ $\frac{\sqrt{30}i}{80}$ 0
	$\frac{\sqrt{3}i}{48}$	0 0 0 0 0 $\frac{7\sqrt{2}i}{48}$ 0 0 $\frac{13\sqrt{5}i}{240}$ 0 $\frac{\sqrt{5}}{15}$ 0 0 $-\frac{\sqrt{30}i}{80}$
	0	0 0 $\frac{7\sqrt{2}i}{48}$ 0 0 0 0 $\frac{\sqrt{3}i}{12}$ 0 0 $\frac{\sqrt{30}i}{80}$ 0 0 $\frac{\sqrt{5}}{30}$
	0	0 0 0 $-\frac{7\sqrt{2}i}{48}$ 0 0 0 $\frac{\sqrt{3}i}{12}$ 0 0 0 0 $-\frac{\sqrt{30}i}{80}$ $-\frac{\sqrt{5}}{30}$ 0
	$\frac{\sqrt{2}i}{6}$	0 0 0 0 0 $-\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{12}$
	0	$-\frac{\sqrt{2}i}{6}$ 0 0 $-\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{12}$ 0
	0	$-\frac{\sqrt{5}}{30}$ 0 $-\frac{13\sqrt{5}i}{240}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{3}i}{48}$ 0 0
	$\frac{\sqrt{5}}{30}$	0 $-\frac{13\sqrt{5}i}{240}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{3}i}{48}$ 0 0 0
	0	$\frac{7\sqrt{5}i}{240}$ 0 $\frac{\sqrt{5}}{15}$ $-\frac{\sqrt{30}i}{80}$ 0 0 0 0 $\frac{5\sqrt{3}i}{48}$ 0 0 $\frac{\sqrt{2}i}{48}$ 0
	$\frac{7\sqrt{5}i}{240}$	0 $-\frac{\sqrt{5}}{15}$ 0 0 $\frac{\sqrt{30}i}{80}$ 0 0 $\frac{5\sqrt{3}i}{48}$ 0 0 0 0 $-\frac{\sqrt{2}i}{48}$
	0	0 0 $-\frac{\sqrt{30}i}{80}$ 0 0 $-\frac{\sqrt{5}}{30}$ 0 $\frac{\sqrt{5}i}{12}$ 0 0 $-\frac{\sqrt{2}i}{48}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{30}i}{80}$ $\frac{\sqrt{5}}{30}$ 0 $\frac{\sqrt{5}i}{12}$ 0 0 0 0 $\frac{\sqrt{2}i}{48}$ 0 0

$$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$$

914 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(B,1)$	0	0 0 0 $-\frac{\sqrt{35}}{224}$ $-\frac{11\sqrt{210}i}{672}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{96}$ $\frac{\sqrt{14}i}{32}$ 0
	0	0 0 $\frac{\sqrt{35}}{224}$ 0 0 $\frac{11\sqrt{210}i}{672}$ 0 0 0 0 $\frac{\sqrt{21}}{96}$ 0 0 $-\frac{\sqrt{14}i}{32}$
	0	$\frac{\sqrt{35}}{224}$ 0 0 0 0 0 $\frac{5\sqrt{210}i}{336}$ 0 0 0 $-\frac{5\sqrt{21}}{96}$ 0 0 0
	$-\frac{\sqrt{35}}{224}$	0 0 0 0 0 0 0 $-\frac{5\sqrt{210}i}{336}$ $\frac{5\sqrt{21}}{96}$ 0 0 0 0
	$\frac{11\sqrt{210}i}{672}$	0 0 0 0 0 0 0 $\frac{\sqrt{35}}{56}$ $\frac{5\sqrt{14}i}{224}$ 0 0 0 0
	0	$-\frac{11\sqrt{210}i}{672}$ 0 0 0 0 0 $-\frac{\sqrt{35}}{56}$ 0 0 0 $-\frac{5\sqrt{14}i}{224}$ 0 0 0
	0	0 $-\frac{5\sqrt{210}i}{336}$ 0 0 0 $-\frac{\sqrt{35}}{56}$ 0 0 0 0 $-\frac{\sqrt{14}i}{112}$ 0 0 $\frac{\sqrt{21}}{24}$
	0	0 0 0 $\frac{5\sqrt{210}i}{336}$ $\frac{\sqrt{35}}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{112}$ $-\frac{\sqrt{21}}{24}$ 0
	0	0 0 0 $\frac{5\sqrt{21}}{96}$ $-\frac{5\sqrt{14}i}{224}$ 0 0 0 0 0 0 $-\frac{5\sqrt{35}}{224}$ $-\frac{\sqrt{210}i}{672}$ 0
	0	0 $-\frac{5\sqrt{21}}{96}$ 0 0 0 $\frac{5\sqrt{14}i}{224}$ 0 0 0 0 $\frac{5\sqrt{35}}{224}$ 0 0 $\frac{\sqrt{210}i}{672}$
	0	$\frac{\sqrt{21}}{96}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{112}$ 0 0 0 $\frac{5\sqrt{35}}{224}$ 0 0 0
	$-\frac{\sqrt{21}}{96}$	0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{112}$ $-\frac{5\sqrt{35}}{224}$ 0 0 0 0
	$-\frac{\sqrt{14}i}{32}$	0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{24}$ $\frac{\sqrt{210}i}{672}$ 0 0 0 0
	0	$\frac{\sqrt{14}i}{32}$ 0 0 0 0 0 $\frac{\sqrt{21}}{24}$ 0 0 0 $-\frac{\sqrt{210}i}{672}$ 0 0 0
$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$		
915	symmetry	

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(B, 2)$	0 0 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{3\sqrt{14}i}{56}$ 0 $\frac{3\sqrt{14}}{56}$ 0 0	
	$-\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{3\sqrt{14}i}{56}$ 0 $-\frac{3\sqrt{14}}{56}$ 0 0 0	
	0 $\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 $-\frac{3\sqrt{14}}{56}$ 0 $-\frac{3\sqrt{14}i}{56}$ 0 0	
	$-\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 $\frac{3\sqrt{14}}{56}$ 0 $-\frac{3\sqrt{14}i}{56}$ 0 0 0	
	0 0 0 0 0 $\frac{3\sqrt{14}i}{56}$ 0 $\frac{3\sqrt{14}}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{84}$	
	0 0 0 0 0 $\frac{3\sqrt{14}i}{56}$ 0 $-\frac{3\sqrt{14}}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{84}$ 0	
	0 0 0 0 0 0 $-\frac{3\sqrt{14}}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{210}}{84}$	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}i}{84}$ 0 $-\frac{\sqrt{210}}{84}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}i}{84}$ 0 $\frac{\sqrt{210}}{84}$ 0 0 0	
916	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{G}_5^{(1,0;a)}(B, 3)$	0	0	0	$-\frac{1}{32}$	$-\frac{\sqrt{6}i}{32}$	0	0	0	0	0	$\frac{3\sqrt{15}}{160}$	$-\frac{9\sqrt{10}i}{160}$	0			
	0	0	$\frac{1}{32}$	0	0	$\frac{\sqrt{6}i}{32}$	0	0	0	0	$-\frac{3\sqrt{15}}{160}$	0	0	$\frac{9\sqrt{10}i}{160}$		
	0	$\frac{1}{32}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	0	0	$\frac{13\sqrt{15}}{480}$	0	$-\frac{\sqrt{15}i}{15}$	0	0	0	
	$-\frac{1}{32}$	0	0	0	0	0	0	$-\frac{\sqrt{6}i}{48}$	$-\frac{13\sqrt{15}}{480}$	0	$-\frac{\sqrt{15}i}{15}$	0	0	0	0	
	$\frac{\sqrt{6}i}{32}$	0	0	0	0	0	0	$\frac{1}{8}$	$-\frac{3\sqrt{10}i}{160}$	0	0	0	0	$\frac{\sqrt{15}i}{15}$		
	0	$-\frac{\sqrt{6}i}{32}$	0	0	0	0	$-\frac{1}{8}$	0	0	$\frac{3\sqrt{10}i}{160}$	0	0	$\frac{\sqrt{15}i}{15}$	0		
	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$-\frac{1}{8}$	0	0	0	$\frac{3\sqrt{10}i}{80}$	0	0	$-\frac{\sqrt{15}}{120}$			
	0	0	0	$\frac{\sqrt{6}i}{48}$	$\frac{1}{8}$	0	0	0	0	0	$-\frac{3\sqrt{10}i}{80}$	$\frac{\sqrt{15}}{120}$	0			
	0	0	0	$-\frac{13\sqrt{15}}{480}$	$\frac{3\sqrt{10}i}{160}$	0	0	0	0	0	$-\frac{5}{32}$	$-\frac{\sqrt{6}i}{96}$	0			
	0	0	$\frac{13\sqrt{15}}{480}$	0	0	$-\frac{3\sqrt{10}i}{160}$	0	0	0	0	$\frac{5}{32}$	0	0	$\frac{\sqrt{6}i}{96}$		
	0	$-\frac{3\sqrt{15}}{160}$	0	$\frac{\sqrt{15}i}{15}$	0	0	$-\frac{3\sqrt{10}i}{80}$	0	0	0	$\frac{5}{32}$	0	0	0	0	
	$\frac{3\sqrt{15}}{160}$	0	$\frac{\sqrt{15}i}{15}$	0	0	0	0	$\frac{3\sqrt{10}i}{80}$	$-\frac{5}{32}$	0	0	0	0	0	0	
	$\frac{9\sqrt{10}i}{160}$	0	0	0	0	$-\frac{\sqrt{15}i}{15}$	0	$\frac{\sqrt{15}}{120}$	$\frac{\sqrt{6}i}{96}$	0	0	0	0	0	0	
	0	$-\frac{9\sqrt{10}i}{160}$	0	0	$-\frac{\sqrt{15}i}{15}$	0	$-\frac{\sqrt{15}}{120}$	0	0	$-\frac{\sqrt{6}i}{96}$	0	0	0	0	0	
$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$																
917	symmetry															

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{G}_5^{(1,0;a)}(B, 4)$	0	0	0	0	0	$\frac{\sqrt{6}i}{24}$	0	$\frac{\sqrt{6}}{24}$	$-\frac{\sqrt{15}i}{15}$	0	0	0	0	$\frac{\sqrt{10}i}{20}$	
	0	0	0	0	$\frac{\sqrt{6}i}{24}$	0	$-\frac{\sqrt{6}}{24}$	0	0	$\frac{\sqrt{15}i}{15}$	0	0	$\frac{\sqrt{10}i}{20}$	0	
	0	0	0	0	0	$\frac{\sqrt{6}}{24}$	0	$-\frac{\sqrt{6}i}{24}$	0	0	$\frac{\sqrt{15}i}{15}$	0	0	$-\frac{\sqrt{10}}{20}$	
	0	0	0	0	$-\frac{\sqrt{6}}{24}$	0	$-\frac{\sqrt{6}i}{24}$	0	0	0	0	$-\frac{\sqrt{15}i}{15}$	$\frac{\sqrt{10}}{20}$	0	
	0	$-\frac{\sqrt{6}i}{24}$	0	$-\frac{\sqrt{6}}{24}$	0	0	0	0	0	$\frac{\sqrt{10}i}{40}$	0	$-\frac{\sqrt{10}}{40}$	0	0	
	$-\frac{\sqrt{6}i}{24}$	0	$\frac{\sqrt{6}}{24}$	0	0	0	0	0	$\frac{\sqrt{10}i}{40}$	0	$\frac{\sqrt{10}}{40}$	0	0	0	
	0	$-\frac{\sqrt{6}}{24}$	0	$\frac{\sqrt{6}i}{24}$	0	0	0	0	0	$-\frac{\sqrt{10}}{40}$	0	$-\frac{\sqrt{10}i}{40}$	0	0	
	$\frac{\sqrt{6}}{24}$	0	$\frac{\sqrt{6}i}{24}$	0	0	0	0	0	$\frac{\sqrt{10}}{40}$	0	$-\frac{\sqrt{10}i}{40}$	0	0	0	
	$\frac{\sqrt{15}i}{15}$	0	0	0	0	$-\frac{\sqrt{10}i}{40}$	0	$\frac{\sqrt{10}}{40}$	0	0	0	0	0	0	
	0	$-\frac{\sqrt{15}i}{15}$	0	0	$-\frac{\sqrt{10}i}{40}$	0	$-\frac{\sqrt{10}}{40}$	0	0	0	0	0	0	0	
	0	0	$-\frac{\sqrt{15}i}{15}$	0	0	$\frac{\sqrt{10}}{40}$	0	$\frac{\sqrt{10}i}{40}$	0	0	0	0	0	0	
	0	0	0	$\frac{\sqrt{15}i}{15}$	$-\frac{\sqrt{10}}{40}$	0	$\frac{\sqrt{10}i}{40}$	0	0	0	0	0	0	0	
	0	$-\frac{\sqrt{10}i}{20}$	0	$\frac{\sqrt{10}}{20}$	0	0	0	0	0	0	0	0	0	0	
	$-\frac{\sqrt{10}i}{20}$	0	$-\frac{\sqrt{10}}{20}$	0	0	0	0	0	0	0	0	0	0	0	

918 symmetry

$$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{G}_5^{(1,0;a)}(B, 5)$	0	0	0	$-\frac{\sqrt{3}}{48}$	$\frac{7\sqrt{2}i}{48}$	0	0	0	0	$-\frac{\sqrt{5}i}{15}$	0	$\frac{13\sqrt{5}}{240}$	$\frac{\sqrt{30}i}{80}$	0	
	0	0	$\frac{\sqrt{3}}{48}$	0	0	$-\frac{7\sqrt{2}i}{48}$	0	0	$-\frac{\sqrt{5}i}{15}$	0	$-\frac{13\sqrt{5}}{240}$	0	0	$-\frac{\sqrt{30}i}{80}$	
	0	$\frac{\sqrt{3}}{48}$	0	0	0	0	$-\frac{\sqrt{2}i}{6}$	0	0	$-\frac{7\sqrt{5}}{240}$	0	$\frac{\sqrt{5}i}{30}$	0	0	
	$-\frac{\sqrt{3}}{48}$	0	0	0	0	0	0	$\frac{\sqrt{2}i}{6}$	$\frac{7\sqrt{5}}{240}$	0	$\frac{\sqrt{5}i}{30}$	0	0	0	
	$-\frac{7\sqrt{2}i}{48}$	0	0	0	0	0	0	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{30}i}{80}$	0	0	0	0	$\frac{\sqrt{5}i}{30}$	
	0	$\frac{7\sqrt{2}i}{48}$	0	0	0	0	$-\frac{\sqrt{3}}{12}$	0	0	$-\frac{\sqrt{30}i}{80}$	0	0	$\frac{\sqrt{5}i}{30}$	0	
	0	0	$\frac{\sqrt{2}i}{6}$	0	0	$-\frac{\sqrt{3}}{12}$	0	0	0	0	0	0	0	$\frac{\sqrt{5}}{12}$	
	0	0	0	$-\frac{\sqrt{2}i}{6}$	$\frac{\sqrt{3}}{12}$	0	0	0	0	0	0	0	$-\frac{\sqrt{5}}{12}$	0	
	0	$\frac{\sqrt{5}i}{15}$	0	$\frac{7\sqrt{5}}{240}$	$-\frac{\sqrt{30}i}{80}$	0	0	0	0	0	0	$-\frac{5\sqrt{3}}{48}$	$-\frac{\sqrt{2}i}{48}$	0	
	$\frac{\sqrt{5}i}{15}$	0	$-\frac{7\sqrt{5}}{240}$	0	0	$\frac{\sqrt{30}i}{80}$	0	0	0	0	$\frac{5\sqrt{3}}{48}$	0	0	0	
	0	$-\frac{13\sqrt{5}}{240}$	0	$-\frac{\sqrt{5}i}{30}$	0	0	0	0	0	$-\frac{5\sqrt{3}}{48}$	0	0	0	0	
	$\frac{13\sqrt{5}}{240}$	0	$-\frac{\sqrt{5}i}{30}$	0	0	0	0	0	$-\frac{\sqrt{5}i}{12}$	$\frac{\sqrt{2}i}{48}$	0	0	0	0	
	$-\frac{\sqrt{30}i}{80}$	0	0	0	0	$-\frac{\sqrt{5}i}{30}$	0	$-\frac{\sqrt{5}}{12}$	$\frac{\sqrt{2}i}{48}$	0	0	0	0	0	
	0	$\frac{\sqrt{30}i}{80}$	0	0	$-\frac{\sqrt{5}i}{30}$	0	$\frac{\sqrt{5}}{12}$	0	0	$-\frac{\sqrt{2}i}{48}$	0	0	0	0	
919	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$													

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(B, 6)$	0	0 0 0 0 0 $\frac{\sqrt{2}i}{24}$ 0 $\frac{\sqrt{2}}{24}$ $\frac{\sqrt{5}i}{30}$ 0 0 0 0 $\frac{\sqrt{30}i}{30}$
	0	0 0 0 0 $\frac{\sqrt{2}i}{24}$ 0 $-\frac{\sqrt{2}}{24}$ 0 0 $-\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{30}i}{30}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{2}}{24}$ 0 $\frac{\sqrt{2}i}{24}$ 0 0 $\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{30}i}{30}$
	0	0 0 0 0 0 $\frac{\sqrt{2}}{24}$ 0 $\frac{\sqrt{2}i}{24}$ 0 0 0 0 $-\frac{\sqrt{5}i}{30}$ $-\frac{\sqrt{30}}{30}$ 0
	0	0 $-\frac{\sqrt{2}i}{24}$ 0 $\frac{\sqrt{2}}{24}$ 0 0 0 0 0 $-\frac{\sqrt{30}i}{120}$ 0 $-\frac{\sqrt{30}}{120}$ $-\frac{\sqrt{5}i}{15}$ 0
	$-\frac{\sqrt{2}i}{24}$	0 $-\frac{\sqrt{2}}{24}$ 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{120}$ 0 $\frac{\sqrt{30}}{120}$ 0 0 $\frac{\sqrt{5}i}{15}$
	0	$-\frac{\sqrt{2}}{24}$ 0 $-\frac{\sqrt{2}i}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{30}}{24}$ 0 $-\frac{\sqrt{30}i}{24}$ 0 0
	$\frac{\sqrt{2}}{24}$	0 $-\frac{\sqrt{2}i}{24}$ 0 0 0 0 0 0 $-\frac{\sqrt{30}}{24}$ 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0
	$-\frac{\sqrt{5}i}{30}$	0 0 0 0 0 $\frac{\sqrt{30}i}{120}$ 0 $-\frac{\sqrt{30}}{24}$ 0 0 0 0 0 $\frac{\sqrt{2}i}{12}$
	0	$\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{30}i}{120}$ 0 $\frac{\sqrt{30}}{24}$ 0 0 0 0 0 $\frac{\sqrt{2}i}{12}$ 0
	0	0 0 $-\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{30}}{120}$ 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{2}}{12}$
	0	0 0 0 $\frac{\sqrt{5}i}{30}$ $-\frac{\sqrt{30}}{120}$ 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 $\frac{\sqrt{2}}{12}$ 0
	0	$-\frac{\sqrt{30}i}{30}$ 0 $-\frac{\sqrt{30}}{30}$ $\frac{\sqrt{5}i}{15}$ 0 0 0 0 0 $-\frac{\sqrt{2}i}{12}$ 0 $\frac{\sqrt{2}}{12}$ 0 0
	$-\frac{\sqrt{30}i}{30}$	0 $\frac{\sqrt{30}}{30}$ 0 0 $-\frac{\sqrt{5}i}{15}$ 0 0 0 $-\frac{\sqrt{2}i}{12}$ 0 $-\frac{\sqrt{2}}{12}$ 0 0 0

920 symmetry

 $-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(A, 1)$	0 0 0 0 0 $\frac{5\sqrt{42}i}{168}$ 0 $-\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{5\sqrt{42}i}{168}$ 0 $-\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{5\sqrt{42}}{168}$ 0 $\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{5\sqrt{42}}{168}$ 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 0 0	
	0 $\frac{5\sqrt{42}i}{168}$ 0 $\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0	
	$-\frac{5\sqrt{42}i}{168}$ 0 $\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0	
	0 $-\frac{5\sqrt{42}}{168}$ 0 $\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0	
	$-\frac{5\sqrt{42}}{168}$ 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{42}i}{84}$	
	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{84}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{42}}{84}$ 0	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{84}$ 0 0 0	
$\frac{\sqrt{3}(x-y)(x+y)}{2}$		

921 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(A, 2)$	0 0 0 0 0 $-\frac{5\sqrt{14}i}{168}$ 0 $-\frac{5\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 0	
	0 0 0 0 $\frac{5\sqrt{14}i}{168}$ 0 $-\frac{5\sqrt{14}}{168}$ 0 0 0 0 $\frac{\sqrt{35}}{42}$ 0 0 0	
	0 0 0 0 0 $\frac{5\sqrt{14}}{168}$ 0 $-\frac{5\sqrt{14}i}{168}$ $\frac{\sqrt{35}}{42}$ 0 0 0 0 0	
	0 0 0 0 $\frac{5\sqrt{14}}{168}$ 0 $\frac{5\sqrt{14}i}{168}$ 0 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 0 0	
	0 $-\frac{5\sqrt{14}i}{168}$ 0 $\frac{5\sqrt{14}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 0	
	$\frac{5\sqrt{14}i}{168}$ 0 $\frac{5\sqrt{14}}{168}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 0	
	0 $-\frac{5\sqrt{14}}{168}$ 0 $-\frac{5\sqrt{14}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}}{168}$ $\frac{\sqrt{35}}{21}$ 0	
	$-\frac{5\sqrt{14}}{168}$ 0 $\frac{5\sqrt{14}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 $-\frac{\sqrt{35}}{21}$	
	0 0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 $-\frac{\sqrt{14}i}{84}$	
	0 0 0 $-\frac{\sqrt{35}}{42}$ $\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 $\frac{\sqrt{21}}{21}$ $\frac{\sqrt{14}i}{84}$ 0	
	$-\frac{\sqrt{35}}{42}$ 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ $-\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $\frac{\sqrt{14}}{84}$	
	0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 $\frac{\sqrt{21}}{21}$ 0 0 $\frac{\sqrt{14}}{84}$ 0	
	0 0 0 0 0 0 $\frac{\sqrt{35}}{21}$ 0 0 $-\frac{\sqrt{14}i}{84}$ 0 $\frac{\sqrt{14}}{84}$ 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{35}}{21}$ $\frac{\sqrt{14}i}{84}$ 0 $\frac{\sqrt{14}}{84}$ 0 0 0	

922 symmetry

 $\sqrt{3}xz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(A, 3)$	0	$\frac{5\sqrt{21}i}{84}$ 0 0 0 0 0 $\frac{5\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{35}i}{84}$ 0 $\frac{\sqrt{35}}{84}$ 0 0
	$-\frac{5\sqrt{21}i}{84}$	0 0 0 0 0 0 0 $-\frac{5\sqrt{14}}{168}$ $\frac{\sqrt{35}i}{84}$ 0 $\frac{\sqrt{35}}{84}$ 0 0 0
	0	0 0 0 $\frac{5\sqrt{21}i}{84}$ $-\frac{5\sqrt{14}}{168}$ 0 0 0 0 $-\frac{\sqrt{35}}{84}$ 0 $-\frac{\sqrt{35}i}{84}$ 0 0
	0	0 0 $-\frac{5\sqrt{21}i}{84}$ 0 0 $\frac{5\sqrt{14}}{168}$ 0 0 0 $-\frac{\sqrt{35}}{84}$ 0 $\frac{\sqrt{35}i}{84}$ 0 0
	0	0 0 $-\frac{5\sqrt{14}}{168}$ 0 0 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 0 $-\frac{\sqrt{35}i}{42}$
	0	0 0 0 $\frac{5\sqrt{14}}{168}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ $\frac{\sqrt{35}i}{42}$ 0
	$\frac{5\sqrt{14}}{168}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 $-\frac{\sqrt{35}}{42}$
	0	$-\frac{5\sqrt{14}}{168}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0
	0	$-\frac{\sqrt{35}i}{84}$ 0 $-\frac{\sqrt{35}}{84}$ 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 $-\frac{\sqrt{21}i}{84}$ 0 $\frac{\sqrt{21}}{42}$ 0 0
	$\frac{\sqrt{35}i}{84}$	0 $-\frac{\sqrt{35}}{84}$ 0 0 0 0 $\frac{\sqrt{210}}{168}$ $\frac{\sqrt{21}i}{84}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0
	0	$\frac{\sqrt{35}}{84}$ 0 $-\frac{\sqrt{35}i}{84}$ $\frac{\sqrt{210}}{168}$ 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 $-\frac{5\sqrt{21}i}{84}$ $-\frac{\sqrt{14}}{84}$ 0
	$\frac{\sqrt{35}}{84}$	0 $\frac{\sqrt{35}i}{84}$ 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 $\frac{\sqrt{21}}{42}$ 0 $\frac{5\sqrt{21}i}{84}$ 0 0 $\frac{\sqrt{14}}{84}$
	0	0 0 0 0 $-\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{42}$ 0 0 0 $-\frac{\sqrt{14}}{84}$ 0 0 $-\frac{\sqrt{21}i}{21}$
	0	0 0 0 0 $\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{42}$ 0 0 0 0 $\frac{\sqrt{14}}{84}$ $\frac{\sqrt{21}i}{21}$ 0

923 symmetry

 $\sqrt{3}yz$ 

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_2^{(1,0;a)}(B,1)$	0	$\frac{5\sqrt{21}}{84}$	0	0	$\frac{5\sqrt{14}}{168}$	0	0	0	0	$\frac{\sqrt{35}}{84}$	0	$\frac{\sqrt{35}i}{84}$	0	0	0	
	$\frac{5\sqrt{21}}{84}$	0	0	0	0	$-\frac{5\sqrt{14}}{168}$	0	0	$\frac{\sqrt{35}}{84}$	0	$-\frac{\sqrt{35}i}{84}$	0	0	0	0	
	0	0	0	$\frac{5\sqrt{21}}{84}$	0	0	$\frac{5\sqrt{14}}{168}$	0	0	$-\frac{\sqrt{35}i}{84}$	0	$\frac{\sqrt{35}}{84}$	0	0	0	
	0	0	$\frac{5\sqrt{21}}{84}$	0	0	0	0	$-\frac{5\sqrt{14}}{168}$	$\frac{\sqrt{35}i}{84}$	0	$\frac{\sqrt{35}}{84}$	0	0	0	0	
	$\frac{5\sqrt{14}}{168}$	0	0	0	0	0	0	0	$\frac{\sqrt{210}}{168}$	0	0	0	0	$\frac{\sqrt{35}}{42}$		
	0	$-\frac{5\sqrt{14}}{168}$	0	0	0	0	0	0	0	$-\frac{\sqrt{210}}{168}$	0	0	$\frac{\sqrt{35}}{42}$	0		
	0	0	$\frac{5\sqrt{14}}{168}$	0	0	0	0	0	0	$\frac{\sqrt{210}}{168}$	0	0	$-\frac{\sqrt{35}i}{42}$			
	0	0	0	$-\frac{5\sqrt{14}}{168}$	0	0	0	0	0	0	$-\frac{\sqrt{210}}{168}$	$\frac{\sqrt{35}i}{42}$	0			
	0	$\frac{\sqrt{35}}{84}$	0	$-\frac{\sqrt{35}i}{84}$	$\frac{\sqrt{210}}{168}$	0	0	0	0	$-\frac{5\sqrt{21}}{84}$	0	$\frac{\sqrt{21}i}{42}$	$\frac{\sqrt{14}}{84}$	0		
	$\frac{\sqrt{35}}{84}$	0	$\frac{\sqrt{35}i}{84}$	0	0	$-\frac{\sqrt{210}}{168}$	0	0	$-\frac{5\sqrt{21}}{84}$	0	$-\frac{\sqrt{21}i}{42}$	0	0	$-\frac{\sqrt{14}}{84}$		
	0	$\frac{\sqrt{35}i}{84}$	0	$\frac{\sqrt{35}}{84}$	0	0	$\frac{\sqrt{210}}{168}$	0	0	$\frac{\sqrt{21}i}{42}$	0	$-\frac{\sqrt{21}}{84}$	0	0	0	
	$-\frac{\sqrt{35}i}{84}$	0	$\frac{\sqrt{35}}{84}$	0	0	0	0	$-\frac{\sqrt{210}}{168}$	$-\frac{\sqrt{21}i}{42}$	0	$-\frac{\sqrt{21}}{84}$	0	0	0	0	
	0	0	0	0	0	$\frac{\sqrt{35}}{42}$	0	$-\frac{\sqrt{35}i}{42}$	$\frac{\sqrt{14}}{84}$	0	0	0	0	$-\frac{\sqrt{21}}{21}$		
	0	0	0	0	$\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	$-\frac{\sqrt{14}}{84}$	0	0	$-\frac{\sqrt{21}}{21}$	0		

924 symmetry

 $\sqrt{3}xy$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(B, 2)$	0 0 0 0 0 $-\frac{5\sqrt{14}}{168}$ 0 $\frac{5\sqrt{14}i}{168}$ $-\frac{\sqrt{35}}{42}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{5\sqrt{14}}{168}$ 0 $-\frac{5\sqrt{14}i}{168}$ 0 0 $\frac{\sqrt{35}}{42}$ 0 0 0 0 0	
	0 0 0 0 0 $-\frac{5\sqrt{14}i}{168}$ 0 $-\frac{5\sqrt{14}}{168}$ 0 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 0 0	
	0 0 0 0 $\frac{5\sqrt{14}i}{168}$ 0 $-\frac{5\sqrt{14}}{168}$ 0 0 0 0 0 $\frac{\sqrt{35}}{42}$ 0 0 0	
	0 $-\frac{5\sqrt{14}}{168}$ 0 $-\frac{5\sqrt{14}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ $-\frac{\sqrt{35}}{21}$ 0	
	$-\frac{5\sqrt{14}}{168}$ 0 $\frac{5\sqrt{14}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 $\frac{\sqrt{35}}{21}$	
	0 $\frac{5\sqrt{14}i}{168}$ 0 $-\frac{5\sqrt{14}}{168}$ 0 0 0 0 0 0 $-\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 0	
	$-\frac{5\sqrt{14}i}{168}$ 0 $-\frac{5\sqrt{14}}{168}$ 0 0 0 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 0	
	$-\frac{\sqrt{35}}{42}$ 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ $\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{84}$	
	0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 $-\frac{\sqrt{14}}{84}$ 0	
	0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 $-\frac{\sqrt{14}i}{84}$	
	0 0 0 $\frac{\sqrt{35}}{42}$ $-\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 $\frac{\sqrt{21}}{21}$ $\frac{\sqrt{14}i}{84}$ 0	
	0 0 0 0 $-\frac{\sqrt{35}}{21}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{84}$ 0 $-\frac{\sqrt{14}i}{84}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{35}}{21}$ 0 0 0 $-\frac{\sqrt{14}}{84}$ 0 $\frac{\sqrt{14}i}{84}$ 0 0 0	
925	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A, 1)$	0	0 0 0 0 0 $-\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{66}i}{88}$
	0	0 0 0 0 $\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 0 0 $-\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{66}i}{88}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ $\frac{\sqrt{11}}{22}$ 0 0 0 0 $-\frac{\sqrt{66}}{88}$
	0	0 0 0 0 $-\frac{\sqrt{110}}{88}$ 0 $\frac{\sqrt{110}i}{88}$ 0 0 $-\frac{\sqrt{11}}{22}$ 0 0 $-\frac{\sqrt{66}}{88}$ 0
	0	$-\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0 $-\frac{\sqrt{165}}{66}$ 0 0 $\frac{\sqrt{66}i}{88}$ 0 $-\frac{\sqrt{66}}{88}$ 0 0
	$\frac{\sqrt{110}i}{88}$	0 $-\frac{\sqrt{110}}{88}$ 0 0 0 0 $\frac{\sqrt{165}}{66}$ $-\frac{\sqrt{66}i}{88}$ 0 $-\frac{\sqrt{66}}{88}$ 0 0 0
	0	$\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ $-\frac{\sqrt{165}}{66}$ 0 0 0 0 $\frac{5\sqrt{66}}{264}$ 0 $\frac{5\sqrt{66}i}{264}$ 0 0
	$\frac{\sqrt{110}}{88}$	0 $\frac{\sqrt{110}i}{88}$ 0 0 $\frac{\sqrt{165}}{66}$ 0 0 $\frac{5\sqrt{66}}{264}$ 0 $-\frac{5\sqrt{66}i}{264}$ 0 0 0
	0	0 $\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{66}i}{88}$ 0 $\frac{5\sqrt{66}}{264}$ 0 0 0 0 0 $\frac{\sqrt{110}i}{88}$
	0	0 0 0 $-\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{66}i}{88}$ 0 $\frac{5\sqrt{66}}{264}$ 0 0 0 0 $-\frac{\sqrt{110}i}{88}$ 0
	$\frac{\sqrt{11}}{22}$	0 0 0 0 0 $-\frac{\sqrt{66}}{88}$ 0 $\frac{5\sqrt{66}i}{264}$ 0 0 0 0 0 $\frac{\sqrt{110}}{88}$
	0	$-\frac{\sqrt{11}}{22}$ 0 0 $-\frac{\sqrt{66}}{88}$ 0 $-\frac{5\sqrt{66}i}{264}$ 0 0 0 0 0 $\frac{\sqrt{110}}{88}$ 0
	0	$\frac{\sqrt{66}i}{88}$ 0 $-\frac{\sqrt{66}}{88}$ 0 0 0 0 0 $\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0
	$-\frac{\sqrt{66}i}{88}$	0 $-\frac{\sqrt{66}}{88}$ 0 0 0 0 0 $-\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 0
$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$		
926	symmetry	

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_4^{(1,0;a)}(A, 2)$	0	0	0	0	0	$-\frac{5\sqrt{154}i}{616}$	0	$\frac{5\sqrt{154}}{616}$	0	0	$-\frac{\sqrt{385}}{110}$	0	0	$-\frac{\sqrt{2310}i}{440}$		
	0	0	0	0	$\frac{5\sqrt{154}i}{616}$	0	$\frac{5\sqrt{154}}{616}$	0	0	0	$\frac{\sqrt{385}}{110}$	$\frac{\sqrt{2310}i}{440}$	0	0		
	0	0	0	0	0	$-\frac{5\sqrt{154}}{616}$	0	$-\frac{5\sqrt{154}i}{616}$	$-\frac{\sqrt{385}}{110}$	0	0	0	0	$\frac{\sqrt{2310}}{440}$		
	0	0	0	0	$-\frac{5\sqrt{154}}{616}$	0	$\frac{5\sqrt{154}i}{616}$	0	0	$\frac{\sqrt{385}}{110}$	0	0	$\frac{\sqrt{2310}}{440}$	0		
	0	$-\frac{5\sqrt{154}i}{616}$	0	$-\frac{5\sqrt{154}}{616}$	0	0	$\frac{\sqrt{231}}{66}$	0	0	$\frac{9\sqrt{2310}i}{3080}$	0	$-\frac{9\sqrt{2310}}{3080}$	0	0	0	
	$\frac{5\sqrt{154}i}{616}$	0	$-\frac{5\sqrt{154}}{616}$	0	0	0	$-\frac{\sqrt{231}}{66}$	$-\frac{9\sqrt{2310}i}{3080}$	0	$-\frac{9\sqrt{2310}}{3080}$	0	0	0	0		
	0	$\frac{5\sqrt{154}}{616}$	0	$-\frac{5\sqrt{154}i}{616}$	$\frac{\sqrt{231}}{66}$	0	0	0	0	$\frac{13\sqrt{2310}}{9240}$	0	$\frac{13\sqrt{2310}i}{9240}$	0	0		
	$\frac{5\sqrt{154}}{616}$	0	$\frac{5\sqrt{154}i}{616}$	0	0	$-\frac{\sqrt{231}}{66}$	0	0	$\frac{13\sqrt{2310}}{9240}$	0	$-\frac{13\sqrt{2310}i}{9240}$	0	0	0		
	0	0	$-\frac{\sqrt{385}}{110}$	0	0	$\frac{9\sqrt{2310}i}{3080}$	0	$\frac{13\sqrt{2310}}{9240}$	0	0	0	0	0	$\frac{5\sqrt{154}i}{616}$		
	0	0	0	$\frac{\sqrt{385}}{110}$	$-\frac{9\sqrt{2310}i}{3080}$	0	$\frac{13\sqrt{2310}}{9240}$	0	0	0	0	0	$-\frac{5\sqrt{154}i}{616}$	0		
	$-\frac{\sqrt{385}}{110}$	0	0	0	0	$-\frac{9\sqrt{2310}}{3080}$	0	$\frac{13\sqrt{2310}i}{9240}$	0	0	0	0	0	$\frac{5\sqrt{154}}{616}$		
	0	$\frac{\sqrt{385}}{110}$	0	0	$-\frac{9\sqrt{2310}}{3080}$	0	$-\frac{13\sqrt{2310}i}{9240}$	0	0	0	0	0	$\frac{5\sqrt{154}}{616}$	0		
	0	$-\frac{\sqrt{2310}i}{440}$	0	$\frac{\sqrt{2310}}{440}$	0	0	0	0	0	$\frac{5\sqrt{154}i}{616}$	0	$\frac{5\sqrt{154}}{616}$	0	0		
	$\frac{\sqrt{2310}i}{440}$	0	$\frac{\sqrt{2310}}{440}$	0	0	0	0	0	$-\frac{5\sqrt{154}i}{616}$	0	$\frac{5\sqrt{154}}{616}$	0	0	0		

927 symmetry

$$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$$

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_4^{(1,0;a)}(A, 3)$	0	0	0	0	0	$-\frac{3\sqrt{462}i}{616}$	0	$-\frac{3\sqrt{462}}{616}$	0	0	$-\frac{3\sqrt{1155}}{770}$	0	0	$\frac{3\sqrt{770}i}{440}$		
	0	0	0	0	$\frac{3\sqrt{462}i}{616}$	0	$-\frac{3\sqrt{462}}{616}$	0	0	0	$\frac{3\sqrt{1155}}{770}$	$-\frac{3\sqrt{770}i}{440}$	0			
	0	0	0	0	0	$\frac{3\sqrt{462}}{616}$	0	$-\frac{3\sqrt{462}i}{616}$	$\frac{3\sqrt{1155}}{770}$	0	0	0	0	$\frac{3\sqrt{770}}{440}$		
	0	0	0	0	$\frac{3\sqrt{462}}{616}$	0	$\frac{3\sqrt{462}i}{616}$	0	0	$-\frac{3\sqrt{1155}}{770}$	0	0	$\frac{3\sqrt{770}}{440}$	0		
	0	$-\frac{3\sqrt{462}i}{616}$	0	$\frac{3\sqrt{462}}{616}$	0	0	0	0	$\frac{\sqrt{770}i}{616}$	0	$\frac{\sqrt{770}}{616}$	0	0	0		
	$\frac{3\sqrt{462}i}{616}$	0	$\frac{3\sqrt{462}}{616}$	0	0	0	0	0	$-\frac{\sqrt{770}i}{616}$	0	$\frac{\sqrt{770}}{616}$	0	0	0		
	0	$-\frac{3\sqrt{462}}{616}$	0	$-\frac{3\sqrt{462}i}{616}$	0	0	0	0	0	$-\frac{19\sqrt{770}}{3080}$	0	$\frac{19\sqrt{770}i}{3080}$	$-\frac{\sqrt{1155}}{770}$	0		
	$-\frac{3\sqrt{462}}{616}$	0	$\frac{3\sqrt{462}i}{616}$	0	0	0	0	0	$-\frac{19\sqrt{770}}{3080}$	0	$-\frac{19\sqrt{770}i}{3080}$	0	0	$\frac{\sqrt{1155}}{770}$		
	0	0	$\frac{3\sqrt{1155}}{770}$	0	0	$\frac{\sqrt{770}i}{616}$	0	$-\frac{19\sqrt{770}}{3080}$	0	0	$\frac{\sqrt{77}}{77}$	0	0	$\frac{3\sqrt{462}i}{616}$		
	0	0	0	$-\frac{3\sqrt{1155}}{770}$	$-\frac{\sqrt{770}i}{616}$	0	$-\frac{19\sqrt{770}}{3080}$	0	0	0	$-\frac{\sqrt{77}}{77}$	$-\frac{3\sqrt{462}i}{616}$	0			
	$-\frac{3\sqrt{1155}}{770}$	0	0	0	0	$\frac{\sqrt{770}}{616}$	0	$\frac{19\sqrt{770}i}{3080}$	$\frac{\sqrt{77}}{77}$	0	0	0	0	$-\frac{3\sqrt{462}}{616}$		
	0	$\frac{3\sqrt{1155}}{770}$	0	0	$\frac{\sqrt{770}}{616}$	0	$-\frac{19\sqrt{770}i}{3080}$	0	0	$-\frac{\sqrt{77}}{77}$	0	0	$-\frac{3\sqrt{462}}{616}$	0		
	0	$\frac{3\sqrt{770}i}{440}$	0	$\frac{3\sqrt{770}}{440}$	0	0	$-\frac{\sqrt{1155}}{770}$	0	$\frac{3\sqrt{462}i}{616}$	0	$-\frac{3\sqrt{462}}{616}$	0	0	0		
	$-\frac{3\sqrt{770}i}{440}$	0	$\frac{3\sqrt{770}}{440}$	0	0	0	0	$\frac{\sqrt{1155}}{770}$	$-\frac{3\sqrt{462}i}{616}$	0	$-\frac{3\sqrt{462}}{616}$	0	0	0		
$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$																

928 symmetry

continued ...

Table 10

No.	multipole	matrix												
$\mathbb{T}_4^{(1,0;a)}(A, 4)$	0	$-\frac{3\sqrt{11}i}{88}$	0	0	0	0	$-\frac{\sqrt{66}}{176}$	0	0	$\frac{7\sqrt{165}i}{440}$	0	$-\frac{\sqrt{165}}{220}$	0	0
	$\frac{3\sqrt{11}i}{88}$	0	0	0	0	0	0	$\frac{\sqrt{66}}{176}$	$-\frac{7\sqrt{165}i}{440}$	0	$-\frac{\sqrt{165}}{220}$	0	0	0
	0	0	0	$-\frac{3\sqrt{11}i}{88}$	$\frac{\sqrt{66}}{176}$	0	0	0	$\frac{\sqrt{165}}{110}$	0	$\frac{\sqrt{165}i}{88}$	$-\frac{9\sqrt{110}}{880}$	0	0
	0	0	$\frac{3\sqrt{11}i}{88}$	0	0	$-\frac{\sqrt{66}}{176}$	0	0	$\frac{\sqrt{165}}{110}$	0	$-\frac{\sqrt{165}i}{88}$	0	0	$\frac{9\sqrt{110}}{880}$
	0	0	$\frac{\sqrt{66}}{176}$	0	0	$\frac{3\sqrt{11}i}{44}$	0	$-\frac{\sqrt{11}}{88}$	0	0	$\frac{7\sqrt{110}}{880}$	0	0	$-\frac{\sqrt{165}i}{220}$
	0	0	0	$-\frac{\sqrt{66}}{176}$	$-\frac{3\sqrt{11}i}{44}$	0	$-\frac{\sqrt{11}}{88}$	0	0	0	$-\frac{7\sqrt{110}}{880}$	$\frac{\sqrt{165}i}{220}$	0	0
	$-\frac{\sqrt{66}}{176}$	0	0	0	0	$-\frac{\sqrt{11}}{88}$	0	$\frac{\sqrt{11}i}{11}$	$-\frac{\sqrt{110}}{880}$	0	0	0	0	$-\frac{\sqrt{165}}{440}$
	0	$\frac{\sqrt{66}}{176}$	0	0	$-\frac{\sqrt{11}}{88}$	0	$-\frac{\sqrt{11}i}{11}$	0	0	$\frac{\sqrt{110}}{880}$	0	0	$-\frac{\sqrt{165}}{440}$	0
	0	$\frac{7\sqrt{165}i}{440}$	0	$\frac{\sqrt{165}}{110}$	0	0	$-\frac{\sqrt{110}}{880}$	0	0	$\frac{3\sqrt{11}i}{88}$	0	$\frac{\sqrt{11}}{44}$	0	0
	$-\frac{7\sqrt{165}i}{440}$	0	$\frac{\sqrt{165}}{110}$	0	0	0	0	$\frac{\sqrt{110}}{880}$	$-\frac{3\sqrt{11}i}{88}$	0	$\frac{\sqrt{11}}{44}$	0	0	0
	0	$-\frac{\sqrt{165}}{220}$	0	$\frac{\sqrt{165}i}{88}$	$\frac{7\sqrt{110}}{880}$	0	0	0	0	$\frac{\sqrt{11}}{44}$	0	$-\frac{5\sqrt{11}i}{88}$	$-\frac{\sqrt{66}}{176}$	0
	$-\frac{\sqrt{165}}{220}$	0	$-\frac{\sqrt{165}i}{88}$	0	0	$-\frac{7\sqrt{110}}{880}$	0	0	$\frac{\sqrt{11}}{44}$	0	$\frac{5\sqrt{11}i}{88}$	0	0	$\frac{\sqrt{66}}{176}$
	0	0	$-\frac{9\sqrt{110}}{880}$	0	0	$-\frac{\sqrt{165}i}{220}$	0	$-\frac{\sqrt{165}}{440}$	0	0	$-\frac{\sqrt{66}}{176}$	0	0	$-\frac{3\sqrt{11}i}{44}$
	0	0	0	$\frac{9\sqrt{110}}{880}$	$\frac{\sqrt{165}i}{220}$	0	$-\frac{\sqrt{165}}{440}$	0	0	0	0	$\frac{\sqrt{66}}{176}$	$\frac{3\sqrt{11}i}{44}$	0

929 symmetry

$$\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{T}_4^{(1,0;a)}(A, 5)$	0	$\frac{3\sqrt{77}i}{616}$	0	0	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$\frac{13\sqrt{1155}i}{3080}$	0	$\frac{\sqrt{1155}}{140}$	0	0	
	$-\frac{3\sqrt{77}i}{616}$	0	0	0	0	0	0	$-\frac{\sqrt{462}}{1232}$	$-\frac{13\sqrt{1155}i}{3080}$	0	$\frac{\sqrt{1155}}{140}$	0	0	0	
	0	0	0	$\frac{3\sqrt{77}i}{616}$	$-\frac{\sqrt{462}}{1232}$	0	0	0	0	$-\frac{\sqrt{1155}}{385}$	0	$-\frac{\sqrt{1155}i}{3080}$	$-\frac{9\sqrt{770}}{880}$	0	
	0	0	$-\frac{3\sqrt{77}i}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{1155}}{385}$	0	$\frac{\sqrt{1155}i}{3080}$	0	0	$\frac{9\sqrt{770}}{880}$	
	0	0	$-\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{77}i}{44}$	0	$-\frac{\sqrt{77}}{88}$	0	0	$\frac{17\sqrt{770}}{6160}$	0	0	$-\frac{\sqrt{1155}i}{1540}$	
	0	0	0	$\frac{\sqrt{462}}{1232}$	$\frac{\sqrt{77}i}{44}$	0	$-\frac{\sqrt{77}}{88}$	0	0	0	0	$-\frac{17\sqrt{770}}{6160}$	$\frac{\sqrt{1155}i}{1540}$	0	
	$\frac{\sqrt{462}}{1232}$	0	0	0	0	$-\frac{\sqrt{77}}{88}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{616}$	
	0	$-\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{77}}{88}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}}{616}$	0	
	0	$\frac{13\sqrt{1155}i}{3080}$	0	$-\frac{\sqrt{1155}}{385}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{5\sqrt{77}i}{616}$	0	$-\frac{5\sqrt{77}}{308}$	0	0	
	$-\frac{13\sqrt{1155}i}{3080}$	0	$-\frac{\sqrt{1155}}{385}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	$-\frac{5\sqrt{77}i}{616}$	0	$-\frac{5\sqrt{77}}{308}$	0	0	0	
	0	$\frac{\sqrt{1155}}{140}$	0	$-\frac{\sqrt{1155}i}{3080}$	$\frac{17\sqrt{770}}{6160}$	0	0	0	0	$-\frac{5\sqrt{77}}{308}$	0	$-\frac{3\sqrt{77}i}{616}$	$\frac{\sqrt{462}}{1232}$	0	
	$\frac{\sqrt{1155}}{140}$	0	$\frac{\sqrt{1155}i}{3080}$	0	0	$-\frac{17\sqrt{770}}{6160}$	0	0	$-\frac{5\sqrt{77}}{308}$	0	$\frac{3\sqrt{77}i}{616}$	0	0	$-\frac{\sqrt{462}}{1232}$	
	0	0	$-\frac{9\sqrt{770}}{880}$	0	0	$-\frac{\sqrt{1155}i}{1540}$	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$\frac{3\sqrt{77}i}{308}$	
	0	0	0	$\frac{9\sqrt{770}}{880}$	$\frac{\sqrt{1155}i}{1540}$	0	$\frac{\sqrt{1155}}{616}$	0	0	0	0	$-\frac{\sqrt{462}}{1232}$	$-\frac{3\sqrt{77}i}{308}$	0	
$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$															

930 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{T}_4^{(1,0;a)}(B,1)$	0	$\frac{3\sqrt{11}}{88}$	0	0	$\frac{\sqrt{66}}{176}$	0	0	0	$\frac{\sqrt{165}}{88}$	0	$\frac{\sqrt{165}i}{110}$	$\frac{9\sqrt{110}}{880}$	0		
	$\frac{3\sqrt{11}}{88}$	0	0	0	0	$-\frac{\sqrt{66}}{176}$	0	0	$\frac{\sqrt{165}}{88}$	0	$-\frac{\sqrt{165}i}{110}$	0	0	$-\frac{9\sqrt{110}}{880}$	
	0	0	0	$\frac{3\sqrt{11}}{88}$	0	0	$\frac{\sqrt{66}}{176}$	0	0	$-\frac{\sqrt{165}i}{220}$	0	$\frac{7\sqrt{165}}{440}$	0	0	0
	0	0	$\frac{3\sqrt{11}}{88}$	0	0	0	0	$-\frac{\sqrt{66}}{176}$	$\frac{\sqrt{165}i}{220}$	0	$\frac{7\sqrt{165}}{440}$	0	0	0	0
	$\frac{\sqrt{66}}{176}$	0	0	0	0	$-\frac{3\sqrt{11}}{44}$	0	$-\frac{\sqrt{11}i}{88}$	$-\frac{7\sqrt{110}}{880}$	0	0	0	0	$-\frac{\sqrt{165}}{220}$	
	0	$-\frac{\sqrt{66}}{176}$	0	0	$-\frac{3\sqrt{11}}{44}$	0	$\frac{\sqrt{11}i}{88}$	0	0	$\frac{7\sqrt{110}}{880}$	0	0	$-\frac{\sqrt{165}}{220}$	0	
	0	0	$\frac{\sqrt{66}}{176}$	0	0	$-\frac{\sqrt{11}i}{88}$	0	$-\frac{\sqrt{11}}{11}$	0	0	$-\frac{\sqrt{110}}{880}$	0	0	$\frac{\sqrt{165}i}{440}$	
	0	0	0	$-\frac{\sqrt{66}}{176}$	$\frac{\sqrt{11}i}{88}$	0	$-\frac{\sqrt{11}}{11}$	0	0	0	$\frac{\sqrt{110}}{880}$	$-\frac{\sqrt{165}i}{440}$	0		
	0	$\frac{\sqrt{165}}{88}$	0	$-\frac{\sqrt{165}i}{220}$	$-\frac{7\sqrt{110}}{880}$	0	0	0	0	$\frac{5\sqrt{11}}{88}$	0	$-\frac{\sqrt{11}i}{44}$	$-\frac{\sqrt{66}}{176}$	0	
	$\frac{\sqrt{165}}{88}$	0	$\frac{\sqrt{165}i}{220}$	0	0	$\frac{7\sqrt{110}}{880}$	0	0	$\frac{5\sqrt{11}}{88}$	0	$\frac{\sqrt{11}i}{44}$	0	0	$\frac{\sqrt{66}}{176}$	
	0	$\frac{\sqrt{165}i}{110}$	0	$\frac{7\sqrt{165}}{440}$	0	0	$-\frac{\sqrt{110}}{880}$	0	0	$-\frac{\sqrt{11}i}{44}$	0	$-\frac{3\sqrt{11}}{88}$	0	0	0
	$-\frac{\sqrt{165}i}{110}$	0	$\frac{7\sqrt{165}}{440}$	0	0	0	0	$\frac{\sqrt{110}}{880}$	$\frac{\sqrt{11}i}{44}$	0	$-\frac{3\sqrt{11}}{88}$	0	0	0	
	$\frac{9\sqrt{110}}{880}$	0	0	0	0	$-\frac{\sqrt{165}}{220}$	0	$\frac{\sqrt{165}i}{440}$	$-\frac{\sqrt{66}}{176}$	0	0	0	0	$\frac{3\sqrt{11}}{44}$	
	0	$-\frac{9\sqrt{110}}{880}$	0	0	$-\frac{\sqrt{165}}{220}$	0	$-\frac{\sqrt{165}i}{440}$	0	0	$\frac{\sqrt{66}}{176}$	0	0	$\frac{3\sqrt{11}}{44}$	0	

931 symmetry

 $\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix												
$\mathbb{T}_4^{(1,0;a)}(B, 2)$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{55}$	0	0	0	0	$\frac{3\sqrt{110}}{220}$	
	0	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{55}$	0	0	$\frac{3\sqrt{110}}{220}$	0	
	0	0	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{55}$	0	0	$\frac{3\sqrt{110}i}{220}$	
	0	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{55}$	$-\frac{3\sqrt{110}i}{220}$	0	
	0	0	0	0	$\frac{\sqrt{11}}{11}$	0	0	0	0	$-\frac{\sqrt{110}}{220}$	0	$-\frac{\sqrt{110}i}{220}$	0	
	0	0	0	0	0	$-\frac{\sqrt{11}}{11}$	0	0	$-\frac{\sqrt{110}}{220}$	0	$\frac{\sqrt{110}i}{220}$	0	0	
	0	0	0	0	0	0	$-\frac{\sqrt{11}}{11}$	0	0	$-\frac{\sqrt{110}i}{220}$	0	$\frac{\sqrt{110}}{220}$	0	
	0	0	0	0	0	0	0	$\frac{\sqrt{11}}{11}$	$\frac{\sqrt{110}i}{220}$	0	$\frac{\sqrt{110}}{220}$	0	0	
	$-\frac{\sqrt{165}}{55}$	0	0	0	0	$-\frac{\sqrt{110}}{220}$	0	$-\frac{\sqrt{110}i}{220}$	0	0	0	0	0	
	0	$\frac{\sqrt{165}}{55}$	0	0	$-\frac{\sqrt{110}}{220}$	0	$\frac{\sqrt{110}i}{220}$	0	0	0	0	0	0	
	0	0	$\frac{\sqrt{165}}{55}$	0	0	$-\frac{\sqrt{110}i}{220}$	0	$\frac{\sqrt{110}}{220}$	0	0	0	0	0	
	0	0	0	$-\frac{\sqrt{165}}{55}$	$\frac{\sqrt{110}i}{220}$	0	$\frac{\sqrt{110}}{220}$	0	0	0	0	0	0	
	0	$\frac{3\sqrt{110}}{220}$	0	$\frac{3\sqrt{110}i}{220}$	0	0	0	0	0	0	0	0	0	
	$\frac{3\sqrt{110}}{220}$	0	$-\frac{3\sqrt{110}i}{220}$	0	0	0	0	0	0	0	0	0	0	
932	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$												

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_4^{(1,0;a)}(B,3)$	0	$\frac{3\sqrt{77}}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	0	$\frac{\sqrt{1155}}{3080}$	0	$\frac{\sqrt{1155}i}{385}$	$-\frac{9\sqrt{770}}{880}$	0			
	$\frac{3\sqrt{77}}{616}$	0	0	0	0	$-\frac{\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{1155}}{3080}$	0	$-\frac{\sqrt{1155}i}{385}$	0	0	$\frac{9\sqrt{770}}{880}$		
	0	0	0	$\frac{3\sqrt{77}}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{1155}i}{140}$	0	$-\frac{13\sqrt{1155}}{3080}$	0	0	0	
	0	0	$\frac{3\sqrt{77}}{616}$	0	0	0	0	$-\frac{\sqrt{462}}{1232}$	$\frac{\sqrt{1155}i}{140}$	0	$-\frac{13\sqrt{1155}}{3080}$	0	0	0		
	$\frac{\sqrt{462}}{1232}$	0	0	0	0	$-\frac{\sqrt{77}}{44}$	0	$\frac{\sqrt{77}i}{88}$	$\frac{17\sqrt{770}}{6160}$	0	0	0	0	$\frac{\sqrt{1155}}{1540}$		
	0	$-\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{77}}{44}$	0	$-\frac{\sqrt{77}i}{88}$	0	0	$-\frac{17\sqrt{770}}{6160}$	0	0	$\frac{\sqrt{1155}}{1540}$	0		
	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{77}i}{88}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}i}{616}$		
	0	0	0	$-\frac{\sqrt{462}}{1232}$	$-\frac{\sqrt{77}i}{88}$	0	0	0	0	0	$\frac{5\sqrt{770}}{1232}$	$-\frac{\sqrt{1155}i}{616}$	0			
	0	$\frac{\sqrt{1155}}{3080}$	0	$-\frac{\sqrt{1155}i}{140}$	$\frac{17\sqrt{770}}{6160}$	0	0	0	0	$-\frac{3\sqrt{77}}{616}$	0	$-\frac{5\sqrt{77}i}{308}$	$-\frac{\sqrt{462}}{1232}$	0		
	$\frac{\sqrt{1155}}{3080}$	0	$\frac{\sqrt{1155}i}{140}$	0	0	$-\frac{17\sqrt{770}}{6160}$	0	0	$-\frac{3\sqrt{77}}{616}$	0	$\frac{5\sqrt{77}i}{308}$	0	0	$\frac{\sqrt{462}}{1232}$		
	0	$\frac{\sqrt{1155}i}{385}$	0	$-\frac{13\sqrt{1155}}{3080}$	0	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$-\frac{5\sqrt{77}i}{308}$	0	$\frac{5\sqrt{77}}{616}$	0	0		
	$-\frac{\sqrt{1155}i}{385}$	0	$-\frac{13\sqrt{1155}}{3080}$	0	0	0	0	$\frac{5\sqrt{770}}{1232}$	$\frac{5\sqrt{77}i}{308}$	0	$\frac{5\sqrt{77}}{616}$	0	0	0		
	$-\frac{9\sqrt{770}}{880}$	0	0	0	0	$\frac{\sqrt{1155}}{1540}$	0	$-\frac{\sqrt{1155}i}{616}$	$-\frac{\sqrt{462}}{1232}$	0	0	0	0	$\frac{3\sqrt{77}}{308}$		
	0	$\frac{9\sqrt{770}}{880}$	0	0	$\frac{\sqrt{1155}}{1540}$	0	$-\frac{\sqrt{1155}i}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$\frac{3\sqrt{77}}{308}$	0		
933	symmetry	$\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$														

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{T}_4^{(1,0;a)}(B, 4)$	0	0	0	0	0	$\frac{3\sqrt{462}}{616}$	0	$-\frac{3\sqrt{462}i}{616}$	$\frac{3\sqrt{1155}}{770}$	0	0	0	0	$\frac{3\sqrt{770}}{440}$	
	0	0	0	0	$\frac{3\sqrt{462}}{616}$	0	$\frac{3\sqrt{462}i}{616}$	0	0	$-\frac{3\sqrt{1155}}{770}$	0	0	$\frac{3\sqrt{770}}{440}$	0	
	0	0	0	0	0	$\frac{3\sqrt{462}i}{616}$	0	$\frac{3\sqrt{462}}{616}$	0	0	$\frac{3\sqrt{1155}}{770}$	0	0	$-\frac{3\sqrt{770}i}{440}$	
	0	0	0	0	$-\frac{3\sqrt{462}i}{616}$	0	$\frac{3\sqrt{462}}{616}$	0	0	0	0	$-\frac{3\sqrt{1155}}{770}$	$\frac{3\sqrt{770}i}{440}$	0	
	0	$\frac{3\sqrt{462}}{616}$	0	$\frac{3\sqrt{462}i}{616}$	0	0	0	0	$-\frac{19\sqrt{770}}{3080}$	0	$\frac{19\sqrt{770}i}{3080}$	$-\frac{\sqrt{1155}}{770}$	0	0	
	$\frac{3\sqrt{462}}{616}$	0	$-\frac{3\sqrt{462}i}{616}$	0	0	0	0	0	$-\frac{19\sqrt{770}}{3080}$	0	$-\frac{19\sqrt{770}i}{3080}$	0	0	$\frac{\sqrt{1155}}{770}$	
	0	$-\frac{3\sqrt{462}i}{616}$	0	$\frac{3\sqrt{462}}{616}$	0	0	0	0	$-\frac{\sqrt{770}i}{616}$	0	$-\frac{\sqrt{770}i}{616}$	0	0	0	
	$\frac{3\sqrt{462}i}{616}$	0	$\frac{3\sqrt{462}}{616}$	0	0	0	0	0	$\frac{\sqrt{770}i}{616}$	0	$-\frac{\sqrt{770}}{616}$	0	0	0	
	$\frac{3\sqrt{1155}}{770}$	0	0	0	0	$-\frac{19\sqrt{770}}{3080}$	0	$-\frac{\sqrt{770}i}{616}$	$\frac{\sqrt{77}}{77}$	0	0	0	0	$-\frac{3\sqrt{462}}{616}$	
	0	$-\frac{3\sqrt{1155}}{770}$	0	0	$-\frac{19\sqrt{770}}{3080}$	0	$\frac{\sqrt{770}i}{616}$	0	0	$-\frac{\sqrt{77}}{77}$	0	0	$-\frac{3\sqrt{462}}{616}$	0	
	0	0	$\frac{3\sqrt{1155}}{770}$	0	0	$\frac{19\sqrt{770}i}{3080}$	0	$-\frac{\sqrt{770}}{616}$	0	0	$-\frac{\sqrt{77}}{77}$	0	0	$-\frac{3\sqrt{462}i}{616}$	
	0	0	0	$-\frac{3\sqrt{1155}}{770}$	$-\frac{19\sqrt{770}i}{3080}$	0	$-\frac{\sqrt{770}}{616}$	0	0	0	0	$\frac{\sqrt{77}}{77}$	$\frac{3\sqrt{462}i}{616}$	0	
	0	$\frac{3\sqrt{770}}{440}$	0	$-\frac{3\sqrt{770}i}{440}$	$-\frac{\sqrt{1155}}{770}$	0	0	0	0	$-\frac{3\sqrt{462}}{616}$	0	$-\frac{3\sqrt{462}i}{616}$	0	0	
	$\frac{3\sqrt{770}}{440}$	0	$\frac{3\sqrt{770}i}{440}$	0	0	$\frac{\sqrt{1155}}{770}$	0	0	$-\frac{3\sqrt{462}}{616}$	0	$\frac{3\sqrt{462}i}{616}$	0	0	0	

934 symmetry

$$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(A, 1)$	0 0 0 0 0 $-\frac{5\sqrt{33}i}{264}$ 0 $-\frac{\sqrt{33}}{44}$ 0 0 $\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{55}i}{88}$	
	0 0 0 0 $\frac{5\sqrt{33}i}{264}$ 0 $-\frac{\sqrt{33}}{44}$ 0 0 0 0 $-\frac{\sqrt{330}}{132}$ $-\frac{\sqrt{55}i}{88}$ 0	
	0 0 0 0 0 $-\frac{5\sqrt{33}}{264}$ 0 $\frac{\sqrt{33}i}{44}$ $\frac{\sqrt{330}}{132}$ 0 0 0 0 $-\frac{\sqrt{55}i}{88}$	
	0 0 0 0 $-\frac{5\sqrt{33}}{264}$ 0 $-\frac{\sqrt{33}i}{44}$ 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{55}}{88}$ 0	
	0 $-\frac{5\sqrt{33}i}{264}$ 0 $-\frac{5\sqrt{33}}{264}$ 0 0 $\frac{\sqrt{22}}{22}$ 0 0 $\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{88}$ 0 0	
	$\frac{5\sqrt{33}i}{264}$ 0 $-\frac{5\sqrt{33}}{264}$ 0 0 0 0 $-\frac{\sqrt{22}}{22}$ $-\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{88}$ 0 0	
	0 $-\frac{\sqrt{33}}{44}$ 0 $\frac{\sqrt{33}i}{44}$ $\frac{\sqrt{22}}{22}$ 0 0 0 0 $-\frac{\sqrt{55}}{44}$ 0 $-\frac{\sqrt{55}i}{44}$ 0 0	
	$-\frac{\sqrt{33}}{44}$ 0 $-\frac{\sqrt{33}i}{44}$ 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 $-\frac{\sqrt{55}}{44}$ 0 $\frac{\sqrt{55}i}{44}$ 0 0	
	0 0 $\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{44}$ 0 0 0 0 0 $\frac{5\sqrt{33}i}{264}$	
	0 0 0 $-\frac{\sqrt{330}}{132}$ $-\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{44}$ 0 0 0 0 0 $-\frac{5\sqrt{33}i}{264}$ 0	
	$\frac{\sqrt{330}}{132}$ 0 0 0 0 $-\frac{\sqrt{55}}{88}$ 0 $-\frac{\sqrt{55}i}{44}$ 0 0 0 0 0 $\frac{5\sqrt{33}}{264}$	
	0 $-\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{55}}{88}$ 0 $\frac{\sqrt{55}i}{44}$ 0 0 0 0 0 $\frac{5\sqrt{33}}{264}$ 0	
	0 $\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{88}$ 0 0 0 0 0 $\frac{5\sqrt{33}i}{264}$ 0 $\frac{5\sqrt{33}}{264}$ 0 0	
	$-\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{88}$ 0 0 0 0 0 $-\frac{5\sqrt{33}i}{264}$ 0 $\frac{5\sqrt{33}}{264}$ 0 0	
935	symmetry	$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(A, 2)$	0	0 $-\frac{\sqrt{210}}{56}$ 0 0 $-\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{84}$ 0 0 $\frac{\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{21}i}{56}$
	0	0 0 $\frac{\sqrt{210}}{56}$ $\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{84}$ 0 0 0 0 $-\frac{\sqrt{14}}{168}$ $\frac{\sqrt{21}i}{56}$ 0
	$-\frac{\sqrt{210}}{56}$	0 0 0 0 0 $\frac{\sqrt{35}}{168}$ 0 $\frac{\sqrt{35}i}{84}$ $-\frac{\sqrt{14}}{168}$ 0 0 0 0 $-\frac{\sqrt{21}}{56}$
	0	$\frac{\sqrt{210}}{56}$ 0 0 0 $\frac{\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{84}$ 0 0 $\frac{\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{21}}{56}$ 0
	0	$-\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{21}i}{24}$ 0 $-\frac{\sqrt{21}}{24}$ 0 0
	$\frac{\sqrt{35}i}{168}$	0 $\frac{\sqrt{35}}{168}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{24}$ 0 $-\frac{\sqrt{21}}{24}$ 0 0 0
	0	$\frac{\sqrt{35}}{84}$ 0 $\frac{\sqrt{35}i}{84}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{84}$ 0 $\frac{\sqrt{21}i}{84}$ $\frac{\sqrt{14}}{42}$ 0
	$\frac{\sqrt{35}}{84}$	0 $-\frac{\sqrt{35}i}{84}$ 0 0 0 0 0 0 $-\frac{\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $-\frac{\sqrt{14}}{42}$
	0	0 $-\frac{\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{21}i}{24}$ 0 $-\frac{\sqrt{21}}{84}$ 0 0 $\frac{\sqrt{210}}{168}$ 0 0 $\frac{5\sqrt{35}i}{168}$
	0	0 0 $\frac{\sqrt{14}}{168}$ $\frac{\sqrt{21}i}{24}$ 0 $-\frac{\sqrt{21}}{84}$ 0 0 0 0 $-\frac{\sqrt{210}}{168}$ $-\frac{5\sqrt{35}i}{168}$ 0
	$\frac{\sqrt{14}}{168}$	0 0 0 0 0 $-\frac{\sqrt{21}}{24}$ 0 $\frac{\sqrt{21}i}{84}$ $\frac{\sqrt{210}}{168}$ 0 0 0 0 $-\frac{5\sqrt{35}}{168}$
	0	$-\frac{\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{21}}{24}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 $-\frac{5\sqrt{35}}{168}$ 0
	0	$-\frac{\sqrt{21}i}{56}$ 0 $-\frac{\sqrt{21}}{56}$ 0 0 0 $-\frac{\sqrt{14}}{42}$ $-\frac{5\sqrt{35}i}{168}$ 0 $-\frac{5\sqrt{35}}{168}$ 0 0 0
$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$		

936 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(A, 3)$	0 0 0 0 0 $\frac{3\sqrt{231}i}{616}$ 0 $\frac{\sqrt{231}}{924}$ 0 0 $-\frac{\sqrt{231}i}{924}$ 0 0 $-\frac{\sqrt{385}i}{616}$	
	0 0 0 0 $-\frac{3\sqrt{231}i}{616}$ 0 $\frac{\sqrt{231}}{924}$ 0 0 0 0 $\frac{\sqrt{231}i}{924}$ $\frac{\sqrt{231}i}{924}$ 0	
	0 0 0 0 0 $\frac{3\sqrt{231}}{616}$ 0 $-\frac{\sqrt{231}i}{924}$ $-\frac{\sqrt{231}i}{924}$ 0 0 0 0 $\frac{\sqrt{385}}{616}$	
	0 0 0 0 $\frac{3\sqrt{231}}{616}$ 0 $\frac{\sqrt{231}i}{924}$ 0 0 $\frac{\sqrt{231}i}{924}$ 0 0 0 $\frac{\sqrt{385}}{616}$ 0	
	0 $\frac{3\sqrt{231}i}{616}$ 0 $\frac{3\sqrt{231}}{616}$ 0 0 $-\frac{\sqrt{154}}{154}$ 0 0 $-\frac{5\sqrt{385}i}{616}$ 0 $\frac{5\sqrt{385}}{616}$ 0 0	
	$-\frac{3\sqrt{231}i}{616}$ 0 $\frac{3\sqrt{231}}{616}$ 0 0 0 0 $\frac{\sqrt{154}}{154}$ $\frac{5\sqrt{385}i}{616}$ 0 $\frac{5\sqrt{385}}{616}$ 0 0 0	
	0 $\frac{\sqrt{231}}{924}$ 0 $-\frac{\sqrt{231}i}{924}$ $-\frac{\sqrt{154}}{154}$ 0 0 0 0 $-\frac{\sqrt{385}}{308}$ 0 $-\frac{\sqrt{385}i}{308}$ 0 0 0	
	$\frac{\sqrt{231}}{924}$ 0 $\frac{\sqrt{231}i}{924}$ 0 0 $\frac{\sqrt{154}}{154}$ 0 0 $-\frac{\sqrt{385}}{308}$ 0 $\frac{\sqrt{385}i}{308}$ 0 0 0	
	0 0 $-\frac{\sqrt{231}i}{924}$ 0 0 $-\frac{5\sqrt{385}i}{616}$ 0 $-\frac{\sqrt{385}}{308}$ 0 0 0 0 0 $\frac{5\sqrt{231}i}{264}$	
	0 0 0 $\frac{\sqrt{231}i}{924}$ $\frac{5\sqrt{385}i}{616}$ 0 $-\frac{\sqrt{385}}{308}$ 0 0 0 0 0 $-\frac{5\sqrt{231}i}{264}$ 0	
	$-\frac{\sqrt{231}i}{924}$ 0 0 0 0 $\frac{5\sqrt{385}}{616}$ 0 $-\frac{\sqrt{385}i}{308}$ 0 0 0 0 0 $\frac{5\sqrt{231}}{264}$	
	0 $\frac{\sqrt{231}i}{924}$ 0 0 $\frac{5\sqrt{385}}{616}$ 0 $\frac{\sqrt{385}i}{308}$ 0 0 0 0 0 $\frac{5\sqrt{231}}{264}$ 0	
	0 $-\frac{\sqrt{385}i}{616}$ 0 $\frac{\sqrt{385}}{616}$ 0 0 0 0 0 $\frac{5\sqrt{231}i}{264}$ 0 $\frac{5\sqrt{231}}{264}$ 0 0	
	$\frac{\sqrt{385}i}{616}$ 0 $\frac{\sqrt{385}}{616}$ 0 0 0 0 0 $-\frac{5\sqrt{231}i}{264}$ 0 $\frac{5\sqrt{231}}{264}$ 0 0 0	
$\frac{\sqrt{42}(x-y)(x+y)(x^4 - 9x^2y^2 - 5x^2z^2 + y^4 - 5y^2z^2 + 5z^4)}{8}$		
937	symmetry	

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_6^{(1,0;a)}(A,4)$	0	0	$-\frac{\sqrt{462}}{56}$	0	0	$-\frac{19\sqrt{77}i}{1848}$	0	$\frac{\sqrt{77}}{132}$	0	0	$-\frac{\sqrt{770}}{1848}$	0	0	$\frac{\sqrt{1155}i}{616}$		
	0	0	0	$\frac{\sqrt{462}}{56}$	$\frac{19\sqrt{77}i}{1848}$	0	$\frac{\sqrt{77}}{132}$	0	0	0	0	$\frac{\sqrt{770}}{1848}$	$-\frac{\sqrt{1155}i}{616}$	0		
	$-\frac{\sqrt{462}}{56}$	0	0	0	0	$\frac{19\sqrt{77}}{1848}$	0	$\frac{\sqrt{77}i}{132}$	$\frac{\sqrt{770}}{1848}$	0	0	0	0	$\frac{\sqrt{1155}}{616}$		
	0	$\frac{\sqrt{462}}{56}$	0	0	$\frac{19\sqrt{77}}{1848}$	0	$-\frac{\sqrt{77}i}{132}$	0	0	$-\frac{\sqrt{770}}{1848}$	0	0	$\frac{\sqrt{1155}}{616}$	0		
	0	$-\frac{19\sqrt{77}i}{1848}$	0	$\frac{19\sqrt{77}}{1848}$	0	0	0	0	0	$\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{264}$	0	0	0	
	$\frac{19\sqrt{77}i}{1848}$	0	$\frac{19\sqrt{77}}{1848}$	0	0	0	0	0	$-\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{264}$	0	0	0		
	0	$\frac{\sqrt{77}}{132}$	0	$\frac{\sqrt{77}i}{132}$	0	0	0	0	0	$\frac{\sqrt{1155}}{924}$	0	$-\frac{\sqrt{1155}i}{924}$	$-\frac{\sqrt{770}}{462}$	0		
	$\frac{\sqrt{77}}{132}$	0	$-\frac{\sqrt{77}i}{132}$	0	0	0	0	0	$\frac{\sqrt{1155}}{924}$	0	$\frac{\sqrt{1155}i}{924}$	0	0	$\frac{\sqrt{770}}{462}$		
	0	0	$\frac{\sqrt{770}}{1848}$	0	0	$\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{924}$	0	0	$-\frac{5\sqrt{462}}{1848}$	0	0	$-\frac{25\sqrt{77}i}{1848}$		
	0	0	0	$-\frac{\sqrt{770}}{1848}$	$-\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{924}$	0	0	0	0	$\frac{5\sqrt{462}}{1848}$	$\frac{25\sqrt{77}i}{1848}$	0		
	$-\frac{\sqrt{770}}{1848}$	0	0	0	0	$\frac{\sqrt{1155}}{264}$	0	$-\frac{\sqrt{1155}i}{924}$	$-\frac{5\sqrt{462}}{1848}$	0	0	0	0	$\frac{25\sqrt{77}}{1848}$		
	0	$\frac{\sqrt{770}}{1848}$	0	0	$\frac{\sqrt{1155}}{264}$	0	$\frac{\sqrt{1155}i}{924}$	0	0	$\frac{5\sqrt{462}}{1848}$	0	0	$\frac{25\sqrt{77}}{1848}$	0		
	0	$\frac{\sqrt{1155}i}{616}$	0	$\frac{\sqrt{1155}}{616}$	0	0	$-\frac{\sqrt{770}}{462}$	0	0	$-\frac{25\sqrt{77}i}{1848}$	0	$\frac{25\sqrt{77}}{1848}$	0	0	0	
	$-\frac{\sqrt{1155}i}{616}$	0	$\frac{\sqrt{1155}}{616}$	0	0	0	0	$\frac{\sqrt{770}}{462}$	$\frac{25\sqrt{77}i}{1848}$	0	$\frac{25\sqrt{77}}{1848}$	0	0	0		

938 symmetry

$$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{T}_6^{(1,0;a)}(A, 5)$	0	$\frac{5\sqrt{77}i}{616}$	0	$\frac{\sqrt{77}}{112}$	0	0	$-\frac{\sqrt{462}}{132}$	0	0	$-\frac{\sqrt{1155}i}{264}$	0	$-\frac{\sqrt{1155}}{528}$	0	0	0
	$-\frac{5\sqrt{77}i}{616}$	0	$\frac{\sqrt{77}}{112}$	0	0	0	0	$\frac{\sqrt{462}}{132}$	$\frac{\sqrt{1155}i}{264}$	0	$-\frac{\sqrt{1155}}{528}$	0	0	0	0
	0	$\frac{\sqrt{77}}{112}$	0	$-\frac{3\sqrt{77}i}{308}$	$-\frac{9\sqrt{462}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{1232}$	0	$\frac{\sqrt{1155}i}{308}$	$\frac{3\sqrt{770}}{1232}$	0	0
	$\frac{\sqrt{77}}{112}$	0	$\frac{3\sqrt{77}i}{308}$	0	0	$\frac{9\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{1155}}{1232}$	0	$-\frac{\sqrt{1155}i}{308}$	0	0	$-\frac{3\sqrt{770}}{1232}$	0
	0	0	$-\frac{9\sqrt{462}}{1232}$	0	0	$-\frac{5\sqrt{77}i}{308}$	0	$-\frac{\sqrt{77}}{308}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}i}{924}$	0
	0	0	0	$\frac{9\sqrt{462}}{1232}$	$\frac{5\sqrt{77}i}{308}$	0	$-\frac{\sqrt{77}}{308}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	$-\frac{\sqrt{1155}i}{924}$	0	0
	$-\frac{\sqrt{462}}{132}$	0	0	0	0	$-\frac{\sqrt{77}}{308}$	0	$\frac{2\sqrt{77}i}{77}$	$\frac{\sqrt{770}}{308}$	0	0	0	0	$-\frac{5\sqrt{1155}}{924}$	0
	0	$\frac{\sqrt{462}}{132}$	0	0	$-\frac{\sqrt{77}}{308}$	0	$-\frac{2\sqrt{77}i}{77}$	0	0	$-\frac{\sqrt{770}}{308}$	0	0	$-\frac{5\sqrt{1155}}{924}$	0	0
	0	$-\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{1232}$	0	0	$\frac{\sqrt{770}}{308}$	0	0	$-\frac{5\sqrt{77}i}{616}$	0	$-\frac{25\sqrt{77}}{1232}$	0	0	0
	$\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{1232}$	0	0	0	0	$-\frac{\sqrt{770}}{308}$	$\frac{5\sqrt{77}i}{616}$	0	$-\frac{25\sqrt{77}}{1232}$	0	0	0	0
	0	$-\frac{\sqrt{1155}}{528}$	0	$\frac{\sqrt{1155}i}{308}$	$\frac{5\sqrt{770}}{1232}$	0	0	0	0	$-\frac{25\sqrt{77}}{1232}$	0	$-\frac{5\sqrt{77}i}{308}$	$\frac{5\sqrt{462}}{3696}$	0	0
	$-\frac{\sqrt{1155}}{528}$	0	$-\frac{\sqrt{1155}i}{308}$	0	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$-\frac{25\sqrt{77}}{1232}$	0	$\frac{5\sqrt{77}i}{308}$	0	0	$-\frac{5\sqrt{462}}{3696}$	0
	0	0	$\frac{3\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}i}{924}$	0	$-\frac{5\sqrt{1155}}{924}$	0	0	$\frac{5\sqrt{462}}{3696}$	0	0	$\frac{5\sqrt{77}i}{308}$	0
	0	0	0	$-\frac{3\sqrt{770}}{1232}$	$-\frac{\sqrt{1155}i}{924}$	0	$-\frac{5\sqrt{1155}}{924}$	0	0	0	0	$-\frac{5\sqrt{462}}{3696}$	$-\frac{5\sqrt{77}i}{308}$	0	0

939 symmetry

$$\frac{\sqrt{462}xz(x^2 - 3z^2)(3x^2 - z^2)}{16}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(A, 6)$	0	$\frac{\sqrt{42}i}{224}$ 0 $\frac{\sqrt{42}}{448}$ 0 0 $-\frac{\sqrt{7}}{112}$ 0 0 $-\frac{3\sqrt{70}i}{224}$ 0 $-\frac{\sqrt{70}}{448}$ 0 0 0
	$-\frac{\sqrt{42}i}{224}$	0 $\frac{\sqrt{42}}{448}$ 0 0 0 0 $\frac{\sqrt{7}}{112}$ $\frac{3\sqrt{70}i}{224}$ 0 $-\frac{\sqrt{70}}{448}$ 0 0 0 0
	0	$\frac{\sqrt{42}}{448}$ 0 0 $-\frac{3\sqrt{7}}{224}$ 0 0 0 0 $-\frac{3\sqrt{70}}{448}$ 0 0 $\frac{\sqrt{105}}{224}$ 0 0
	$\frac{\sqrt{42}}{448}$	0 0 0 0 0 $\frac{3\sqrt{7}}{224}$ 0 0 $-\frac{3\sqrt{70}}{448}$ 0 0 0 0 $-\frac{\sqrt{105}}{224}$
	0	0 $-\frac{3\sqrt{7}}{224}$ 0 0 $-\frac{3\sqrt{42}i}{112}$ 0 $-\frac{\sqrt{42}}{112}$ 0 0 $\frac{\sqrt{105}}{224}$ 0 0 $\frac{3\sqrt{70}i}{112}$
	0	0 0 0 $\frac{3\sqrt{7}}{224}$ $\frac{3\sqrt{42}i}{112}$ 0 $-\frac{\sqrt{42}}{112}$ 0 0 0 0 $-\frac{\sqrt{105}}{224}$ $-\frac{3\sqrt{70}i}{112}$ 0
	$-\frac{\sqrt{7}}{112}$	0 0 0 0 0 $-\frac{\sqrt{42}}{112}$ 0 0 $\frac{\sqrt{105}}{112}$ 0 0 0 0 $\frac{\sqrt{70}}{112}$
	0	$\frac{\sqrt{7}}{112}$ 0 0 $-\frac{\sqrt{42}}{112}$ 0 0 0 0 $-\frac{\sqrt{105}}{112}$ 0 0 $\frac{\sqrt{70}}{112}$ 0 0
	0	$-\frac{3\sqrt{70}i}{224}$ 0 $-\frac{3\sqrt{70}}{448}$ 0 0 $\frac{\sqrt{105}}{112}$ 0 0 $\frac{15\sqrt{42}i}{224}$ 0 $\frac{5\sqrt{42}}{448}$ 0 0 0
	$\frac{3\sqrt{70}i}{224}$	0 $-\frac{3\sqrt{70}}{448}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{112}$ $-\frac{15\sqrt{42}i}{224}$ 0 $\frac{5\sqrt{42}}{448}$ 0 0 0
	0	$-\frac{\sqrt{70}}{448}$ 0 0 $\frac{\sqrt{105}}{224}$ 0 0 0 0 $\frac{5\sqrt{42}}{448}$ 0 0 $-\frac{5\sqrt{7}}{224}$ 0 0
	$-\frac{\sqrt{70}}{448}$	0 0 0 0 0 $-\frac{\sqrt{105}}{224}$ 0 0 $\frac{5\sqrt{42}}{448}$ 0 0 0 0 $\frac{5\sqrt{7}}{224}$
	0	0 $\frac{\sqrt{105}}{224}$ 0 0 $\frac{3\sqrt{70}i}{112}$ 0 $\frac{\sqrt{70}}{112}$ 0 0 0 $-\frac{5\sqrt{7}}{224}$ 0 0 $-\frac{5\sqrt{42}i}{112}$
	0	0 0 0 $-\frac{\sqrt{105}}{224}$ $-\frac{3\sqrt{70}i}{112}$ 0 $\frac{\sqrt{70}}{112}$ 0 0 0 0 $\frac{5\sqrt{7}}{224}$ $\frac{5\sqrt{42}i}{112}$ 0
$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$		

940 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{T}_6^{(1,0;a)}(A, 7)$	0	$\frac{17\sqrt{2310}i}{7392}$	0	$\frac{\sqrt{2310}}{448}$	0	0	$-\frac{41\sqrt{385}}{3696}$	0	0	$\frac{\sqrt{154}i}{7392}$	0	$\frac{17\sqrt{154}}{1344}$	0	0	0
	$-\frac{17\sqrt{2310}i}{7392}$	0	$\frac{\sqrt{2310}}{448}$	0	0	0	0	$\frac{41\sqrt{385}}{3696}$	$-\frac{\sqrt{154}i}{7392}$	0	$\frac{17\sqrt{154}}{1344}$	0	0	0	0
	0	$\frac{\sqrt{2310}}{448}$	0	$-\frac{\sqrt{2310}i}{462}$	$-\frac{83\sqrt{385}}{7392}$	0	0	0	0	$\frac{113\sqrt{154}}{14784}$	0	$\frac{\sqrt{154}i}{462}$	$-\frac{9\sqrt{231}}{2464}$	0	0
	$\frac{\sqrt{2310}}{448}$	0	$\frac{\sqrt{2310}i}{462}$	0	0	$\frac{83\sqrt{385}}{7392}$	0	0	$\frac{113\sqrt{154}}{14784}$	0	$-\frac{\sqrt{154}i}{462}$	0	0	$\frac{9\sqrt{231}}{2464}$	0
	0	0	$-\frac{83\sqrt{385}}{7392}$	0	0	$-\frac{\sqrt{2310}i}{1232}$	0	$\frac{5\sqrt{2310}}{1232}$	0	0	$-\frac{43\sqrt{231}}{7392}$	0	0	$-\frac{17\sqrt{154}i}{3696}$	0
	0	0	0	$\frac{83\sqrt{385}}{7392}$	$\frac{\sqrt{2310}i}{1232}$	0	$\frac{5\sqrt{2310}}{1232}$	0	0	0	$\frac{43\sqrt{231}}{7392}$	$\frac{17\sqrt{154}i}{3696}$	0	0	0
	$-\frac{41\sqrt{385}}{3696}$	0	0	0	0	$\frac{5\sqrt{2310}}{1232}$	0	0	$-\frac{19\sqrt{231}}{3696}$	0	0	0	0	$\frac{37\sqrt{154}}{3696}$	0
	0	$\frac{41\sqrt{385}}{3696}$	0	0	$\frac{5\sqrt{2310}}{1232}$	0	0	0	0	$\frac{19\sqrt{231}}{3696}$	0	0	$\frac{37\sqrt{154}}{3696}$	0	0
	0	$\frac{\sqrt{154}i}{7392}$	0	$\frac{113\sqrt{154}}{14784}$	0	0	$-\frac{19\sqrt{231}}{3696}$	0	0	$-\frac{\sqrt{2310}i}{7392}$	0	$\frac{37\sqrt{2310}}{14784}$	0	0	0
	$-\frac{\sqrt{154}i}{7392}$	0	$\frac{113\sqrt{154}}{14784}$	0	0	0	0	$\frac{19\sqrt{231}}{3696}$	$\frac{\sqrt{2310}i}{7392}$	0	$\frac{37\sqrt{2310}}{14784}$	0	0	0	0
	0	$\frac{17\sqrt{154}}{1344}$	0	$\frac{\sqrt{154}i}{462}$	$-\frac{43\sqrt{231}}{7392}$	0	0	0	$\frac{37\sqrt{2310}}{14784}$	0	$\frac{\sqrt{2310}i}{462}$	$-\frac{5\sqrt{385}}{7392}$	0	0	0
	$\frac{17\sqrt{154}}{1344}$	0	$-\frac{\sqrt{154}i}{462}$	0	0	$\frac{43\sqrt{231}}{7392}$	0	0	$\frac{37\sqrt{2310}}{14784}$	0	$-\frac{\sqrt{2310}i}{462}$	0	0	$\frac{5\sqrt{385}}{7392}$	0
	0	0	$-\frac{9\sqrt{231}}{2464}$	0	0	$-\frac{17\sqrt{154}i}{3696}$	0	$\frac{37\sqrt{154}}{3696}$	0	0	$-\frac{5\sqrt{385}}{7392}$	0	0	$-\frac{5\sqrt{2310}i}{3696}$	0
	0	0	0	$\frac{9\sqrt{231}}{2464}$	$\frac{17\sqrt{154}i}{3696}$	0	$\frac{37\sqrt{154}}{3696}$	0	0	0	0	$\frac{5\sqrt{385}}{7392}$	$\frac{5\sqrt{2310}i}{3696}$	0	0
941	symmetry	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_6^{(1,0;a)}(B,1)$	0	$\frac{3\sqrt{77}}{308}$	0	$-\frac{\sqrt{77}i}{112}$	$-\frac{9\sqrt{462}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{308}$	0	$\frac{\sqrt{1155}i}{1232}$	$-\frac{3\sqrt{770}}{1232}$	0		
	$\frac{3\sqrt{77}}{308}$	0	$\frac{\sqrt{77}i}{112}$	0	0	$\frac{9\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{1155}}{308}$	0	$-\frac{\sqrt{1155}i}{1232}$	0	0	$\frac{3\sqrt{770}}{1232}$		
	0	$-\frac{\sqrt{77}i}{112}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	$\frac{\sqrt{462}}{132}$	0	0	$-\frac{\sqrt{1155}i}{528}$	0	$-\frac{\sqrt{1155}}{264}$	0	0		
	$\frac{\sqrt{77}i}{112}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	0	0	$-\frac{\sqrt{462}}{132}$	$\frac{\sqrt{1155}i}{528}$	0	$-\frac{\sqrt{1155}}{264}$	0	0	0		
	$-\frac{9\sqrt{462}}{1232}$	0	0	0	0	$\frac{5\sqrt{77}}{308}$	0	$-\frac{\sqrt{77}i}{308}$	$-\frac{5\sqrt{770}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{924}$		
	0	$\frac{9\sqrt{462}}{1232}$	0	0	$\frac{5\sqrt{77}}{308}$	0	$\frac{\sqrt{77}i}{308}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}}{924}$	0		
	0	0	$\frac{\sqrt{462}}{132}$	0	0	$-\frac{\sqrt{77}i}{308}$	0	$-\frac{2\sqrt{77}}{77}$	0	0	$\frac{\sqrt{770}}{308}$	0	0	$\frac{5\sqrt{1155}i}{924}$		
	0	0	0	$-\frac{\sqrt{462}}{132}$	$\frac{\sqrt{77}i}{308}$	0	$-\frac{2\sqrt{77}}{77}$	0	0	0	0	$-\frac{\sqrt{770}}{308}$	$-\frac{5\sqrt{1155}i}{924}$	0		
	0	$\frac{\sqrt{1155}}{308}$	0	$-\frac{\sqrt{1155}i}{528}$	$-\frac{5\sqrt{770}}{1232}$	0	0	0	0	$\frac{5\sqrt{77}}{308}$	0	$\frac{25\sqrt{77}i}{1232}$	$\frac{5\sqrt{462}}{3696}$	0		
	$\frac{\sqrt{1155}}{308}$	0	$\frac{\sqrt{1155}i}{528}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{5\sqrt{77}}{308}$	0	$-\frac{25\sqrt{77}i}{1232}$	0	0	$-\frac{5\sqrt{462}}{3696}$		
	0	$\frac{\sqrt{1155}i}{1232}$	0	$-\frac{\sqrt{1155}}{264}$	0	0	$\frac{\sqrt{770}}{308}$	0	0	$\frac{25\sqrt{77}i}{1232}$	0	$\frac{5\sqrt{77}}{616}$	0	0		
	$-\frac{\sqrt{1155}i}{1232}$	0	$-\frac{\sqrt{1155}}{264}$	0	0	0	0	$-\frac{\sqrt{770}}{308}$	$-\frac{25\sqrt{77}i}{1232}$	0	$\frac{5\sqrt{77}}{616}$	0	0	0		
	$-\frac{3\sqrt{770}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{924}$	0	$\frac{5\sqrt{1155}i}{924}$	$\frac{5\sqrt{462}}{3696}$	0	0	0	0	$-\frac{5\sqrt{77}}{308}$		
	0	$\frac{3\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}}{924}$	0	$-\frac{5\sqrt{1155}i}{924}$	0	0	$-\frac{5\sqrt{462}}{3696}$	0	0	$-\frac{5\sqrt{77}}{308}$	0		

942 symmetry

$$\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{T}_6^{(1,0;a)}(B, 2)$	0	0	0	0	0	$-\frac{\sqrt{462}}{168}$	0	$\frac{\sqrt{462}i}{168}$	$\frac{\sqrt{1155}}{231}$	0	0	0	0	$-\frac{\sqrt{770}}{308}$	
	0	0	0	0	$-\frac{\sqrt{462}}{168}$	0	$-\frac{\sqrt{462}i}{168}$	0	0	$-\frac{\sqrt{1155}}{231}$	0	0	$-\frac{\sqrt{770}}{308}$	0	
	0	0	0	0	0	$\frac{\sqrt{462}i}{168}$	0	$\frac{\sqrt{462}}{168}$	0	0	$-\frac{\sqrt{1155}}{231}$	0	0	$-\frac{\sqrt{770}i}{308}$	
	0	0	0	0	$-\frac{\sqrt{462}i}{168}$	0	$\frac{\sqrt{462}}{168}$	0	0	0	0	$\frac{\sqrt{1155}}{231}$	$\frac{\sqrt{770}i}{308}$	0	
	0	$-\frac{\sqrt{462}}{168}$	0	$\frac{\sqrt{462}i}{168}$	$\frac{2\sqrt{77}}{77}$	0	0	0	0	$-\frac{3\sqrt{770}}{616}$	0	$-\frac{3\sqrt{770}i}{616}$	0	0	
	$-\frac{\sqrt{462}}{168}$	0	$-\frac{\sqrt{462}i}{168}$	0	0	$-\frac{2\sqrt{77}}{77}$	0	0	$-\frac{3\sqrt{770}}{616}$	0	$\frac{3\sqrt{770}i}{616}$	0	0	0	
	0	$\frac{\sqrt{462}i}{168}$	0	$\frac{\sqrt{462}}{168}$	0	0	$-\frac{2\sqrt{77}}{77}$	0	0	$-\frac{3\sqrt{770}i}{616}$	0	$\frac{3\sqrt{770}}{616}$	0	0	
	$-\frac{\sqrt{462}i}{168}$	0	$\frac{\sqrt{462}}{168}$	0	0	0	0	$\frac{2\sqrt{77}}{77}$	$\frac{3\sqrt{770}i}{616}$	0	$\frac{3\sqrt{770}}{616}$	0	0	0	
	$\frac{\sqrt{1155}}{231}$	0	0	0	0	$-\frac{3\sqrt{770}}{616}$	0	$-\frac{3\sqrt{770}i}{616}$	0	0	0	0	0	0	
	0	$-\frac{\sqrt{1155}}{231}$	0	0	$-\frac{3\sqrt{770}}{616}$	0	$\frac{3\sqrt{770}i}{616}$	0	0	0	0	0	0	0	
	0	0	$-\frac{\sqrt{1155}}{231}$	0	0	$-\frac{3\sqrt{770}i}{616}$	0	$\frac{3\sqrt{770}}{616}$	0	0	0	0	0	0	
	0	0	0	$\frac{\sqrt{1155}}{231}$	$\frac{3\sqrt{770}i}{616}$	0	$\frac{3\sqrt{770}}{616}$	0	0	0	0	0	0	0	
	0	$-\frac{\sqrt{770}}{308}$	0	$-\frac{\sqrt{770}i}{308}$	0	0	0	0	0	0	0	0	0	0	
	$-\frac{\sqrt{770}}{308}$	0	$\frac{\sqrt{770}i}{308}$	0	0	0	0	0	0	0	0	0	0	0	

$$\frac{\sqrt{462}yz(y^2 - 3z^2)(3y^2 - z^2)}{16}$$

943 symmetry

continued ...

Table 10

No.	multipole	matrix															
$\mathbb{T}_6^{(1,0;a)}(B,3)$	0	0	0	$\frac{\sqrt{42}i}{448}$	$\frac{3\sqrt{7}}{224}$	0	0	0	0	0	$\frac{3\sqrt{70}i}{448}$	$\frac{\sqrt{105}}{224}$	0				
	0	0	$-\frac{\sqrt{42}i}{448}$	0	0	$-\frac{3\sqrt{7}}{224}$	0	0	0	0	$-\frac{3\sqrt{70}i}{448}$	0	0	$-\frac{\sqrt{105}}{224}$			
	0	$\frac{\sqrt{42}i}{448}$	0	$\frac{\sqrt{42}}{224}$	0	0	$-\frac{\sqrt{7}}{112}$	0	0	$\frac{\sqrt{70}i}{448}$	0	$\frac{3\sqrt{70}}{224}$	0	0			
	$-\frac{\sqrt{42}i}{448}$	0	$\frac{\sqrt{42}}{224}$	0	0	0	0	$\frac{\sqrt{7}}{112}$	$-\frac{\sqrt{70}i}{448}$	0	$\frac{3\sqrt{70}}{224}$	0	0	0			
	$\frac{3\sqrt{7}}{224}$	0	0	0	0	$-\frac{3\sqrt{42}}{112}$	0	$\frac{\sqrt{42}i}{112}$	$\frac{\sqrt{105}}{224}$	0	0	0	0	$-\frac{3\sqrt{70}}{112}$			
	0	$-\frac{3\sqrt{7}}{224}$	0	0	$-\frac{3\sqrt{42}}{112}$	0	$-\frac{\sqrt{42}i}{112}$	0	0	$-\frac{\sqrt{105}}{224}$	0	0	$-\frac{3\sqrt{70}}{112}$	0			
	0	0	$-\frac{\sqrt{7}}{112}$	0	0	$\frac{\sqrt{42}i}{112}$	0	0	0	0	$-\frac{\sqrt{105}}{112}$	0	0	$\frac{\sqrt{70}i}{112}$			
	0	0	0	$\frac{\sqrt{7}}{112}$	$-\frac{\sqrt{42}i}{112}$	0	0	0	0	0	0	$\frac{\sqrt{105}}{112}$	$-\frac{\sqrt{70}i}{112}$	0			
	0	0	0	$\frac{\sqrt{70}i}{448}$	$\frac{\sqrt{105}}{224}$	0	0	0	0	0	0	$\frac{5\sqrt{42}i}{448}$	$\frac{5\sqrt{7}}{224}$	0			
	0	0	$-\frac{\sqrt{70}i}{448}$	0	0	$-\frac{\sqrt{105}}{224}$	0	0	0	0	$-\frac{5\sqrt{42}i}{448}$	0	0	$-\frac{5\sqrt{7}}{224}$			
	0	$\frac{3\sqrt{70}i}{448}$	0	$\frac{3\sqrt{70}}{224}$	0	0	$-\frac{\sqrt{105}}{112}$	0	0	$\frac{5\sqrt{42}i}{448}$	0	$\frac{15\sqrt{42}}{224}$	0	0			
	$-\frac{3\sqrt{70}i}{448}$	0	$\frac{3\sqrt{70}}{224}$	0	0	0	0	$\frac{\sqrt{105}}{112}$	$-\frac{5\sqrt{42}i}{448}$	0	$\frac{15\sqrt{42}}{224}$	0	0	0			
	$\frac{\sqrt{105}}{224}$	0	0	0	0	$-\frac{3\sqrt{70}}{112}$	0	$\frac{\sqrt{70}i}{112}$	$\frac{5\sqrt{7}}{224}$	0	0	0	0	$-\frac{5\sqrt{42}}{112}$			
	0	$-\frac{\sqrt{105}}{224}$	0	0	$-\frac{3\sqrt{70}}{112}$	0	$-\frac{\sqrt{70}i}{112}$	0	0	$-\frac{5\sqrt{7}}{224}$	0	0	$-\frac{5\sqrt{42}}{112}$	0			
$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$																	

944 symmetry

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{42}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{14} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{14} & \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
945	symmetry	$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$

*continued ...*

Table 10

No.	multipole	matrix														
$\mathbb{T}_6^{(1,0;a)}(B, 5)$	0	$-\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{448}$	$\frac{83\sqrt{385}}{7392}$	0	0	0	0	$-\frac{\sqrt{154}}{462}$	0	$-\frac{113\sqrt{154}i}{14784}$	$-\frac{9\sqrt{231}}{2464}$	0		
	$-\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{448}$	0	0	$-\frac{83\sqrt{385}}{7392}$	0	0	$-\frac{\sqrt{154}}{462}$	0	$\frac{113\sqrt{154}i}{14784}$	0	0	$\frac{9\sqrt{231}}{2464}$		
	0	$\frac{\sqrt{2310}i}{448}$	0	$\frac{17\sqrt{2310}}{7392}$	0	0	$-\frac{41\sqrt{385}}{3696}$	0	0	$-\frac{17\sqrt{154}i}{1344}$	0	$-\frac{\sqrt{154}}{7392}$	0	0	0	
	$-\frac{\sqrt{2310}i}{448}$	0	$\frac{17\sqrt{2310}}{7392}$	0	0	0	0	$\frac{41\sqrt{385}}{3696}$	$\frac{17\sqrt{154}i}{1344}$	0	$-\frac{\sqrt{154}}{7392}$	0	0	0		
	$\frac{83\sqrt{385}}{7392}$	0	0	0	0	$-\frac{\sqrt{2310}}{1232}$	0	$-\frac{5\sqrt{2310}i}{1232}$	$-\frac{43\sqrt{231}}{7392}$	0	0	0	0	$\frac{17\sqrt{154}}{3696}$		
	0	$-\frac{83\sqrt{385}}{7392}$	0	0	$-\frac{\sqrt{2310}}{1232}$	0	$\frac{5\sqrt{2310}i}{1232}$	0	0	$\frac{43\sqrt{231}}{7392}$	0	0	$\frac{17\sqrt{154}}{3696}$	0		
	0	0	$-\frac{41\sqrt{385}}{3696}$	0	0	$-\frac{5\sqrt{2310}i}{1232}$	0	0	0	0	$\frac{19\sqrt{231}}{3696}$	0	0	$\frac{37\sqrt{154}i}{3696}$		
	0	0	0	$\frac{41\sqrt{385}}{3696}$	$\frac{5\sqrt{2310}i}{1232}$	0	0	0	0	0	0	$-\frac{19\sqrt{231}}{3696}$	$-\frac{37\sqrt{154}i}{3696}$	0		
	0	$-\frac{\sqrt{154}}{462}$	0	$-\frac{17\sqrt{154}i}{1344}$	$-\frac{43\sqrt{231}}{7392}$	0	0	0	0	$\frac{\sqrt{2310}}{462}$	0	$\frac{37\sqrt{2310}i}{14784}$	$\frac{5\sqrt{385}}{7392}$	0		
	$-\frac{\sqrt{154}}{462}$	0	$\frac{17\sqrt{154}i}{1344}$	0	0	$\frac{43\sqrt{231}}{7392}$	0	0	$\frac{\sqrt{2310}}{462}$	0	$-\frac{37\sqrt{2310}i}{14784}$	0	0	$-\frac{5\sqrt{385}}{7392}$		
	0	$-\frac{113\sqrt{154}i}{14784}$	0	$-\frac{\sqrt{154}}{7392}$	0	0	$\frac{19\sqrt{231}}{3696}$	0	0	$\frac{37\sqrt{2310}i}{14784}$	0	$-\frac{\sqrt{2310}}{7392}$	0	0		
	$\frac{113\sqrt{154}i}{14784}$	0	$-\frac{\sqrt{154}}{7392}$	0	0	0	0	$-\frac{19\sqrt{231}}{3696}$	$-\frac{37\sqrt{2310}i}{14784}$	0	$-\frac{\sqrt{2310}}{7392}$	0	0	0		
	$-\frac{9\sqrt{231}}{2464}$	0	0	0	0	$\frac{17\sqrt{154}}{3696}$	0	$\frac{37\sqrt{154}i}{3696}$	0	0	$-\frac{5\sqrt{385}}{7392}$	0	0	$-\frac{5\sqrt{2310}}{3696}$		
$\frac{\sqrt{210}xy(x^4+2x^2y^2-16x^2z^2+y^4-16y^2z^2+16z^4)}{16}$																

946 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(B, 6)$	0 0 0 0 0 $-\frac{\sqrt{385}}{924}$ 0 $\frac{\sqrt{385}i}{924}$ $-\frac{\sqrt{154}}{462}$ 0 0 0 0 $-\frac{\sqrt{231}}{154}$	
	0 0 0 0 $-\frac{\sqrt{385}}{924}$ 0 $-\frac{\sqrt{385}i}{924}$ 0 0 $\frac{\sqrt{154}}{462}$ 0 0 $-\frac{\sqrt{231}}{154}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{385}i}{924}$ 0 $-\frac{\sqrt{385}}{924}$ 0 0 $-\frac{\sqrt{154}}{462}$ 0 0 $\frac{\sqrt{231}i}{154}$	
	0 0 0 0 0 $\frac{\sqrt{385}i}{924}$ 0 $-\frac{\sqrt{385}}{924}$ 0 0 0 0 $\frac{\sqrt{154}}{462}$ $-\frac{\sqrt{231}i}{154}$ 0	
	0 $-\frac{\sqrt{385}}{924}$ 0 $-\frac{\sqrt{385}i}{924}$ 0 0 0 0 0 $-\frac{\sqrt{231}}{231}$ 0 $\frac{\sqrt{231}i}{231}$ $\frac{2\sqrt{154}}{231}$ 0	
	$-\frac{\sqrt{385}}{924}$ 0 $\frac{\sqrt{385}i}{924}$ 0 0 0 0 0 $-\frac{\sqrt{231}}{231}$ 0 $-\frac{\sqrt{231}i}{231}$ 0 0 $-\frac{2\sqrt{154}}{231}$	
	0 $\frac{\sqrt{385}i}{924}$ 0 $-\frac{\sqrt{385}}{924}$ 0 0 0 0 0 $\frac{\sqrt{231}i}{66}$ 0 $\frac{\sqrt{231}}{66}$ 0 0 0	
	$-\frac{\sqrt{385}i}{924}$ 0 $-\frac{\sqrt{385}}{924}$ 0 0 0 0 0 $-\frac{\sqrt{231}i}{66}$ 0 $\frac{\sqrt{231}}{66}$ 0 0 0	
	$-\frac{\sqrt{154}}{462}$ 0 0 0 0 $-\frac{\sqrt{231}}{231}$ 0 $\frac{\sqrt{231}i}{66}$ $\frac{\sqrt{2310}}{462}$ 0 0 0 0 $-\frac{5\sqrt{385}}{462}$	
	0 $\frac{\sqrt{154}}{462}$ 0 0 $-\frac{\sqrt{231}}{231}$ 0 $-\frac{\sqrt{231}i}{66}$ 0 0 $-\frac{\sqrt{2310}}{462}$ 0 0 0 $-\frac{5\sqrt{385}}{462}$	
	0 0 $-\frac{\sqrt{154}}{462}$ 0 0 $\frac{\sqrt{231}i}{231}$ 0 $\frac{\sqrt{231}}{66}$ 0 0 $-\frac{\sqrt{2310}}{462}$ 0 0 0 $-\frac{5\sqrt{385}i}{462}$	
	0 0 0 $\frac{\sqrt{154}}{462}$ $-\frac{\sqrt{231}i}{231}$ 0 $\frac{\sqrt{231}}{66}$ 0 0 0 0 $\frac{\sqrt{2310}}{462}$ $\frac{5\sqrt{385}i}{462}$ 0	
	0 $-\frac{\sqrt{231}}{154}$ 0 $\frac{\sqrt{231}i}{154}$ $\frac{2\sqrt{154}}{231}$ 0 0 0 0 $-\frac{5\sqrt{385}}{462}$ 0 $-\frac{5\sqrt{385}i}{462}$ 0 0	
	$-\frac{\sqrt{231}}{154}$ 0 $-\frac{\sqrt{231}i}{154}$ 0 0 $-\frac{2\sqrt{154}}{231}$ 0 0 0 $-\frac{5\sqrt{385}}{462}$ 0 $\frac{5\sqrt{385}i}{462}$ 0 0	

947 symmetry

y

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(a)}(A)$	0	0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{21}i}{28}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0
	0	0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0
	0	0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{14}$ 0
	0	0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{14}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{14}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{14}$ 0 0 0 0 0 0

948 symmetry

x

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(a)}(B, 1)$	0	0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0
	$-\frac{\sqrt{21}i}{28}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{14}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{14}$
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{14}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{14}$ 0 0 0

949 symmetry

z

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(a)}(B, 2)$	0 0 $-\frac{3\sqrt{14}i}{28}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $-\frac{3\sqrt{14}i}{28}$ 0 0 0 0 0 0 0 0 0 0	
	$\frac{3\sqrt{14}i}{28}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 $\frac{3\sqrt{14}i}{28}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
$\sqrt{15}xyz$		

950 symmetry

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
951	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(A, 2)$	0	0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$
	0	0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{2}i}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0
	0	0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{30}i}{24}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0
$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$		

952 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(A, 3)$	0	0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0
	$\frac{\sqrt{30}i}{24}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0
	0	$\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0
	0	0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0
	0	0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{2}i}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0
953	symmetry	$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(B, 1)$	0	0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$
	0	0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0
	$-\frac{\sqrt{2}i}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0
	0 $-\frac{\sqrt{2}i}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$
	0	0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0
$- \frac{z(3x^2 + 3y^2 - 2z^2)}{2}$		
954	symmetry	

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(B, 2)$	0	$\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{3}i}{6}$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0
955	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(B, 3)$	0	0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$
	0	0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0
	$-\frac{\sqrt{30}i}{24}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$
	0	0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0

956 symmetry

 $\frac{\sqrt{15}z(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(B, 4)$	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$	
	0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0	
	$-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0	

957 symmetry

 $\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
958	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

*continued ...*

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
959	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(A, 3)$	0	0 0 0 0 $\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{48}$ 0
	0	0 0 0 0 0 $\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{48}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0
	$-\frac{13\sqrt{7}i}{112}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0
	0	$-\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{336}$ 0 0 0 0 0
	0	0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0 0
	0	0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0
	0	0 0 0 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0 0 0 $\frac{5\sqrt{7}i}{112}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0 0 0 $\frac{5\sqrt{7}i}{112}$
	0	0 0 0 0 0 0 $\frac{\sqrt{105}i}{42}$ 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{105}i}{48}$	0 0 0 0 0 0 0 0 $-\frac{5\sqrt{7}i}{112}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{105}i}{48}$ 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{7}i}{112}$ 0 0 0 0 0
$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$		

960 symmetry

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & 0 \end{bmatrix}$
961	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(A, 5)$	0	0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 $-\frac{i}{8}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 $-\frac{i}{8}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0
	$-\frac{\sqrt{15}i}{24}$	0 0 0 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0
	0	0 0 $\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0
	0	0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0
	0	0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$
	0	0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0 0 0 0
	$\frac{i}{8}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0
	0	$\frac{i}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0
$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$		

962 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(B, 1)$	0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{48}$ 0	
	0 0 0 0 0 $-\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{48}$	
	0 0 $\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{336}$ 0 0 0	
	0 0 0 $\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{336}$ 0 0 0	
	$\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{42}$ 0 0 0 0 0 0	
	0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{42}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{7}i}{112}$ 0	
	0 0 0 0 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{7}i}{112}$	
	0 0 $-\frac{\sqrt{105}i}{48}$ 0 0 0 0 0 0 0 0 $\frac{5\sqrt{7}i}{112}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{105}i}{48}$ 0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{7}i}{112}$ 0 0	
963	symmetry	$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(B, 2)$	0	$0 \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	$\frac{\sqrt{42}i}{84}$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ \frac{\sqrt{42}i}{84} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{42}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{42}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{5\sqrt{42}i}{84} \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{5\sqrt{42}i}{84} \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{5\sqrt{42}i}{84} \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{5\sqrt{42}i}{84} \ 0 \ 0$
964	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(B, 3)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} \\ 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} \\ 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 \end{bmatrix}$
	965 symmetry	$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
966	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(B, 5)$	0 0 0 0 0 0 $\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 $\frac{i}{8}$ 0	
	0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 $\frac{i}{8}$	
	0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0	
	$-\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0 0	
	0 $-\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0	
	0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0 0	
	0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0	
	0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0 0 $0 - \frac{\sqrt{15}i}{24}$	
	0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0	
	0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0	
967	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(B, 6)$	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{6}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{6}$ 0	
	0 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{6}i}{6}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{6}$ 0 0 0 0 0 0 0 0	

968 symmetry

y

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(1,-1;a)}(A)$	0	$-\frac{\sqrt{14}i}{14}$
	$\frac{\sqrt{14}i}{14}$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{14}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0

969 symmetry

x

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(1,-1;a)}(B,1)$	0	$\frac{\sqrt{14}}{14} \quad 0 \quad 0$
	$\frac{\sqrt{14}}{14}$	$0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0$

970 symmetry

z

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(1,-1;a)}(B, 2)$	$\frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0$	
971	symmetry	$\sqrt{15}xyz$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(1,-1;a)}(A, 1)$	0 0 0 0 0 $-\frac{5\sqrt{7}i}{84}$ 0 $-\frac{5\sqrt{7}}{84}$ 0 0 $\frac{\sqrt{70}}{84}$ 0 0 0	
	0 0 0 0 $\frac{5\sqrt{7}i}{84}$ 0 $-\frac{5\sqrt{7}}{84}$ 0 0 0 0 $-\frac{\sqrt{70}}{84}$ 0 0 0	
	0 0 0 0 0 $\frac{5\sqrt{7}}{84}$ 0 $-\frac{5\sqrt{7}i}{84}$ $-\frac{\sqrt{70}}{84}$ 0 0 0 0 0 0	
	0 0 0 0 $\frac{5\sqrt{7}}{84}$ 0 $\frac{5\sqrt{7}i}{84}$ 0 0 $\frac{\sqrt{70}}{84}$ 0 0 0 0 0	
	0 $-\frac{5\sqrt{7}i}{84}$ 0 $\frac{5\sqrt{7}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0	
	$\frac{5\sqrt{7}i}{84}$ 0 $\frac{5\sqrt{7}}{84}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{84}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0	
	0 $-\frac{5\sqrt{7}}{84}$ 0 $-\frac{5\sqrt{7}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 $-\frac{\sqrt{105}i}{84}$ $-\frac{\sqrt{70}}{42}$ 0	
	$-\frac{5\sqrt{7}}{84}$ 0 $\frac{5\sqrt{7}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 $\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{70}}{42}$	
	0 0 $-\frac{\sqrt{70}}{84}$ 0 0 $-\frac{\sqrt{105}i}{84}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 $\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}}{42}$	
	0 0 0 $\frac{\sqrt{70}}{84}$ $\frac{\sqrt{105}i}{84}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 $-\frac{\sqrt{42}}{42}$ $\frac{\sqrt{7}i}{42}$ 0	
	$\frac{\sqrt{70}}{84}$ 0 0 0 0 $-\frac{\sqrt{105}}{84}$ 0 $-\frac{\sqrt{105}i}{84}$ $\frac{\sqrt{42}}{42}$ 0 0 0 0 $\frac{\sqrt{7}}{42}$	
	0 $-\frac{\sqrt{70}}{84}$ 0 0 $-\frac{\sqrt{105}}{84}$ 0 $\frac{\sqrt{105}i}{84}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 0 $\frac{\sqrt{7}}{42}$ 0	
	0 0 0 0 0 0 $-\frac{\sqrt{70}}{42}$ 0 0 $-\frac{\sqrt{7}i}{42}$ 0 $\frac{\sqrt{7}}{42}$ 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{70}}{42}$ $\frac{\sqrt{7}i}{42}$ 0 $\frac{\sqrt{7}}{42}$ 0 0 0 0	
$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$		
972	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(1,-1;a)}(A, 2)$	0	$-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 0 $-\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{84}$ 0 0 0
	$\frac{\sqrt{70}i}{56}$	0 0 0 0 0 0 0 $-\frac{\sqrt{105}}{84}$ $\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{84}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{70}i}{56}$ $-\frac{\sqrt{105}}{84}$ 0 0 0 0 $\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0
	0	0 0 $\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{105}}{84}$ 0 0 $\frac{\sqrt{42}}{84}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0
	0	0 0 $-\frac{\sqrt{105}}{84}$ 0 0 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 0 0 $-\frac{\sqrt{42}i}{28}$
	0	0 0 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ $\frac{\sqrt{42}i}{28}$ 0
	$\frac{\sqrt{105}}{84}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $\frac{\sqrt{42}}{42}$
	0	$-\frac{\sqrt{105}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 0 $\frac{\sqrt{42}}{42}$ 0
	0	$-\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{84}$ 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 $\frac{9\sqrt{70}i}{280}$ 0 $-\frac{\sqrt{70}}{70}$ 0 0 0
	$\frac{\sqrt{42}i}{56}$	0 $\frac{\sqrt{42}}{84}$ 0 0 0 0 $\frac{\sqrt{7}}{28}$ $-\frac{9\sqrt{70}i}{280}$ 0 $-\frac{\sqrt{70}}{70}$ 0 0 0 0
	0	$-\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{56}$ $\frac{\sqrt{7}}{28}$ 0 0 0 0 $-\frac{\sqrt{70}}{70}$ 0 $-\frac{3\sqrt{70}i}{280}$ $-\frac{\sqrt{105}}{210}$ 0
	$-\frac{\sqrt{42}}{84}$	0 $\frac{\sqrt{42}i}{56}$ 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{70}}{70}$ 0 $\frac{3\sqrt{70}i}{280}$ 0 0 $\frac{\sqrt{105}}{210}$
	0	0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{105}}{210}$ 0 0 $\frac{\sqrt{70}i}{70}$
	0	0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{42}$ 0 0 0 0 $\frac{\sqrt{105}}{210}$ $-\frac{\sqrt{70}i}{70}$ 0
973 symmetry		$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(1,-1;a)}(A, 3)$	0	$\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{7}}{84}$ 0 0 $-\frac{\sqrt{70}i}{168}$ 0 $-\frac{\sqrt{70}}{84}$ 0 0
	$-\frac{5\sqrt{42}i}{168}$	0 0 0 0 0 0 $\frac{5\sqrt{7}}{84}$ $\frac{\sqrt{70}i}{168}$ 0 $-\frac{\sqrt{70}}{84}$ 0 0 0
	0	0 0 0 $\frac{5\sqrt{42}i}{168}$ $\frac{5\sqrt{7}}{84}$ 0 0 0 0 $\frac{\sqrt{70}}{84}$ 0 $-\frac{\sqrt{70}i}{168}$ 0 0
	0	0 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 $-\frac{5\sqrt{7}}{84}$ 0 0 $\frac{\sqrt{70}}{84}$ 0 $\frac{\sqrt{70}i}{168}$ 0 0 0
	0	0 0 $\frac{5\sqrt{7}}{84}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}}{84}$ 0 0 0 $-\frac{\sqrt{70}i}{84}$
	0	0 0 0 $-\frac{5\sqrt{7}}{84}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ $\frac{\sqrt{70}i}{84}$ 0
	$-\frac{5\sqrt{7}}{84}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 $\frac{\sqrt{70}}{42}$
	0	$\frac{5\sqrt{7}}{84}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}}{84}$ 0 0 0 $\frac{\sqrt{70}}{42}$ 0
	0	$-\frac{\sqrt{70}i}{168}$ 0 $\frac{\sqrt{70}}{84}$ 0 0 $\frac{\sqrt{105}}{84}$ 0 0 $-\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{42}$ 0 0 0
	$\frac{\sqrt{70}i}{168}$	0 $\frac{\sqrt{70}}{84}$ 0 0 0 0 $-\frac{\sqrt{105}}{84}$ $\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{42}$ 0 0 0
	0	$-\frac{\sqrt{70}}{84}$ 0 $-\frac{\sqrt{70}i}{168}$ $-\frac{\sqrt{105}}{84}$ 0 0 0 0 $-\frac{\sqrt{42}}{42}$ 0 $-\frac{5\sqrt{42}i}{168}$ $\frac{\sqrt{7}}{42}$ 0
	$-\frac{\sqrt{70}}{84}$	0 $\frac{\sqrt{70}i}{168}$ 0 0 $\frac{\sqrt{105}}{84}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 $\frac{5\sqrt{42}i}{168}$ 0 0 0 $-\frac{\sqrt{7}}{42}$
	0	0 0 0 0 0 $-\frac{\sqrt{70}i}{84}$ 0 $\frac{\sqrt{70}}{42}$ 0 0 0 $\frac{\sqrt{7}}{42}$ 0 0 $-\frac{\sqrt{42}i}{42}$
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{84}$ 0 $\frac{\sqrt{70}}{42}$ 0 0 0 0 $-\frac{\sqrt{7}}{42}$ $\frac{\sqrt{42}i}{42}$ 0
$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$		
974	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,-1;a)}(B,1)$	0	$\frac{\sqrt{70}}{56}$	0	0	$-\frac{\sqrt{105}}{84}$	0	0	0	0	$-\frac{\sqrt{42}}{56}$	0	$\frac{\sqrt{42}i}{84}$	0	0	
	$\frac{\sqrt{70}}{56}$	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	0	$-\frac{\sqrt{42}}{56}$	0	$-\frac{\sqrt{42}i}{84}$	0	0	0	
	0	0	0	$\frac{\sqrt{70}}{56}$	0	0	$-\frac{\sqrt{105}}{84}$	0	0	$-\frac{\sqrt{42}i}{84}$	0	$-\frac{\sqrt{42}}{56}$	0	0	
	0	0	$\frac{\sqrt{70}}{56}$	0	0	0	0	$\frac{\sqrt{105}}{84}$	$\frac{\sqrt{42}i}{84}$	0	$-\frac{\sqrt{42}}{56}$	0	0	0	
	$-\frac{\sqrt{105}}{84}$	0	0	0	0	0	0	0	$-\frac{\sqrt{7}}{28}$	0	0	0	0	$-\frac{\sqrt{42}}{28}$	
	0	$\frac{\sqrt{105}}{84}$	0	0	0	0	0	0	0	$\frac{\sqrt{7}}{28}$	0	0	$-\frac{\sqrt{42}}{28}$	0	
	0	0	$-\frac{\sqrt{105}}{84}$	0	0	0	0	0	0	$-\frac{\sqrt{7}}{28}$	0	0	$-\frac{\sqrt{42}i}{42}$	0	
	0	0	0	$\frac{\sqrt{105}}{84}$	0	0	0	0	0	0	$\frac{\sqrt{7}}{28}$	$\frac{\sqrt{42}i}{42}$	0		
	0	$-\frac{\sqrt{42}}{56}$	0	$-\frac{\sqrt{42}i}{84}$	$-\frac{\sqrt{7}}{28}$	0	0	0	0	$\frac{3\sqrt{70}}{280}$	0	$\frac{\sqrt{70}i}{70}$	$-\frac{\sqrt{105}}{210}$	0	
	$-\frac{\sqrt{42}}{56}$	0	$\frac{\sqrt{42}i}{84}$	0	0	$\frac{\sqrt{7}}{28}$	0	0	$\frac{3\sqrt{70}}{280}$	0	$-\frac{\sqrt{70}i}{70}$	0	0	$\frac{\sqrt{105}}{210}$	
	0	$\frac{\sqrt{42}i}{84}$	0	$-\frac{\sqrt{42}}{56}$	0	0	$-\frac{\sqrt{7}}{28}$	0	0	$\frac{\sqrt{70}i}{70}$	0	$-\frac{9\sqrt{70}}{280}$	0	0	
	$-\frac{\sqrt{42}i}{84}$	0	$-\frac{\sqrt{42}}{56}$	0	0	0	0	$\frac{\sqrt{7}}{28}$	$-\frac{\sqrt{70}i}{70}$	0	$-\frac{9\sqrt{70}}{280}$	0	0	0	
	0	0	0	0	0	$-\frac{\sqrt{42}}{28}$	0	$-\frac{\sqrt{42}i}{42}$	$-\frac{\sqrt{105}}{210}$	0	0	0	0	$-\frac{\sqrt{70}}{70}$	
	0	0	0	0	$-\frac{\sqrt{42}}{28}$	0	$\frac{\sqrt{42}i}{42}$	0	0	$\frac{\sqrt{105}}{210}$	0	0	$-\frac{\sqrt{70}}{70}$	0	
975	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$													

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,-1;a)}(B, 2)$	$-\frac{\sqrt{70}}{28}$	0	0	0	0	$-\frac{\sqrt{105}}{84}$	0	$-\frac{\sqrt{105}i}{84}$	0	0	0	0	0	0	0
	0	$\frac{\sqrt{70}}{28}$	0	0	$-\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	0	0	0	0	0	0	0	0
	0	0	$-\frac{\sqrt{70}}{28}$	0	0	$\frac{\sqrt{105}i}{84}$	0	$-\frac{\sqrt{105}}{84}$	0	0	0	0	0	0	0
	0	0	0	$\frac{\sqrt{70}}{28}$	$-\frac{\sqrt{105}i}{84}$	0	$-\frac{\sqrt{105}}{84}$	0	0	0	0	0	0	0	0
	0	$-\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	0	0	0	0	0	$-\frac{\sqrt{7}}{28}$	0	$-\frac{\sqrt{7}i}{28}$	0	0	0
	$-\frac{\sqrt{105}}{84}$	0	$-\frac{\sqrt{105}i}{84}$	0	0	0	0	0	$-\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	0	0
	0	$-\frac{\sqrt{105}i}{84}$	0	$-\frac{\sqrt{105}}{84}$	0	0	0	0	0	$\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	0
	$\frac{\sqrt{105}i}{84}$	0	$-\frac{\sqrt{105}}{84}$	0	0	0	0	0	$-\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	0	0
	0	0	0	0	0	$-\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	$\frac{3\sqrt{70}}{140}$	0	0	0	0	$-\frac{\sqrt{105}}{210}$	
	0	0	0	0	$-\frac{\sqrt{7}}{28}$	0	$-\frac{\sqrt{7}i}{28}$	0	0	$-\frac{3\sqrt{70}}{140}$	0	0	$-\frac{\sqrt{105}}{210}$	0	
	0	0	0	0	0	$-\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	$\frac{3\sqrt{70}}{140}$	0	0	$\frac{\sqrt{105}i}{210}$	
	0	0	0	0	$\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	0	$-\frac{3\sqrt{70}}{140}$	$-\frac{\sqrt{105}i}{210}$	0		
	0	0	0	0	0	0	0	0	$-\frac{\sqrt{105}}{210}$	0	$\frac{\sqrt{105}i}{210}$	$\frac{\sqrt{70}}{35}$	0		
	0	0	0	0	0	0	0	$-\frac{\sqrt{105}}{210}$	0	$-\frac{\sqrt{105}i}{210}$	0	0	$-\frac{\sqrt{70}}{35}$		
$\frac{\sqrt{15}x(y-z)(y+z)}{2}$															

976 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,-1;a)}(B,3)$	0	$\frac{5\sqrt{42}}{168}$	0	0	$-\frac{5\sqrt{7}}{84}$	0	0	0	0	$\frac{\sqrt{70}}{168}$	0	$-\frac{\sqrt{70}i}{84}$	0	0	
	$\frac{5\sqrt{42}}{168}$	0	0	0	0	$\frac{5\sqrt{7}}{84}$	0	0	$\frac{\sqrt{70}}{168}$	0	$\frac{\sqrt{70}i}{84}$	0	0	0	
	0	0	0	$\frac{5\sqrt{42}}{168}$	0	0	$-\frac{5\sqrt{7}}{84}$	0	0	$\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{168}$	0	0	
	0	0	$\frac{5\sqrt{42}}{168}$	0	0	0	$\frac{5\sqrt{7}}{84}$	$-\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{168}$	0	0	0	0	
	$-\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	$-\frac{\sqrt{105}}{84}$	0	0	0	0	$\frac{\sqrt{70}}{84}$		
	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	0	0	$\frac{\sqrt{70}}{84}$	0	
	0	0	$-\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	$-\frac{\sqrt{105}}{84}$	0	0	$\frac{\sqrt{70}i}{42}$		
	0	0	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	$\frac{\sqrt{105}}{84}$	$-\frac{\sqrt{70}i}{42}$	0		
	0	$\frac{\sqrt{70}}{168}$	0	$\frac{\sqrt{70}i}{84}$	$-\frac{\sqrt{105}}{84}$	0	0	0	$-\frac{5\sqrt{42}}{168}$	0	$-\frac{\sqrt{42}i}{42}$	$-\frac{\sqrt{7}}{42}$	0		
	$\frac{\sqrt{70}}{168}$	0	$-\frac{\sqrt{70}i}{84}$	0	0	$\frac{\sqrt{105}}{84}$	0	0	$-\frac{5\sqrt{42}}{168}$	0	$\frac{\sqrt{42}i}{42}$	0	$\frac{\sqrt{7}}{42}$		
	0	$-\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{168}$	0	0	$-\frac{\sqrt{105}}{84}$	0	0	$-\frac{\sqrt{42}i}{42}$	0	$-\frac{\sqrt{42}}{168}$	0	0	
	$\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{168}$	0	0	0	$\frac{\sqrt{105}}{84}$	$\frac{\sqrt{42}i}{42}$	0	$-\frac{\sqrt{42}}{168}$	0	0	0	0	
	0	0	0	0	0	$\frac{\sqrt{70}}{84}$	0	$\frac{\sqrt{70}i}{42}$	$-\frac{\sqrt{7}}{42}$	0	0	0	$-\frac{\sqrt{42}}{42}$		
	0	0	0	0	$\frac{\sqrt{70}}{84}$	0	$-\frac{\sqrt{70}i}{42}$	0	0	$\frac{\sqrt{7}}{42}$	0	0	$-\frac{\sqrt{42}}{42}$	0	

977 symmetry

 $\frac{\sqrt{15}z(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,-1;a)}(B, 4)$	0	0	0	0	0	$\frac{5\sqrt{7}}{84}$	0	$-\frac{5\sqrt{7}i}{84}$	$-\frac{\sqrt{70}}{84}$	0	0	0	0	0	0
	0	0	0	0	$\frac{5\sqrt{7}}{84}$	0	$\frac{5\sqrt{7}i}{84}$	0	0	$\frac{\sqrt{70}}{84}$	0	0	0	0	0
	0	0	0	0	0	$\frac{5\sqrt{7}i}{84}$	0	$\frac{5\sqrt{7}}{84}$	0	0	$-\frac{\sqrt{70}}{84}$	0	0	0	0
	0	0	0	0	$-\frac{5\sqrt{7}i}{84}$	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	$\frac{\sqrt{70}}{84}$	0	0	0
	0	$\frac{5\sqrt{7}}{84}$	0	$\frac{5\sqrt{7}i}{84}$	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	$-\frac{\sqrt{105}i}{84}$	$-\frac{\sqrt{70}}{42}$	0	0	0
	$\frac{5\sqrt{7}}{84}$	0	$-\frac{5\sqrt{7}i}{84}$	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	0	0	$\frac{\sqrt{70}}{42}$	0	0
	0	$-\frac{5\sqrt{7}i}{84}$	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	$-\frac{\sqrt{105}i}{84}$	0	$\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}}{84}$	0	0
	$\frac{5\sqrt{7}i}{84}$	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	0	$-\frac{\sqrt{105}i}{84}$	0	$\frac{\sqrt{105}}{84}$	0	0	0	0
	$-\frac{\sqrt{70}}{84}$	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	$\frac{\sqrt{42}}{42}$	0	0	0	0	$\frac{\sqrt{7}}{42}$	0
	0	$\frac{\sqrt{70}}{84}$	0	0	$\frac{\sqrt{105}}{84}$	0	$-\frac{\sqrt{105}i}{84}$	0	0	$-\frac{\sqrt{42}}{42}$	0	0	$\frac{\sqrt{7}}{42}$	0	0
	0	0	$-\frac{\sqrt{70}}{84}$	0	0	$-\frac{\sqrt{105}i}{84}$	0	$\frac{\sqrt{105}}{84}$	0	0	$-\frac{\sqrt{42}}{42}$	0	0	$\frac{\sqrt{7}i}{42}$	0
	0	0	0	$\frac{\sqrt{70}}{84}$	$\frac{\sqrt{105}i}{84}$	0	$\frac{\sqrt{105}}{84}$	0	0	0	0	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{7}i}{42}$	0	0
	0	0	0	0	$-\frac{\sqrt{70}}{42}$	0	0	0	$\frac{\sqrt{7}}{42}$	0	$\frac{\sqrt{7}i}{42}$	0	0	0	0
	0	0	0	0	0	$\frac{\sqrt{70}}{42}$	0	0	$\frac{\sqrt{7}}{42}$	0	$-\frac{\sqrt{7}i}{42}$	0	0	0	0

978 symmetry

 $\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$ 

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,-1;a)}(A, 1)$	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{110}$	0	0	$\frac{3\sqrt{110}i}{110}$		
	0	0	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{110}$	$-\frac{3\sqrt{110}i}{110}$	0			
	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{110}$	0	0	0	0	$-\frac{3\sqrt{110}}{110}$		
	0	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{110}$	0	0	0	$-\frac{3\sqrt{110}}{110}$	0	
	0	0	0	0	0	$\frac{\sqrt{11}}{22}$	0	0	$-\frac{\sqrt{110}i}{110}$	0	$\frac{\sqrt{110}}{110}$	0	0	0	
	0	0	0	0	0	0	$-\frac{\sqrt{11}}{22}$	$\frac{\sqrt{110}i}{110}$	0	$\frac{\sqrt{110}}{110}$	0	0	0	0	
	0	0	0	0	$\frac{\sqrt{11}}{22}$	0	0	0	$\frac{\sqrt{110}}{110}$	0	$\frac{\sqrt{110}i}{110}$	0	0	0	
	0	0	0	0	$-\frac{\sqrt{11}}{22}$	0	0	$\frac{\sqrt{110}}{110}$	0	$-\frac{\sqrt{110}i}{110}$	0	0	0	0	
	0	0	$-\frac{\sqrt{165}}{110}$	0	0	$-\frac{\sqrt{110}i}{110}$	0	$\frac{\sqrt{110}}{110}$	0	0	0	0	0	0	
	0	0	0	$\frac{\sqrt{165}}{110}$	$\frac{\sqrt{110}i}{110}$	0	$\frac{\sqrt{110}}{110}$	0	0	0	0	0	0	0	
	$-\frac{\sqrt{165}}{110}$	0	0	0	0	$\frac{\sqrt{110}}{110}$	0	$\frac{\sqrt{110}i}{110}$	0	0	0	0	0	0	
	0	$\frac{\sqrt{165}}{110}$	0	0	$\frac{\sqrt{110}}{110}$	0	$-\frac{\sqrt{110}i}{110}$	0	0	0	0	0	0	0	
	0	$\frac{3\sqrt{110}i}{110}$	0	$-\frac{3\sqrt{110}}{110}$	0	0	0	0	0	0	0	0	0	0	
	$-\frac{3\sqrt{110}i}{110}$	0	$-\frac{3\sqrt{110}}{110}$	0	0	0	0	0	0	0	0	0	0	0	
$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$															
979	symmetry														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(A, 2)$	0	0 0 0 0 0 $-\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 $\frac{3\sqrt{55}}{110}$ 0 0 $-\frac{\sqrt{330}i}{220}$
	0	0 0 0 0 $\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 0 $-\frac{3\sqrt{55}}{110}$ $\frac{\sqrt{330}i}{220}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{22}}{44}$ 0 $-\frac{\sqrt{22}i}{44}$ $-\frac{3\sqrt{55}}{110}$ 0 0 0 0 $-\frac{\sqrt{330}}{220}$
	0	0 0 0 0 $\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ 0 0 $\frac{3\sqrt{55}}{110}$ 0 0 $-\frac{\sqrt{330}}{220}$ 0
	0	$-\frac{\sqrt{22}i}{44}$ 0 $\frac{\sqrt{22}}{44}$ 0 0 0 0 0 $\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0
	$\frac{\sqrt{22}i}{44}$	0 $\frac{\sqrt{22}}{44}$ 0 0 0 0 0 $-\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0 0
	0	$-\frac{\sqrt{22}}{44}$ 0 $-\frac{\sqrt{22}i}{44}$ 0 0 0 0 0 $-\frac{\sqrt{330}}{220}$ 0 $\frac{\sqrt{330}i}{220}$ $\frac{\sqrt{55}}{110}$ 0
	$-\frac{\sqrt{22}}{44}$	0 $\frac{\sqrt{22}i}{44}$ 0 0 0 0 0 $-\frac{\sqrt{330}}{220}$ 0 $-\frac{\sqrt{330}i}{220}$ 0 0 0 $-\frac{\sqrt{55}}{110}$
	0	0 0 $-\frac{3\sqrt{55}}{110}$ 0 0 $\frac{\sqrt{330}i}{132}$ 0 $-\frac{\sqrt{330}}{220}$ 0 0 $-\frac{\sqrt{33}}{33}$ 0 0 $\frac{\sqrt{22}i}{44}$
	0	0 0 0 $\frac{3\sqrt{55}}{110}$ $-\frac{\sqrt{330}i}{132}$ 0 $-\frac{\sqrt{330}}{220}$ 0 0 0 0 $\frac{\sqrt{33}}{33}$ $-\frac{\sqrt{22}i}{44}$ 0
	$\frac{3\sqrt{55}}{110}$	0 0 0 0 0 $\frac{\sqrt{330}}{132}$ 0 $\frac{\sqrt{330}i}{220}$ $-\frac{\sqrt{33}}{33}$ 0 0 0 0 $-\frac{\sqrt{22}}{44}$
	0	$-\frac{3\sqrt{55}}{110}$ 0 0 $\frac{\sqrt{330}}{132}$ 0 $-\frac{\sqrt{330}i}{220}$ 0 0 0 $\frac{\sqrt{33}}{33}$ 0 0 $-\frac{\sqrt{22}}{44}$ 0
	0	$-\frac{\sqrt{330}i}{220}$ 0 $-\frac{\sqrt{330}}{220}$ 0 0 $\frac{\sqrt{55}}{110}$ 0 0 $\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0
	$\frac{\sqrt{330}i}{220}$	0 $-\frac{\sqrt{330}}{220}$ 0 0 0 0 $-\frac{\sqrt{55}}{110}$ $-\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0

$$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$$

980 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,-1;a)}(A, 3)$	0	$-\frac{3\sqrt{385}i}{1232}$	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	$\frac{5\sqrt{231}i}{3696}$	0	$-\frac{5\sqrt{231}}{462}$	0	0	0
	$\frac{3\sqrt{385}i}{1232}$	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{616}$	$-\frac{5\sqrt{231}i}{3696}$	0	$-\frac{5\sqrt{231}}{462}$	0	0	0	0
	0	0	0	$-\frac{3\sqrt{385}i}{1232}$	$-\frac{\sqrt{2310}}{616}$	0	0	0	0	$-\frac{\sqrt{231}}{231}$	0	$-\frac{65\sqrt{231}i}{3696}$	$-\frac{\sqrt{154}}{88}$	0	0
	0	0	$\frac{3\sqrt{385}i}{1232}$	0	0	$\frac{\sqrt{2310}}{616}$	0	0	$-\frac{\sqrt{231}}{231}$	0	$\frac{65\sqrt{231}i}{3696}$	0	0	$\frac{\sqrt{154}}{88}$	0
	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	$-\frac{\sqrt{385}i}{264}$	0	$\frac{\sqrt{385}}{132}$	0	0	$-\frac{5\sqrt{154}}{1848}$	0	0	$\frac{5\sqrt{231}i}{1848}$	0
	0	0	0	$\frac{\sqrt{2310}}{616}$	$\frac{\sqrt{385}i}{264}$	0	$\frac{\sqrt{385}}{132}$	0	0	0	0	$\frac{5\sqrt{154}}{1848}$	$-\frac{5\sqrt{231}i}{1848}$	0	0
	$\frac{\sqrt{2310}}{616}$	0	0	0	0	$\frac{\sqrt{385}}{132}$	0	$\frac{\sqrt{385}i}{66}$	$\frac{19\sqrt{154}}{1848}$	0	0	0	0	0	$-\frac{\sqrt{231}}{924}$
	0	$-\frac{\sqrt{2310}}{616}$	0	0	$\frac{\sqrt{385}}{132}$	0	$-\frac{\sqrt{385}i}{66}$	0	0	$-\frac{19\sqrt{154}}{1848}$	0	0	$-\frac{\sqrt{231}}{924}$	0	0
	0	$\frac{5\sqrt{231}i}{3696}$	0	$-\frac{\sqrt{231}}{231}$	0	0	$\frac{19\sqrt{154}}{1848}$	0	0	$-\frac{23\sqrt{385}i}{3696}$	0	$\frac{\sqrt{385}}{462}$	0	0	0
	$-\frac{5\sqrt{231}i}{3696}$	0	$-\frac{\sqrt{231}}{231}$	0	0	0	0	$-\frac{19\sqrt{154}}{1848}$	$\frac{23\sqrt{385}i}{3696}$	0	$\frac{\sqrt{385}}{462}$	0	0	0	0
	0	$-\frac{5\sqrt{231}}{462}$	0	$-\frac{65\sqrt{231}i}{3696}$	$-\frac{5\sqrt{154}}{1848}$	0	0	0	0	$\frac{\sqrt{385}}{462}$	0	$\frac{17\sqrt{385}i}{3696}$	$\frac{\sqrt{2310}}{616}$	0	0
	$-\frac{5\sqrt{231}}{462}$	0	$\frac{65\sqrt{231}i}{3696}$	0	0	$\frac{5\sqrt{154}}{1848}$	0	0	$\frac{\sqrt{385}}{462}$	0	$-\frac{17\sqrt{385}i}{3696}$	0	0	$-\frac{\sqrt{2310}}{616}$	0
	0	0	$-\frac{\sqrt{154}}{88}$	0	0	$\frac{5\sqrt{231}i}{1848}$	0	$-\frac{\sqrt{231}}{924}$	0	0	$\frac{\sqrt{2310}}{616}$	0	0	$-\frac{3\sqrt{385}i}{616}$	0
	0	0	0	$\frac{\sqrt{154}}{88}$	$-\frac{5\sqrt{231}i}{1848}$	0	$-\frac{\sqrt{231}}{924}$	0	0	0	0	$-\frac{\sqrt{2310}}{616}$	$\frac{3\sqrt{385}i}{616}$	0	0
981	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$													

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(A, 4)$	0	$-\frac{3\sqrt{11}i}{176}$
	$\frac{3\sqrt{11}i}{176}$	0
	0	$-\frac{3\sqrt{11}i}{176}$
	0	$-\frac{\sqrt{66}}{88}$
	$\frac{3\sqrt{11}i}{176}$	0
	0	$-\frac{\sqrt{66}}{88}$
	$\frac{\sqrt{66}}{88}$	0
	0	$-\frac{\sqrt{66}}{88}$
	$-\frac{7\sqrt{165}i}{880}$	0
	0	$-\frac{\sqrt{165}}{55}$
	$\frac{7\sqrt{165}i}{880}$	0
	0	$-\frac{\sqrt{165}}{55}$
	0	$-\frac{9\sqrt{110}}{440}$
		$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

982 symmetry

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(A, 5)$	0	$\frac{\sqrt{33}i}{88}$ 0 0 0 0 0 $-\frac{\sqrt{22}}{44}$ 0 0 $\frac{13\sqrt{55}i}{440}$ 0 $-\frac{\sqrt{55}}{55}$ 0 0
	$-\frac{\sqrt{33}i}{88}$	0 0 0 0 0 0 0 $\frac{\sqrt{22}}{44}$ $-\frac{13\sqrt{55}i}{440}$ 0 $-\frac{\sqrt{55}}{55}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{33}i}{88}$ $\frac{\sqrt{22}}{44}$ 0 0 0 0 $-\frac{\sqrt{55}}{55}$ 0 $-\frac{\sqrt{55}i}{440}$ $\frac{\sqrt{33}0}{220}$ 0
	0	0 0 $-\frac{\sqrt{33}i}{88}$ 0 0 $-\frac{\sqrt{22}}{44}$ 0 0 $-\frac{\sqrt{55}}{55}$ 0 $\frac{\sqrt{55}i}{440}$ 0 0 $-\frac{\sqrt{33}0}{220}$
	0	0 0 $\frac{\sqrt{22}}{44}$ 0 0 $-\frac{7\sqrt{33}i}{132}$ 0 $\frac{\sqrt{33}}{33}$ 0 0 $\frac{\sqrt{33}0}{220}$ 0 0 $-\frac{\sqrt{55}i}{220}$
	0	0 0 0 $-\frac{\sqrt{22}}{44}$ $\frac{7\sqrt{33}i}{132}$ 0 $\frac{\sqrt{33}}{33}$ 0 0 0 0 $-\frac{\sqrt{33}0}{220}$ $\frac{\sqrt{55}i}{220}$ 0
	$-\frac{\sqrt{22}}{44}$	0 0 0 0 0 $\frac{\sqrt{33}}{33}$ 0 0 $-\frac{\sqrt{33}0}{132}$ 0 0 0 0 0 0
	0	$\frac{\sqrt{22}}{44}$ 0 0 $\frac{\sqrt{33}}{33}$ 0 0 0 0 0 $\frac{\sqrt{33}0}{132}$ 0 0 0 0
	0	$\frac{13\sqrt{55}i}{440}$ 0 $-\frac{\sqrt{55}}{55}$ 0 0 $-\frac{\sqrt{33}0}{132}$ 0 0 $\frac{5\sqrt{33}i}{264}$ 0 0 0 0
	$-\frac{13\sqrt{55}i}{440}$	0 $-\frac{\sqrt{55}}{55}$ 0 0 0 0 $\frac{\sqrt{33}0}{132}$ $-\frac{5\sqrt{33}i}{264}$ 0 0 0 0 0
	0	$-\frac{\sqrt{55}}{55}$ 0 $-\frac{\sqrt{55}i}{440}$ $\frac{\sqrt{33}0}{220}$ 0 0 0 0 0 $-\frac{\sqrt{33}i}{88}$ $-\frac{\sqrt{22}}{44}$ 0
	$-\frac{\sqrt{55}}{55}$	0 $\frac{\sqrt{55}i}{440}$ 0 0 $-\frac{\sqrt{33}0}{220}$ 0 0 0 0 $\frac{\sqrt{33}i}{88}$ 0 0 $\frac{\sqrt{22}}{44}$
	0	0 0 $\frac{\sqrt{33}0}{220}$ 0 0 $-\frac{\sqrt{55}i}{220}$ 0 0 0 0 $-\frac{\sqrt{22}}{44}$ 0 0 $\frac{\sqrt{33}i}{44}$
	0	0 0 0 $-\frac{\sqrt{33}0}{220}$ $\frac{\sqrt{55}i}{220}$ 0 0 0 0 0 $\frac{\sqrt{22}}{44}$ $-\frac{\sqrt{33}i}{44}$ 0
$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$		
983	symmetry	

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,-1;a)}(B,1)$	0	$\frac{3\sqrt{385}}{1232}$	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	0	0	$-\frac{65\sqrt{231}}{3696}$	0	$-\frac{\sqrt{231}i}{231}$	$\frac{\sqrt{154}}{88}$	0		
	$\frac{3\sqrt{385}}{1232}$	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	$-\frac{65\sqrt{231}}{3696}$	0	$\frac{\sqrt{231}i}{231}$	0	0	$-\frac{\sqrt{154}}{88}$		
	0	0	0	$\frac{3\sqrt{385}}{1232}$	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	$-\frac{5\sqrt{231}i}{462}$	0	$\frac{5\sqrt{231}}{3696}$	0	0	0	
	0	0	$\frac{3\sqrt{385}}{1232}$	0	0	0	0	$\frac{\sqrt{2310}}{616}$	$\frac{5\sqrt{231}i}{462}$	0	$\frac{5\sqrt{231}}{3696}$	0	0	0	0	
	$-\frac{\sqrt{2310}}{616}$	0	0	0	0	$\frac{\sqrt{385}}{264}$	0	$\frac{\sqrt{385}i}{132}$	$\frac{5\sqrt{154}}{1848}$	0	0	0	0	$\frac{5\sqrt{231}}{1848}$		
	0	$\frac{\sqrt{2310}}{616}$	0	0	$\frac{\sqrt{385}}{264}$	0	$-\frac{\sqrt{385}i}{132}$	0	0	$-\frac{5\sqrt{154}}{1848}$	0	0	$\frac{5\sqrt{231}}{1848}$	0		
	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	$\frac{\sqrt{385}i}{132}$	0	$-\frac{\sqrt{385}}{66}$	0	0	$\frac{19\sqrt{154}}{1848}$	0	0	$\frac{\sqrt{231}i}{924}$		
	0	0	0	$\frac{\sqrt{2310}}{616}$	$-\frac{\sqrt{385}i}{132}$	0	$-\frac{\sqrt{385}}{66}$	0	0	0	0	$-\frac{19\sqrt{154}}{1848}$	$-\frac{\sqrt{231}i}{924}$	0		
	0	$-\frac{65\sqrt{231}}{3696}$	0	$-\frac{5\sqrt{231}i}{462}$	$\frac{5\sqrt{154}}{1848}$	0	0	0	0	$-\frac{17\sqrt{385}}{3696}$	0	$-\frac{\sqrt{385}i}{462}$	$\frac{\sqrt{2310}}{616}$	0		
	$-\frac{65\sqrt{231}}{3696}$	0	$\frac{5\sqrt{231}i}{462}$	0	0	$-\frac{5\sqrt{154}}{1848}$	0	0	$-\frac{17\sqrt{385}}{3696}$	0	$\frac{\sqrt{385}i}{462}$	0	0	$-\frac{\sqrt{2310}}{616}$		
	0	$-\frac{\sqrt{231}i}{231}$	0	$\frac{5\sqrt{231}}{3696}$	0	0	$\frac{19\sqrt{154}}{1848}$	0	0	$-\frac{\sqrt{385}i}{462}$	0	$\frac{23\sqrt{385}}{3696}$	0	0	0	
	$\frac{\sqrt{231}i}{231}$	0	$\frac{5\sqrt{231}}{3696}$	0	0	0	0	$-\frac{19\sqrt{154}}{1848}$	$\frac{\sqrt{385}i}{462}$	0	$\frac{23\sqrt{385}}{3696}$	0	0	0		
	$\frac{\sqrt{154}}{88}$	0	0	0	0	$\frac{5\sqrt{231}}{1848}$	0	$\frac{\sqrt{231}i}{924}$	$\frac{\sqrt{2310}}{616}$	0	0	0	0	$\frac{3\sqrt{385}}{616}$		
	0	$-\frac{\sqrt{154}}{88}$	0	0	$\frac{5\sqrt{231}}{1848}$	0	$-\frac{\sqrt{231}i}{924}$	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	$\frac{3\sqrt{385}}{616}$	0		
$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$																
984	symmetry															

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,-1;a)}(B, 2)$	$\frac{\sqrt{385}}{154}$	0	0	0	0	$\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{462}$	0	0	0	0	0	0	0
	0	$-\frac{\sqrt{385}}{154}$	0	0	$\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{462}$	0	0	0	0	0	0	0	0
	0	0	$\frac{\sqrt{385}}{154}$	0	0	$-\frac{\sqrt{2310}i}{462}$	0	$\frac{\sqrt{2310}}{462}$	0	0	0	0	0	0	0
	0	0	0	$-\frac{\sqrt{385}}{154}$	$\frac{\sqrt{2310}i}{462}$	0	$\frac{\sqrt{2310}}{462}$	0	0	0	0	0	0	0	0
	0	$\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{462}$	$-\frac{\sqrt{385}}{66}$	0	0	0	0	$-\frac{2\sqrt{154}}{231}$	0	$-\frac{2\sqrt{154}i}{231}$	0	0	0
		$\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{462}$	0	0	$\frac{\sqrt{385}}{66}$	0	0	$-\frac{2\sqrt{154}}{231}$	0	$\frac{2\sqrt{154}i}{231}$	0	0	0
	0	$\frac{\sqrt{2310}i}{462}$	0	$\frac{\sqrt{2310}}{462}$	0	0	$-\frac{\sqrt{385}}{66}$	0	0	$\frac{2\sqrt{154}i}{231}$	0	$-\frac{2\sqrt{154}}{231}$	0	0	0
	$-\frac{\sqrt{2310}i}{462}$	0	$\frac{\sqrt{2310}}{462}$	0	0	0	0	$\frac{\sqrt{385}}{66}$	$-\frac{2\sqrt{154}i}{231}$	0	$-\frac{2\sqrt{154}}{231}$	0	0	0	0
	0	0	0	0	0	$-\frac{2\sqrt{154}}{231}$	0	$\frac{2\sqrt{154}i}{231}$	$\frac{\sqrt{385}}{462}$	0	0	0	0	$-\frac{\sqrt{2310}}{462}$	0
	0	0	0	0	$-\frac{2\sqrt{154}}{231}$	0	$-\frac{2\sqrt{154}i}{231}$	0	0	$-\frac{\sqrt{385}}{462}$	0	0	$-\frac{\sqrt{2310}}{462}$	0	0
	0	0	0	0	0	$-\frac{2\sqrt{154}i}{231}$	0	$-\frac{2\sqrt{154}}{231}$	0	0	0	$\frac{\sqrt{385}}{462}$	0	0	$\frac{\sqrt{2310}i}{462}$
	0	0	0	0	$\frac{2\sqrt{154}i}{231}$	0	$-\frac{2\sqrt{154}}{231}$	0	0	0	0	$-\frac{\sqrt{385}}{462}$	$-\frac{\sqrt{2310}i}{462}$	0	0
	0	0	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{462}$	$\frac{\sqrt{385}}{77}$	0	0	0
	0	0	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{462}$	0	0	0	$-\frac{\sqrt{385}}{77}$
985	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$													

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,-1;a)}(B,3)$	0	$\frac{3\sqrt{11}}{176}$	0	0	$-\frac{\sqrt{66}}{88}$	0	0	0	0	$\frac{\sqrt{165}}{176}$	0	$-\frac{\sqrt{165}i}{55}$	$-\frac{9\sqrt{110}}{440}$	0	
	$\frac{3\sqrt{11}}{176}$	0	0	0	0	$\frac{\sqrt{66}}{88}$	0	0	$\frac{\sqrt{165}}{176}$	0	$\frac{\sqrt{165}i}{55}$	0	0	$\frac{9\sqrt{110}}{440}$	
	0	0	0	$\frac{3\sqrt{11}}{176}$	0	0	$-\frac{\sqrt{66}}{88}$	0	0	$\frac{\sqrt{165}i}{110}$	0	$\frac{7\sqrt{165}}{880}$	0	0	
	0	0	$\frac{3\sqrt{11}}{176}$	0	0	0	0	$\frac{\sqrt{66}}{88}$	$-\frac{\sqrt{165}i}{110}$	0	$\frac{7\sqrt{165}}{880}$	0	0	0	
	$-\frac{\sqrt{66}}{88}$	0	0	0	0	$-\frac{3\sqrt{11}}{88}$	0	$\frac{\sqrt{11}i}{44}$	$\frac{7\sqrt{110}}{440}$	0	0	0	0	$-\frac{\sqrt{165}}{440}$	
	0	$\frac{\sqrt{66}}{88}$	0	0	$-\frac{3\sqrt{11}}{88}$	0	$-\frac{\sqrt{11}i}{44}$	0	0	$-\frac{7\sqrt{110}}{440}$	0	0	$-\frac{\sqrt{165}}{440}$	0	
	0	0	$-\frac{\sqrt{66}}{88}$	0	0	$\frac{\sqrt{11}i}{44}$	0	$-\frac{\sqrt{11}}{22}$	0	0	$\frac{\sqrt{110}}{440}$	0	0	$-\frac{\sqrt{165}i}{220}$	
	0	0	0	$\frac{\sqrt{66}}{88}$	$-\frac{\sqrt{11}i}{44}$	0	$-\frac{\sqrt{11}}{22}$	0	0	0	0	$-\frac{\sqrt{110}}{440}$	$\frac{\sqrt{165}i}{220}$	0	
	0	$\frac{\sqrt{165}}{176}$	0	$\frac{\sqrt{165}i}{110}$	$\frac{7\sqrt{110}}{440}$	0	0	0	0	$\frac{5\sqrt{11}}{176}$	0	$\frac{\sqrt{11}i}{22}$	$\frac{\sqrt{66}}{88}$	0	
	$\frac{\sqrt{165}}{176}$	0	$-\frac{\sqrt{165}i}{110}$	0	0	$-\frac{7\sqrt{110}}{440}$	0	0	$\frac{5\sqrt{11}}{176}$	0	$-\frac{\sqrt{11}i}{22}$	0	0	$-\frac{\sqrt{66}}{88}$	
	0	$-\frac{\sqrt{165}i}{55}$	0	$\frac{7\sqrt{165}}{880}$	0	0	$\frac{\sqrt{110}}{440}$	0	0	$\frac{\sqrt{11}i}{22}$	0	$-\frac{3\sqrt{11}}{176}$	0	0	
	$\frac{\sqrt{165}i}{55}$	0	$\frac{7\sqrt{165}}{880}$	0	0	0	0	$-\frac{\sqrt{110}}{440}$	$-\frac{\sqrt{11}i}{22}$	0	$-\frac{3\sqrt{11}}{176}$	0	0	0	
	$-\frac{9\sqrt{110}}{440}$	0	0	0	0	$-\frac{\sqrt{165}}{440}$	0	$-\frac{\sqrt{165}i}{220}$	$\frac{\sqrt{66}}{88}$	0	0	0	0	$\frac{3\sqrt{11}}{88}$	
	0	$\frac{9\sqrt{110}}{440}$	0	0	$-\frac{\sqrt{165}}{440}$	0	$\frac{\sqrt{165}i}{220}$	0	0	$-\frac{\sqrt{66}}{88}$	0	0	$\frac{3\sqrt{11}}{88}$	0	
986	symmetry	$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$													

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,-1;a)}(B,4)$	0	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{110}$	0	0	0	0	$-\frac{3\sqrt{110}}{110}$	
	0	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{110}$	0	0	0	$-\frac{3\sqrt{110}}{110}$	0	
	0	0	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{110}$	0	0	0	$-\frac{3\sqrt{110}i}{110}$	
	0	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{110}$	$\frac{3\sqrt{110}i}{110}$	0		
	0	0	0	0	$\frac{\sqrt{11}}{22}$	0	0	0	0	$\frac{\sqrt{110}}{110}$	0	$\frac{\sqrt{110}i}{110}$	0	0	
	0	0	0	0	0	$-\frac{\sqrt{11}}{22}$	0	0	$\frac{\sqrt{110}}{110}$	0	$-\frac{\sqrt{110}i}{110}$	0	0	0	
	0	0	0	0	0	0	$-\frac{\sqrt{11}}{22}$	0	0	$\frac{\sqrt{110}i}{110}$	0	$-\frac{\sqrt{110}}{110}$	0	0	
	$-\frac{\sqrt{165}}{110}$	0	0	0	0	$\frac{\sqrt{110}}{110}$	0	$\frac{\sqrt{110}i}{110}$	0	0	0	0	0	0	
	0	$\frac{\sqrt{165}}{110}$	0	0	$\frac{\sqrt{110}}{110}$	0	$-\frac{\sqrt{110}i}{110}$	0	0	0	0	0	0	0	
	0	0	$\frac{\sqrt{165}}{110}$	0	0	$\frac{\sqrt{110}i}{110}$	0	$-\frac{\sqrt{110}}{110}$	0	0	0	0	0	0	
	0	0	0	$-\frac{\sqrt{165}}{110}$	$-\frac{\sqrt{110}i}{110}$	0	$-\frac{\sqrt{110}}{110}$	0	0	0	0	0	0	0	
	0	$-\frac{3\sqrt{110}}{110}$	0	$-\frac{3\sqrt{110}i}{110}$	0	0	0	0	0	0	0	0	0	0	
	$-\frac{3\sqrt{110}}{110}$	0	$\frac{3\sqrt{110}i}{110}$	0	0	0	0	0	0	0	0	0	0	0	
987	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$													

continued ...

Table 10

No.	multipole	matrix												
$\mathbb{M}_5^{(1,-1;a)}(B,5)$	0	$\frac{\sqrt{33}}{88}$	0	0	$-\frac{\sqrt{22}}{44}$	0	0	0	$\frac{\sqrt{55}}{440}$	0	$\frac{\sqrt{55}i}{55}$	$\frac{\sqrt{330}}{220}$	0	
	$\frac{\sqrt{33}}{88}$	0	0	0	0	$\frac{\sqrt{22}}{44}$	0	0	$\frac{\sqrt{55}}{440}$	0	$-\frac{\sqrt{55}i}{55}$	0	0	$-\frac{\sqrt{330}}{220}$
	0	0	0	$\frac{\sqrt{33}}{88}$	0	0	$-\frac{\sqrt{22}}{44}$	0	0	$\frac{\sqrt{55}i}{55}$	0	$-\frac{13\sqrt{55}}{440}$	0	0
	0	0	$\frac{\sqrt{33}}{88}$	0	0	0	0	$\frac{\sqrt{22}}{44}$	$-\frac{\sqrt{55}i}{55}$	0	$-\frac{13\sqrt{55}}{440}$	0	0	0
	$-\frac{\sqrt{22}}{44}$	0	0	0	0	$-\frac{7\sqrt{33}}{132}$	0	$-\frac{\sqrt{33}i}{33}$	$\frac{\sqrt{330}}{220}$	0	0	0	0	$\frac{\sqrt{55}}{220}$
	0	$\frac{\sqrt{22}}{44}$	0	0	$-\frac{7\sqrt{33}}{132}$	0	$\frac{\sqrt{33}i}{33}$	0	0	$-\frac{\sqrt{330}}{220}$	0	0	$\frac{\sqrt{55}}{220}$	0
	0	0	$-\frac{\sqrt{22}}{44}$	0	0	$-\frac{\sqrt{33}i}{33}$	0	0	0	$\frac{\sqrt{330}}{132}$	0	0	0	0
	0	0	0	$\frac{\sqrt{22}}{44}$	$\frac{\sqrt{33}i}{33}$	0	0	0	0	0	$-\frac{\sqrt{330}}{132}$	0	0	0
	0	$\frac{\sqrt{55}}{440}$	0	$\frac{\sqrt{55}i}{55}$	$\frac{\sqrt{330}}{220}$	0	0	0	0	$-\frac{\sqrt{33}}{88}$	0	0	$\frac{\sqrt{22}}{44}$	0
	$\frac{\sqrt{55}}{440}$	0	$-\frac{\sqrt{55}i}{55}$	0	0	$-\frac{\sqrt{330}}{220}$	0	0	$-\frac{\sqrt{33}}{88}$	0	0	0	0	$-\frac{\sqrt{22}}{44}$
	0	$\frac{\sqrt{55}i}{55}$	0	$-\frac{13\sqrt{55}}{440}$	0	0	$\frac{\sqrt{330}}{132}$	0	0	0	0	$\frac{5\sqrt{33}}{264}$	0	0
	$-\frac{\sqrt{55}i}{55}$	0	$-\frac{13\sqrt{55}}{440}$	0	0	0	0	$-\frac{\sqrt{330}}{132}$	0	0	$\frac{5\sqrt{33}}{264}$	0	0	0
	$\frac{\sqrt{330}}{220}$	0	0	0	$\frac{\sqrt{55}}{220}$	0	0	$\frac{\sqrt{22}}{44}$	0	0	0	0	$\frac{\sqrt{33}}{44}$	
	0	$-\frac{\sqrt{330}}{220}$	0	0	$\frac{\sqrt{55}}{220}$	0	0	0	$-\frac{\sqrt{22}}{44}$	0	0	$\frac{\sqrt{33}}{44}$	0	
988	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$												

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,-1;a)}(B, 6)$	0 0 0 0 0 $-\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ $\frac{3\sqrt{55}}{110}$ 0 0 0 0 $\frac{\sqrt{330}}{220}$														
	0 0 0 0 $-\frac{\sqrt{22}}{44}$ 0 $-\frac{\sqrt{22}i}{44}$ 0 0 $-\frac{3\sqrt{55}}{110}$ 0 0 $\frac{\sqrt{330}}{220}$ 0														
	0 0 0 0 0 $-\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 0 $-\frac{3\sqrt{55}}{110}$ $-\frac{\sqrt{330}i}{220}$														
	0 0 0 0 $\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 0 $-\frac{3\sqrt{55}}{110}$ $\frac{\sqrt{330}i}{220}$ 0														
	0 $-\frac{\sqrt{22}}{44}$ 0 $-\frac{\sqrt{22}i}{44}$ 0 0 0 0 0 $\frac{\sqrt{330}}{220}$ 0 $-\frac{\sqrt{330}i}{220}$ $-\frac{\sqrt{55}}{110}$ 0														
	$-\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ 0 0 0 0 0 $\frac{\sqrt{330}}{220}$ 0 $\frac{\sqrt{330}i}{220}$ 0 0 $\frac{\sqrt{55}}{110}$														
	0 $\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 0 0 $\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0														
	$-\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 0 0 $-\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0														
	$\frac{3\sqrt{55}}{110}$ 0 0 0 0 $\frac{\sqrt{330}}{220}$ 0 $\frac{\sqrt{330}i}{132}$ $\frac{\sqrt{33}}{33}$ 0 0 0 0 $\frac{\sqrt{22}}{44}$														
	0 $-\frac{3\sqrt{55}}{110}$ 0 0 $\frac{\sqrt{330}}{220}$ 0 $-\frac{\sqrt{330}i}{132}$ 0 0 $-\frac{\sqrt{33}}{33}$ 0 0 0 $\frac{\sqrt{22}}{44}$ 0														
	0 0 $\frac{3\sqrt{55}}{110}$ 0 0 $-\frac{\sqrt{330}i}{220}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{33}}{33}$ 0 0 0 $\frac{\sqrt{22}i}{44}$														
	0 0 0 $-\frac{3\sqrt{55}}{110}$ $\frac{\sqrt{330}i}{220}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0 0 $\frac{\sqrt{33}}{33}$ $-\frac{\sqrt{22}i}{44}$ 0														
	0 $\frac{\sqrt{330}}{220}$ 0 $-\frac{\sqrt{330}i}{220}$ $-\frac{\sqrt{55}}{110}$ 0 0 0 0 $\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ 0 0														
$\frac{\sqrt{91}xyz(3x^4 - 5x^2y^2 - 5x^2z^2 + 3y^4 - 5y^2z^2 + 3z^4)}{2}$															
989	symmetry														

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_7^{(1,-1;a)}(A,1)$	0	0	$\frac{\sqrt{462}}{168}$	0	0	$-\frac{3\sqrt{77}i}{154}$	0	$\frac{5\sqrt{77}}{308}$	0	0	$\frac{\sqrt{770}}{616}$	0	0	$-\frac{\sqrt{1155}i}{924}$		
	0	0	0	$-\frac{\sqrt{462}}{168}$	$\frac{3\sqrt{77}i}{154}$	0	$\frac{5\sqrt{77}}{308}$	0	0	0	$-\frac{\sqrt{770}}{616}$	$\frac{\sqrt{1155}i}{924}$	0			
	$\frac{\sqrt{462}}{168}$	0	0	0	0	$\frac{3\sqrt{77}}{154}$	0	$\frac{5\sqrt{77}i}{308}$	$-\frac{\sqrt{770}}{616}$	0	0	0	0	$-\frac{\sqrt{1155}}{924}$		
	0	$-\frac{\sqrt{462}}{168}$	0	0	$\frac{3\sqrt{77}}{154}$	0	$-\frac{5\sqrt{77}i}{308}$	0	0	$\frac{\sqrt{770}}{616}$	0	0	$-\frac{\sqrt{1155}}{924}$	0		
	0	$-\frac{3\sqrt{77}i}{154}$	0	$\frac{3\sqrt{77}}{154}$	0	0	0	0	0	0	0	0	0	0	0	0
	$\frac{3\sqrt{77}i}{154}$	0	$\frac{3\sqrt{77}}{154}$	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	$\frac{5\sqrt{77}}{308}$	0	$\frac{5\sqrt{77}i}{308}$	0	0	0	0	0	$-\frac{\sqrt{1155}}{308}$	0	$\frac{\sqrt{1155}i}{308}$	$\frac{\sqrt{770}}{154}$	0		
	$\frac{5\sqrt{77}}{308}$	0	$-\frac{5\sqrt{77}i}{308}$	0	0	0	0	0	$-\frac{\sqrt{1155}}{308}$	0	$-\frac{\sqrt{1155}i}{308}$	0	0	$-\frac{\sqrt{770}}{154}$		
	0	0	$-\frac{\sqrt{770}}{616}$	0	0	0	0	$-\frac{\sqrt{1155}}{308}$	0	0	$\frac{5\sqrt{462}}{616}$	0	0	$-\frac{5\sqrt{77}i}{308}$		
	0	0	0	$\frac{\sqrt{770}}{616}$	0	0	$-\frac{\sqrt{1155}}{308}$	0	0	0	0	$-\frac{5\sqrt{462}}{616}$	$\frac{5\sqrt{77}i}{308}$	0		
	$\frac{\sqrt{770}}{616}$	0	0	0	0	0	0	$\frac{\sqrt{1155}i}{308}$	$\frac{5\sqrt{462}}{616}$	0	0	0	0	$\frac{5\sqrt{77}}{308}$		
	0	$-\frac{\sqrt{770}}{616}$	0	0	0	0	$-\frac{\sqrt{1155}i}{308}$	0	0	$-\frac{5\sqrt{462}}{616}$	0	0	$\frac{5\sqrt{77}}{308}$	0		
	0	$-\frac{\sqrt{1155}i}{924}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	$\frac{\sqrt{770}}{154}$	0	0	$-\frac{5\sqrt{77}i}{308}$	0	$\frac{5\sqrt{77}}{308}$	0	0	0	0
	$\frac{\sqrt{1155}i}{924}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	0	$-\frac{\sqrt{770}}{154}$	$\frac{5\sqrt{77}i}{308}$	0	$\frac{5\sqrt{77}}{308}$	0	0	0	0	0
990	symmetry	$-\frac{\sqrt{231}xyz(x-y)(x+y)(3x^2+3y^2-10z^2)}{4}$														

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_7^{(1,-1;a)}(A, 2)$	0	0	0	0	0	$-\frac{\sqrt{273}i}{364}$	0	$-\frac{\sqrt{273}}{364}$	0	0	$\frac{\sqrt{2730}}{364}$	0	0	$-\frac{\sqrt{455}i}{182}$	
	0	0	0	0	$\frac{\sqrt{273}i}{364}$	0	$-\frac{\sqrt{273}}{364}$	0	0	0	$-\frac{\sqrt{2730}}{364}$	$-\frac{\sqrt{455}i}{182}$	$\frac{\sqrt{455}i}{182}$	0	
	0	0	0	0	0	$-\frac{\sqrt{273}}{364}$	0	$\frac{\sqrt{273}i}{364}$	$\frac{\sqrt{2730}}{364}$	0	0	0	0	$\frac{\sqrt{455}}{182}$	
	0	0	0	0	$-\frac{\sqrt{273}}{364}$	0	$-\frac{\sqrt{273}i}{364}$	0	0	$-\frac{\sqrt{2730}}{364}$	0	0	$\frac{\sqrt{455}}{182}$	0	
	0	$-\frac{\sqrt{273}i}{364}$	0	$-\frac{\sqrt{273}}{364}$	0	0	$\frac{3\sqrt{182}}{182}$	0	0	$-\frac{3\sqrt{455}i}{364}$	0	$\frac{3\sqrt{455}}{364}$	0	0	
	$\frac{\sqrt{273}i}{364}$	0	$-\frac{\sqrt{273}}{364}$	0	0	0	0	$-\frac{3\sqrt{182}}{182}$	$\frac{3\sqrt{455}i}{364}$	0	$\frac{3\sqrt{455}}{364}$	0	0	0	
	0	$-\frac{\sqrt{273}}{364}$	0	$\frac{\sqrt{273}i}{364}$	$\frac{3\sqrt{182}}{182}$	0	0	0	0	$\frac{3\sqrt{455}}{364}$	0	$\frac{3\sqrt{455}i}{364}$	0	0	
	$-\frac{\sqrt{273}}{364}$	0	$-\frac{\sqrt{273}i}{364}$	0	0	$-\frac{3\sqrt{182}}{182}$	0	0	$\frac{3\sqrt{455}}{364}$	0	$-\frac{3\sqrt{455}i}{364}$	0	0	0	
	0	0	$\frac{\sqrt{2730}}{364}$	0	0	$-\frac{3\sqrt{455}i}{364}$	0	$\frac{3\sqrt{455}}{364}$	0	0	0	0	0	0	
	0	0	0	$-\frac{\sqrt{2730}}{364}$	$\frac{3\sqrt{455}i}{364}$	0	$\frac{3\sqrt{455}}{364}$	0	0	0	0	0	0	0	
	$\frac{\sqrt{2730}}{364}$	0	0	0	0	$\frac{3\sqrt{455}}{364}$	0	$\frac{3\sqrt{455}i}{364}$	0	0	0	0	0	0	
	0	$-\frac{\sqrt{2730}}{364}$	0	0	$\frac{3\sqrt{455}}{364}$	0	$-\frac{3\sqrt{455}i}{364}$	0	0	0	0	0	0	0	
	0	$-\frac{\sqrt{455}i}{182}$	0	$\frac{\sqrt{455}}{182}$	0	0	0	0	0	0	0	0	0	0	
	$\frac{\sqrt{455}i}{182}$	0	$\frac{\sqrt{455}}{182}$	0	0	0	0	0	0	0	0	0	0	0	
991	symmetry	$-\frac{\sqrt{77}xyz(3x^4 - 20x^2y^2 + 10x^2z^2 + 3y^4 + 10y^2z^2 - 6z^4)}{4}$													

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_7^{(1,-1;a)}(A, 3)$	0	0	$-\frac{\sqrt{546}}{168}$	0	0	$\frac{3\sqrt{91}i}{182}$	0	$-\frac{\sqrt{91}}{52}$	0	0	$\frac{\sqrt{910}}{728}$	0	0	$-\frac{\sqrt{1365}i}{1092}$	
	0	0	0	$\frac{\sqrt{546}}{168}$	$-\frac{3\sqrt{91}i}{182}$	0	$-\frac{\sqrt{91}}{52}$	0	0	0	$-\frac{\sqrt{910}}{728}$	$-\frac{\sqrt{910}}{728}$	$\frac{\sqrt{1365}i}{1092}$	0	
	$-\frac{\sqrt{546}}{168}$	0	0	0	0	$-\frac{3\sqrt{91}}{182}$	0	$-\frac{\sqrt{91}i}{52}$	$-\frac{\sqrt{910}}{728}$	0	0	0	0	$-\frac{\sqrt{1365}}{1092}$	
	0	$\frac{\sqrt{546}}{168}$	0	0	$-\frac{3\sqrt{91}}{182}$	0	$\frac{\sqrt{91}i}{52}$	0	0	$\frac{\sqrt{910}}{728}$	0	0	$-\frac{\sqrt{1365}}{1092}$	0	
	0	$\frac{3\sqrt{91}i}{182}$	0	$-\frac{3\sqrt{91}}{182}$	0	0	0	0	0	0	0	0	0	0	
	$-\frac{3\sqrt{91}i}{182}$	0	$-\frac{3\sqrt{91}}{182}$	0	0	0	0	0	0	0	0	0	0	0	
	0	$-\frac{\sqrt{91}}{52}$	0	$-\frac{\sqrt{91}i}{52}$	0	0	0	0	0	$-\frac{\sqrt{1365}}{364}$	0	$\frac{\sqrt{1365}i}{364}$	$\frac{\sqrt{910}}{182}$	0	
	$-\frac{\sqrt{91}}{52}$	0	$\frac{\sqrt{91}i}{52}$	0	0	0	0	0	$-\frac{\sqrt{1365}}{364}$	0	$-\frac{\sqrt{1365}i}{364}$	0	0	$-\frac{\sqrt{910}}{182}$	
	0	0	$-\frac{\sqrt{910}}{728}$	0	0	0	0	$-\frac{\sqrt{1365}}{364}$	0	0	$\frac{5\sqrt{546}}{728}$	0	0	$-\frac{5\sqrt{91}i}{364}$	
	0	0	0	$\frac{\sqrt{910}}{728}$	0	0	$-\frac{\sqrt{1365}}{364}$	0	0	0	$-\frac{5\sqrt{546}}{728}$	$\frac{5\sqrt{91}i}{364}$	0	0	
	$\frac{\sqrt{910}}{728}$	0	0	0	0	0	0	$\frac{\sqrt{1365}i}{364}$	$\frac{5\sqrt{546}}{728}$	0	0	0	0	$\frac{5\sqrt{91}}{364}$	
	0	$-\frac{\sqrt{910}}{728}$	0	0	0	0	$-\frac{\sqrt{1365}i}{364}$	0	0	$-\frac{5\sqrt{546}}{728}$	0	0	$\frac{5\sqrt{91}}{364}$	0	
	0	$-\frac{\sqrt{1365}i}{1092}$	0	$-\frac{\sqrt{1365}}{1092}$	0	0	$\frac{\sqrt{910}}{182}$	0	0	$-\frac{5\sqrt{91}i}{364}$	0	$\frac{5\sqrt{91}}{364}$	0	0	
	$\frac{\sqrt{1365}i}{1092}$	0	$-\frac{\sqrt{1365}}{1092}$	0	0	0	0	$-\frac{\sqrt{910}}{182}$	$\frac{5\sqrt{91}i}{364}$	0	$\frac{5\sqrt{91}}{364}$	0	0	0	
992	symmetry	$\frac{y(35x^6 - 210x^4y^2 + 105x^4z^2 + 168x^2y^4 - 420x^2y^2z^2 + 105x^2z^4 - 16y^6 + 168y^4z^2 - 210y^2z^4 + 35z^6)}{16}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_7^{(1,-1;a)}(A, 4)$	0	$\frac{113\sqrt{858}i}{13728}$	0	$-\frac{3\sqrt{858}}{416}$	0	0	$-\frac{7\sqrt{143}}{1144}$	0	0	$\frac{7\sqrt{1430}i}{4576}$	0	$-\frac{7\sqrt{1430}}{4576}$	0	0	0	0
	$-\frac{113\sqrt{858}i}{13728}$	0	$-\frac{3\sqrt{858}}{416}$	0	0	0	0	$\frac{7\sqrt{143}}{1144}$	$-\frac{7\sqrt{1430}i}{4576}$	0	$-\frac{7\sqrt{1430}}{4576}$	0	0	0	0	
	0	$-\frac{3\sqrt{858}}{416}$	0	$-\frac{59\sqrt{858}i}{6864}$	$-\frac{19\sqrt{143}}{2288}$	0	0	0	0	$-\frac{5\sqrt{1430}}{4576}$	0	$-\frac{7\sqrt{1430}i}{2288}$	$-\frac{3\sqrt{2145}}{2288}$	0	0	
	$-\frac{3\sqrt{858}}{416}$	0	$\frac{59\sqrt{858}i}{6864}$	0	0	$\frac{19\sqrt{143}}{2288}$	0	0	$-\frac{5\sqrt{1430}}{4576}$	0	$\frac{7\sqrt{1430}i}{2288}$	0	0	$\frac{3\sqrt{2145}}{2288}$	0	
	0	0	$-\frac{19\sqrt{143}}{2288}$	0	0	$\frac{\sqrt{858}i}{176}$	0	$-\frac{3\sqrt{858}}{1144}$	0	0	$-\frac{7\sqrt{2145}}{2288}$	0	0	$\frac{7\sqrt{1430}i}{2288}$	0	
	0	0	0	$\frac{19\sqrt{143}}{2288}$	$-\frac{\sqrt{858}i}{176}$	0	$-\frac{3\sqrt{858}}{1144}$	0	0	0	0	$\frac{7\sqrt{2145}}{2288}$	$-\frac{7\sqrt{1430}i}{2288}$	0	0	
	$-\frac{7\sqrt{143}}{1144}$	0	0	0	0	$-\frac{3\sqrt{858}}{1144}$	0	$-\frac{\sqrt{858}i}{286}$	$-\frac{\sqrt{2145}}{1144}$	0	0	0	0	$-\frac{\sqrt{1430}}{1144}$	0	
	0	$\frac{7\sqrt{143}}{1144}$	0	0	$-\frac{3\sqrt{858}}{1144}$	0	$\frac{\sqrt{858}i}{286}$	0	0	$\frac{\sqrt{2145}}{1144}$	0	0	$-\frac{\sqrt{1430}}{1144}$	0	0	
	0	$\frac{7\sqrt{1430}i}{4576}$	0	$-\frac{5\sqrt{1430}}{4576}$	0	0	$-\frac{\sqrt{2145}}{1144}$	0	0	$\frac{5\sqrt{858}i}{4576}$	0	$-\frac{5\sqrt{858}}{4576}$	0	0	0	
	$-\frac{7\sqrt{1430}i}{4576}$	0	$-\frac{5\sqrt{1430}}{4576}$	0	0	0	$\frac{\sqrt{2145}}{1144}$	$-\frac{5\sqrt{858}i}{4576}$	0	$-\frac{5\sqrt{858}}{4576}$	0	0	0	0	0	
	0	$-\frac{7\sqrt{1430}}{4576}$	0	$-\frac{7\sqrt{1430}i}{2288}$	$-\frac{7\sqrt{2145}}{2288}$	0	0	0	$-\frac{5\sqrt{858}}{4576}$	0	$-\frac{15\sqrt{858}i}{2288}$	$-\frac{25\sqrt{143}}{2288}$	0	0	0	
	$-\frac{7\sqrt{1430}}{4576}$	0	$\frac{7\sqrt{1430}i}{2288}$	0	0	$\frac{7\sqrt{2145}}{2288}$	0	0	$-\frac{5\sqrt{858}}{4576}$	0	$\frac{15\sqrt{858}i}{2288}$	0	0	$\frac{25\sqrt{143}}{2288}$	0	
	0	0	$-\frac{3\sqrt{2145}}{2288}$	0	0	$\frac{7\sqrt{1430}i}{2288}$	0	$-\frac{\sqrt{1430}}{1144}$	0	0	$-\frac{25\sqrt{143}}{2288}$	0	0	$\frac{25\sqrt{858}i}{6864}$	0	
	0	0	0	$\frac{3\sqrt{2145}}{2288}$	$-\frac{7\sqrt{1430}i}{2288}$	0	$-\frac{\sqrt{1430}}{1144}$	0	0	0	0	$\frac{25\sqrt{143}}{2288}$	$-\frac{25\sqrt{858}i}{6864}$	0	0	
993	symmetry	$\frac{\sqrt{231}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)(3x^2 - 10y^2 + 3z^2)}{16}$														

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_7^{(1,-1;a)}(A, 5)$	0	$\frac{15\sqrt{182}i}{2912}$	0	$-\frac{29\sqrt{182}}{2912}$	0	0	$\frac{\sqrt{273}}{104}$	0	0	$-\frac{\sqrt{2730}i}{416}$	0	$\frac{\sqrt{2730}}{416}$	0	0	0	0
	$-\frac{15\sqrt{182}i}{2912}$	0	$-\frac{29\sqrt{182}}{2912}$	0	0	0	0	$-\frac{\sqrt{273}}{104}$	$\frac{\sqrt{2730}i}{416}$	0	$\frac{\sqrt{2730}}{416}$	0	0	0	0	0
	0	$-\frac{29\sqrt{182}}{2912}$	0	$-\frac{9\sqrt{182}i}{1456}$	$\frac{11\sqrt{273}}{1456}$	0	0	0	0	$\frac{5\sqrt{2730}}{2912}$	0	$\frac{3\sqrt{2730}i}{1456}$	$\frac{\sqrt{455}}{1456}$	0	0	0
	$-\frac{29\sqrt{182}}{2912}$	0	$\frac{9\sqrt{182}i}{1456}$	0	0	$-\frac{11\sqrt{273}}{1456}$	0	0	$\frac{5\sqrt{2730}}{2912}$	0	$-\frac{3\sqrt{2730}i}{1456}$	0	0	0	$-\frac{\sqrt{455}}{1456}$	0
	0	0	$\frac{11\sqrt{273}}{1456}$	0	0	$-\frac{15\sqrt{182}i}{1456}$	0	$\frac{9\sqrt{182}}{728}$	0	0	$-\frac{3\sqrt{455}}{1456}$	0	0	0	$\frac{\sqrt{2730}i}{1456}$	0
	0	0	0	$-\frac{11\sqrt{273}}{1456}$	$\frac{15\sqrt{182}i}{1456}$	0	$\frac{9\sqrt{182}}{728}$	0	0	0	$\frac{3\sqrt{455}}{1456}$	$-\frac{\sqrt{2730}i}{1456}$	0	0	0	0
	$\frac{\sqrt{273}}{104}$	0	0	0	0	$\frac{9\sqrt{182}}{728}$	0	$\frac{3\sqrt{182}i}{182}$	$\frac{3\sqrt{455}}{728}$	0	0	0	0	0	$\frac{\sqrt{2730}}{728}$	0
	0	$-\frac{\sqrt{273}}{104}$	0	0	$\frac{9\sqrt{182}}{728}$	0	$-\frac{3\sqrt{182}i}{182}$	0	0	$-\frac{3\sqrt{455}}{728}$	0	0	$\frac{\sqrt{2730}}{728}$	0	0	0
	0	$-\frac{\sqrt{2730}i}{416}$	0	$\frac{5\sqrt{2730}}{2912}$	0	0	$\frac{3\sqrt{455}}{728}$	0	0	$-\frac{15\sqrt{182}i}{2912}$	0	$\frac{15\sqrt{182}}{2912}$	0	0	0	0
	$\frac{\sqrt{2730}i}{416}$	0	$\frac{5\sqrt{2730}}{2912}$	0	0	0	0	$-\frac{3\sqrt{455}}{728}$	$\frac{15\sqrt{182}i}{2912}$	0	$\frac{15\sqrt{182}}{2912}$	0	0	0	0	0
	0	$\frac{\sqrt{2730}}{416}$	0	$\frac{3\sqrt{2730}i}{1456}$	$-\frac{3\sqrt{455}}{1456}$	0	0	0	0	$\frac{15\sqrt{182}}{2912}$	0	$-\frac{15\sqrt{182}i}{1456}$	$-\frac{15\sqrt{273}}{1456}$	0	0	0
	$\frac{\sqrt{2730}}{416}$	0	$-\frac{3\sqrt{2730}i}{1456}$	0	0	$\frac{3\sqrt{455}}{1456}$	0	0	$\frac{15\sqrt{182}}{2912}$	0	$\frac{15\sqrt{182}i}{1456}$	0	0	0	$\frac{15\sqrt{273}}{1456}$	0
	0	0	$\frac{\sqrt{455}}{1456}$	0	0	$\frac{\sqrt{2730}i}{1456}$	0	$\frac{\sqrt{2730}}{728}$	0	0	$-\frac{15\sqrt{273}}{1456}$	0	0	0	$\frac{15\sqrt{182}i}{1456}$	0
	0	0	0	$-\frac{\sqrt{455}}{1456}$	$-\frac{\sqrt{2730}i}{1456}$	0	$\frac{\sqrt{2730}}{728}$	0	0	0	0	$\frac{15\sqrt{273}}{1456}$	$-\frac{\sqrt{182}i}{1456}$	0	0	0

$$\frac{\sqrt{6006}y(x-z)(x+z)(x^2-4xz+z^2)(x^2+4xz+z^2)}{32}$$

994 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_7^{(1,-1;a)}(A, 6)$	0	$\frac{\sqrt{7}i}{224}$	0	$-\frac{3\sqrt{7}}{224}$	0	0	$\frac{\sqrt{42}}{112}$	0	0	$-\frac{\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	0
	$-\frac{\sqrt{7}i}{224}$	0	$-\frac{3\sqrt{7}}{224}$	0	0	0	0	$-\frac{\sqrt{42}}{112}$	$\frac{\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	0	0
	0	$-\frac{3\sqrt{7}}{224}$	0	0	$\frac{3\sqrt{42}}{224}$	0	0	0	0	$\frac{3\sqrt{105}}{224}$	0	0	$-\frac{3\sqrt{70}}{224}$	0	0
	$-\frac{3\sqrt{7}}{224}$	0	0	0	0	$-\frac{3\sqrt{42}}{224}$	0	0	$\frac{3\sqrt{105}}{224}$	0	0	0	0	$\frac{3\sqrt{70}}{224}$	0
	0	0	$\frac{3\sqrt{42}}{224}$	0	0	$-\frac{3\sqrt{7}i}{112}$	0	$\frac{3\sqrt{7}}{56}$	0	0	$-\frac{3\sqrt{70}}{224}$	0	0	$\frac{\sqrt{105}i}{112}$	0
	0	0	0	$-\frac{3\sqrt{42}}{224}$	$\frac{3\sqrt{7}i}{112}$	0	$\frac{3\sqrt{7}}{56}$	0	0	0	0	$\frac{3\sqrt{70}}{224}$	$-\frac{\sqrt{105}i}{112}$	0	0
	$\frac{\sqrt{42}}{112}$	0	0	0	0	$\frac{3\sqrt{7}}{56}$	0	0	$-\frac{3\sqrt{70}}{112}$	0	0	0	0	$-\frac{\sqrt{105}}{56}$	0
	0	$-\frac{\sqrt{42}}{112}$	0	0	$\frac{3\sqrt{7}}{56}$	0	0	0	0	$\frac{3\sqrt{70}}{112}$	0	0	$-\frac{\sqrt{105}}{56}$	0	0
	0	$-\frac{\sqrt{105}i}{224}$	0	$\frac{3\sqrt{105}}{224}$	0	0	$-\frac{3\sqrt{70}}{112}$	0	0	$\frac{15\sqrt{7}i}{224}$	0	$-\frac{15\sqrt{7}}{224}$	0	0	0
	$\frac{\sqrt{105}i}{224}$	0	$\frac{3\sqrt{105}}{224}$	0	0	0	0	$\frac{3\sqrt{70}}{112}$	$-\frac{15\sqrt{7}i}{224}$	0	$-\frac{15\sqrt{7}}{224}$	0	0	0	0
	0	$\frac{\sqrt{105}}{224}$	0	0	$-\frac{3\sqrt{70}}{224}$	0	0	0	0	$-\frac{15\sqrt{7}}{224}$	0	0	$\frac{5\sqrt{42}}{224}$	0	0
	$\frac{\sqrt{105}}{224}$	0	0	0	$\frac{3\sqrt{70}}{224}$	0	0	0	0	$-\frac{15\sqrt{7}}{224}$	0	0	0	$-\frac{5\sqrt{42}}{224}$	0
	0	0	$-\frac{3\sqrt{70}}{224}$	0	0	$\frac{\sqrt{105}i}{112}$	0	$-\frac{\sqrt{105}}{56}$	0	0	$\frac{5\sqrt{42}}{224}$	0	0	$-\frac{5\sqrt{7}i}{112}$	0
	0	0	0	$\frac{3\sqrt{70}}{224}$	$-\frac{\sqrt{105}i}{112}$	0	$-\frac{\sqrt{105}}{56}$	0	0	0	0	$-\frac{5\sqrt{42}}{224}$	$\frac{5\sqrt{7}i}{112}$	0	0
995	symmetry	$\frac{\sqrt{42}y(x-z)(x+z)(15x^4 - 80x^2y^2 + 30x^2z^2 + 48y^4 - 80y^2z^2 + 15z^4)}{32}$													

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_7^{(1,-1;a)}(A, 7)$	0	$\frac{255\sqrt{1001}i}{32032}$ 0 $-\frac{23\sqrt{1001}}{2912}$ 0 0 $-\frac{\sqrt{6006}}{16016}$ 0 0 $\frac{\sqrt{15015}i}{32032}$ 0 $-\frac{\sqrt{15015}}{32032}$ 0 0
	$-\frac{255\sqrt{1001}i}{32032}$	0 0 $-\frac{23\sqrt{1001}}{2912}$ 0 0 0 0 $\frac{\sqrt{6006}}{16016}$ $-\frac{\sqrt{15015}i}{32032}$ 0 $-\frac{\sqrt{15015}}{32032}$ 0 0 0
	0	$-\frac{23\sqrt{1001}}{2912}$ 0 $-\frac{15\sqrt{1001}i}{2002}$ $\frac{\sqrt{6006}}{2464}$ 0 0 0 0 $-\frac{3\sqrt{15015}}{32032}$ 0 $\frac{\sqrt{15015}i}{2002}$ $\frac{19\sqrt{10010}}{32032}$ 0
	$-\frac{23\sqrt{1001}}{2912}$	0 0 $\frac{15\sqrt{1001}i}{2002}$ 0 0 $-\frac{\sqrt{6006}}{2464}$ 0 0 $-\frac{3\sqrt{15015}}{32032}$ 0 $-\frac{\sqrt{15015}i}{2002}$ 0 0 $-\frac{19\sqrt{10010}}{32032}$
	0	0 0 $\frac{\sqrt{6006}}{2464}$ 0 0 $-\frac{45\sqrt{1001}i}{16016}$ 0 0 $-\frac{3\sqrt{1001}}{8008}$ 0 0 $\frac{51\sqrt{10010}}{32032}$ 0 0 $-\frac{17\sqrt{15015}i}{16016}$
	0	0 0 0 $-\frac{\sqrt{6006}}{2464}$ $\frac{45\sqrt{1001}i}{16016}$ 0 $-\frac{3\sqrt{1001}}{8008}$ 0 0 0 0 $-\frac{51\sqrt{10010}}{32032}$ $\frac{17\sqrt{15015}i}{16016}$ 0
	$-\frac{\sqrt{6006}}{16016}$	0 0 0 0 0 $-\frac{3\sqrt{1001}}{8008}$ 0 0 $\frac{3\sqrt{10010}}{16016}$ 0 0 0 0 $\frac{\sqrt{15015}}{8008}$
	0	$\frac{\sqrt{6006}}{16016}$ 0 0 $-\frac{3\sqrt{1001}}{8008}$ 0 0 0 0 $-\frac{3\sqrt{10010}}{16016}$ 0 0 0 $\frac{\sqrt{15015}}{8008}$ 0
	0	$\frac{\sqrt{15015}i}{32032}$ 0 $-\frac{3\sqrt{15015}}{32032}$ 0 0 $\frac{3\sqrt{10010}}{16016}$ 0 0 $-\frac{15\sqrt{1001}i}{32032}$ 0 $\frac{15\sqrt{1001}}{32032}$ 0 0
	$-\frac{\sqrt{15015}i}{32032}$	0 0 $-\frac{3\sqrt{15015}}{32032}$ 0 0 0 0 $-\frac{3\sqrt{10010}}{16016}$ $\frac{15\sqrt{1001}i}{32032}$ 0 $\frac{15\sqrt{1001}}{32032}$ 0 0 0
	0	$-\frac{\sqrt{15015}}{32032}$ 0 $\frac{\sqrt{15015}i}{2002}$ $\frac{51\sqrt{10010}}{32032}$ 0 0 0 0 $\frac{15\sqrt{1001}}{32032}$ 0 $\frac{15\sqrt{1001}i}{2002}$ $\frac{75\sqrt{6006}}{32032}$ 0
	$-\frac{\sqrt{15015}}{32032}$	0 0 $-\frac{\sqrt{15015}i}{2002}$ 0 0 $-\frac{51\sqrt{10010}}{32032}$ 0 0 $\frac{15\sqrt{1001}}{32032}$ 0 $-\frac{15\sqrt{1001}i}{2002}$ 0 0 $-\frac{75\sqrt{6006}}{32032}$
	0	0 0 $\frac{19\sqrt{10010}}{32032}$ 0 0 $-\frac{17\sqrt{15015}i}{16016}$ 0 $\frac{\sqrt{15015}}{8008}$ 0 0 $\frac{75\sqrt{6006}}{32032}$ 0 0 $-\frac{75\sqrt{1001}i}{16016}$
	0	0 0 0 $-\frac{19\sqrt{10010}}{32032}$ $\frac{17\sqrt{15015}i}{16016}$ 0 $\frac{\sqrt{15015}}{8008}$ 0 0 0 0 $-\frac{75\sqrt{6006}}{32032}$ $\frac{75\sqrt{1001}i}{16016}$ 0

996 symmetry

$$\frac{x(16x^6 - 168x^4y^2 - 168x^4z^2 + 210x^2y^4 + 420x^2y^2z^2 + 210x^2z^4 - 35y^6 - 105y^4z^2 - 105y^2z^4 - 35z^6)}{16}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_7^{(1,-1;a)}(B,1)$	0	$\frac{59\sqrt{858}}{6864} \quad 0 \quad \frac{3\sqrt{858}i}{416} \quad -\frac{19\sqrt{143}}{2288} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{1430}}{2288} \quad 0 \quad -\frac{5\sqrt{1430}i}{4576} \quad \frac{3\sqrt{2145}}{2288} \quad 0$
	$\frac{59\sqrt{858}}{6864}$	$0 \quad -\frac{3\sqrt{858}i}{416} \quad 0 \quad 0 \quad \frac{19\sqrt{143}}{2288} \quad 0 \quad 0 \quad -\frac{7\sqrt{1430}}{2288} \quad 0 \quad \frac{5\sqrt{1430}i}{4576} \quad 0 \quad 0 \quad -\frac{3\sqrt{2145}}{2288}$
	0	$\frac{3\sqrt{858}i}{416} \quad 0 \quad -\frac{113\sqrt{858}}{13728} \quad 0 \quad 0 \quad \frac{7\sqrt{143}}{1144} \quad 0 \quad 0 \quad -\frac{7\sqrt{1430}i}{4576} \quad 0 \quad \frac{7\sqrt{1430}}{4576} \quad 0 \quad 0$
	$-\frac{3\sqrt{858}i}{416}$	$0 \quad -\frac{113\sqrt{858}}{13728} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{143}}{1144} \quad \frac{7\sqrt{1430}i}{4576} \quad 0 \quad \frac{7\sqrt{1430}}{4576} \quad 0 \quad 0 \quad 0$
	$-\frac{19\sqrt{143}}{2288}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{858}}{176} \quad 0 \quad -\frac{3\sqrt{858}i}{1144} \quad \frac{7\sqrt{2145}}{2288} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{7\sqrt{1430}}{2288}$
	0	$\frac{19\sqrt{143}}{2288} \quad 0 \quad 0 \quad -\frac{\sqrt{858}}{176} \quad 0 \quad \frac{3\sqrt{858}i}{1144} \quad 0 \quad 0 \quad -\frac{7\sqrt{2145}}{2288} \quad 0 \quad 0 \quad \frac{7\sqrt{1430}}{2288} \quad 0$
	0	$0 \quad \frac{7\sqrt{143}}{1144} \quad 0 \quad 0 \quad -\frac{3\sqrt{858}i}{1144} \quad 0 \quad \frac{\sqrt{858}}{286} \quad 0 \quad 0 \quad -\frac{\sqrt{2145}}{1144} \quad 0 \quad 0 \quad \frac{\sqrt{1430}i}{1144}$
	0	$0 \quad 0 \quad -\frac{7\sqrt{143}}{1144} \quad \frac{3\sqrt{858}i}{1144} \quad 0 \quad \frac{\sqrt{858}}{286} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2145}}{1144} \quad -\frac{\sqrt{1430}i}{1144} \quad 0$
	0	$-\frac{7\sqrt{1430}}{2288} \quad 0 \quad -\frac{7\sqrt{1430}i}{4576} \quad \frac{7\sqrt{2145}}{2288} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{15\sqrt{858}}{2288} \quad 0 \quad \frac{5\sqrt{858}i}{4576} \quad -\frac{25\sqrt{143}}{2288} \quad 0$
	$-\frac{7\sqrt{1430}}{2288}$	$0 \quad \frac{7\sqrt{1430}i}{4576} \quad 0 \quad 0 \quad -\frac{7\sqrt{2145}}{2288} \quad 0 \quad 0 \quad \frac{15\sqrt{858}}{2288} \quad 0 \quad -\frac{5\sqrt{858}i}{4576} \quad 0 \quad 0 \quad \frac{25\sqrt{143}}{2288}$
	0	$-\frac{5\sqrt{1430}i}{4576} \quad 0 \quad \frac{7\sqrt{1430}}{4576} \quad 0 \quad 0 \quad -\frac{\sqrt{2145}}{1144} \quad 0 \quad 0 \quad \frac{5\sqrt{858}i}{4576} \quad 0 \quad -\frac{5\sqrt{858}}{4576} \quad 0 \quad 0$
	$\frac{5\sqrt{1430}i}{4576}$	$0 \quad \frac{7\sqrt{1430}}{4576} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2145}}{1144} \quad -\frac{5\sqrt{858}i}{4576} \quad 0 \quad -\frac{5\sqrt{858}}{4576} \quad 0 \quad 0 \quad 0$
	$\frac{3\sqrt{2145}}{2288}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{7\sqrt{1430}}{2288} \quad 0 \quad \frac{\sqrt{1430}i}{1144} \quad -\frac{25\sqrt{143}}{2288} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{25\sqrt{858}}{6864}$
	0	$-\frac{3\sqrt{2145}}{2288} \quad 0 \quad 0 \quad \frac{7\sqrt{1430}}{2288} \quad 0 \quad -\frac{\sqrt{1430}i}{1144} \quad 0 \quad 0 \quad \frac{25\sqrt{143}}{2288} \quad 0 \quad 0 \quad -\frac{25\sqrt{858}}{6864} \quad 0$

997 symmetry

$$\frac{z(35x^6 + 105x^4y^2 - 210x^4z^2 + 105x^2y^4 - 420x^2y^2z^2 + 168x^2z^4 + 35y^6 - 210y^4z^2 + 168y^2z^4 - 16z^6)}{16}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_7^{(1,-1;a)}(B, 2)$	$-\frac{\sqrt{858}}{1716}$	0	0	0	0	$-\frac{\sqrt{143}}{572}$	0	$-\frac{\sqrt{143}i}{572}$	0	0	0	0	0	0	0
	0	$\frac{\sqrt{858}}{1716}$	0	0	$-\frac{\sqrt{143}}{572}$	0	$\frac{\sqrt{143}i}{572}$	0	0	0	0	0	0	0	0
	0	0	$-\frac{\sqrt{858}}{1716}$	0	0	$\frac{\sqrt{143}i}{572}$	0	$-\frac{\sqrt{143}}{572}$	0	0	0	0	0	0	0
	0	0	0	$\frac{\sqrt{858}}{1716}$	$-\frac{\sqrt{143}i}{572}$	0	$-\frac{\sqrt{143}}{572}$	0	0	0	0	0	0	0	0
	0	$-\frac{\sqrt{143}}{572}$	0	$\frac{\sqrt{143}i}{572}$	$\frac{\sqrt{858}}{286}$	0	0	0	0	$\frac{\sqrt{2145}}{572}$	0	$\frac{\sqrt{2145}i}{572}$	0	0	0
	$-\frac{\sqrt{143}}{572}$	0	$-\frac{\sqrt{143}i}{572}$	0	0	$-\frac{\sqrt{858}}{286}$	0	0	$\frac{\sqrt{2145}}{572}$	0	$-\frac{\sqrt{2145}i}{572}$	0	0	0	0
	0	$-\frac{\sqrt{143}i}{572}$	0	$-\frac{\sqrt{143}}{572}$	0	0	$\frac{\sqrt{858}}{286}$	0	0	$-\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0
	$\frac{\sqrt{143}i}{572}$	0	$-\frac{\sqrt{143}}{572}$	0	0	0	0	$-\frac{\sqrt{858}}{286}$	$\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0	0
	0	0	0	0	0	$\frac{\sqrt{2145}}{572}$	0	$\frac{\sqrt{2145}i}{572}$	0	0	$-\frac{5\sqrt{858}}{572}$	0	0	$-\frac{5\sqrt{143}}{286}$	0
	0	0	0	0	0	$\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0	$-\frac{5\sqrt{858}}{572}$	0	0	$\frac{5\sqrt{143}i}{286}$
	0	0	0	0	$-\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0	0	$\frac{5\sqrt{858}}{572}$	$-\frac{5\sqrt{143}i}{286}$	0	0
	0	0	0	0	0	0	0	0	$-\frac{5\sqrt{143}}{286}$	0	$\frac{5\sqrt{143}i}{286}$	$\frac{5\sqrt{858}}{429}$	0	0	$-\frac{5\sqrt{858}}{429}$
	0	0	0	0	0	0	0	0	$-\frac{5\sqrt{143}}{286}$	0	$-\frac{5\sqrt{143}i}{286}$	0	0	$-\frac{5\sqrt{858}}{429}$	
998	symmetry	$\frac{\sqrt{231}x(10x^2 - 3y^2 - 3z^2)(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{16}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_7^{(1,-1;a)}(B, 3)$	0	$\frac{9\sqrt{182}}{1456}$	0	$\frac{29\sqrt{182}i}{2912}$	$\frac{11\sqrt{273}}{1456}$	0	0	0	0	$\frac{3\sqrt{2730}}{1456}$	0	$\frac{5\sqrt{2730}i}{2912}$	$-\frac{\sqrt{455}}{1456}$	0		
	$\frac{9\sqrt{182}}{1456}$	0	$-\frac{29\sqrt{182}i}{2912}$	0	0	$-\frac{11\sqrt{273}}{1456}$	0	0	$\frac{3\sqrt{2730}}{1456}$	0	$-\frac{5\sqrt{2730}i}{2912}$	0	0	$\frac{\sqrt{455}}{1456}$		
	0	$\frac{29\sqrt{182}i}{2912}$	0	$-\frac{15\sqrt{182}}{2912}$	0	0	$-\frac{\sqrt{273}}{104}$	0	0	$\frac{\sqrt{2730}i}{416}$	0	$-\frac{\sqrt{2730}}{416}$	0	0	0	
	$-\frac{29\sqrt{182}i}{2912}$	0	$-\frac{15\sqrt{182}}{2912}$	0	0	0	0	$\frac{\sqrt{273}}{104}$	$-\frac{\sqrt{2730}i}{416}$	0	$-\frac{\sqrt{2730}}{416}$	0	0	0	0	
	$\frac{11\sqrt{273}}{1456}$	0	0	0	0	$\frac{15\sqrt{182}}{1456}$	0	$\frac{9\sqrt{182}i}{728}$	$\frac{3\sqrt{455}}{1456}$	0	0	0	0	$\frac{\sqrt{2730}}{1456}$		
	0	$-\frac{11\sqrt{273}}{1456}$	0	0	$\frac{15\sqrt{182}}{1456}$	0	$-\frac{9\sqrt{182}i}{728}$	0	0	$-\frac{3\sqrt{455}}{1456}$	0	0	$\frac{\sqrt{2730}}{1456}$	0		
	0	0	$-\frac{\sqrt{273}}{104}$	0	0	$\frac{9\sqrt{182}i}{728}$	0	$-\frac{3\sqrt{182}}{182}$	0	0	$\frac{3\sqrt{455}}{728}$	0	0	$-\frac{\sqrt{2730}i}{728}$		
	0	0	0	$\frac{\sqrt{273}}{104}$	$-\frac{9\sqrt{182}i}{728}$	0	$-\frac{3\sqrt{182}}{182}$	0	0	0	0	$-\frac{3\sqrt{455}}{728}$	$\frac{\sqrt{2730}i}{728}$	0		
	0	$\frac{3\sqrt{2730}}{1456}$	0	$\frac{\sqrt{2730}i}{416}$	$\frac{3\sqrt{455}}{1456}$	0	0	0	$\frac{15\sqrt{182}}{1456}$	0	$-\frac{15\sqrt{182}i}{2912}$	$-\frac{15\sqrt{273}}{1456}$	0			
	$\frac{3\sqrt{2730}}{1456}$	0	$-\frac{\sqrt{2730}i}{416}$	0	0	$-\frac{3\sqrt{455}}{1456}$	0	0	$\frac{15\sqrt{182}}{1456}$	0	$\frac{15\sqrt{182}i}{2912}$	0	0	$\frac{15\sqrt{273}}{1456}$		
	0	$\frac{5\sqrt{2730}i}{2912}$	0	$-\frac{\sqrt{2730}}{416}$	0	0	$\frac{3\sqrt{455}}{728}$	0	0	$-\frac{15\sqrt{182}i}{2912}$	0	$\frac{15\sqrt{182}}{2912}$	0	0	0	
	$-\frac{5\sqrt{2730}i}{2912}$	0	$-\frac{\sqrt{2730}}{416}$	0	0	0	0	$-\frac{3\sqrt{455}}{728}$	$\frac{15\sqrt{182}i}{2912}$	0	$\frac{15\sqrt{182}}{2912}$	0	0	0		
	$-\frac{\sqrt{455}}{1456}$	0	0	0	$\frac{\sqrt{2730}}{1456}$	0	$-\frac{\sqrt{2730}i}{728}$	$-\frac{15\sqrt{273}}{1456}$	0	0	0	0	0	$-\frac{15\sqrt{182}}{1456}$		
	0	$\frac{\sqrt{455}}{1456}$	0	0	$\frac{\sqrt{2730}}{1456}$	0	$\frac{\sqrt{2730}i}{728}$	0	0	$\frac{15\sqrt{273}}{1456}$	0	0	0	$-\frac{15\sqrt{182}}{1456}$	0	
999	symmetry	$\frac{\sqrt{231}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)(3x^2 + 3y^2 - 10z^2)}{16}$														

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_7^{(1,-1;a)}(B, 4)$	0	0	0	0	0	$-\frac{\sqrt{273}}{364}$	0	$\frac{\sqrt{273}i}{364}$	$\frac{\sqrt{273}i}{364}$	0	0	0	0	$\frac{\sqrt{455}}{182}$	
	0	0	0	0	$-\frac{\sqrt{273}}{364}$	0	$-\frac{\sqrt{273}i}{364}$	0	0	$-\frac{\sqrt{273}i}{364}$	0	0	$\frac{\sqrt{455}}{182}$	0	
	0	0	0	0	0	$\frac{\sqrt{273}i}{364}$	0	$\frac{\sqrt{273}}{364}$	0	0	$-\frac{\sqrt{273}i}{364}$	0	0	$\frac{\sqrt{455}i}{182}$	
	0	0	0	0	$-\frac{\sqrt{273}i}{364}$	0	$\frac{\sqrt{273}}{364}$	0	0	0	0	$\frac{\sqrt{273}i}{364}$	$-\frac{\sqrt{455}i}{182}$	0	
	0	$-\frac{\sqrt{273}}{364}$	0	$\frac{\sqrt{273}i}{364}$	$\frac{3\sqrt{182}}{182}$	0	0	0	0	$\frac{3\sqrt{455}}{364}$	0	$\frac{3\sqrt{455}i}{364}$	0	0	
	$-\frac{\sqrt{273}}{364}$	0	$-\frac{\sqrt{273}i}{364}$	0	0	$-\frac{3\sqrt{182}}{182}$	0	0	$\frac{3\sqrt{455}}{364}$	0	$-\frac{3\sqrt{455}i}{364}$	0	0	0	
	0	$\frac{\sqrt{273}i}{364}$	0	$\frac{\sqrt{273}}{364}$	0	0	$-\frac{3\sqrt{182}}{182}$	0	0	$\frac{3\sqrt{455}i}{364}$	0	$-\frac{3\sqrt{455}}{364}$	0	0	
	$-\frac{\sqrt{273}i}{364}$	0	$\frac{\sqrt{273}}{364}$	0	0	0	0	$\frac{3\sqrt{182}}{182}$	$-\frac{3\sqrt{455}i}{364}$	0	$-\frac{3\sqrt{455}}{364}$	0	0	0	
	$\frac{\sqrt{273}i}{364}$	0	0	0	0	$\frac{3\sqrt{455}}{364}$	0	$\frac{3\sqrt{455}i}{364}$	0	0	0	0	0	0	
	0	$-\frac{\sqrt{273}i}{364}$	0	0	$\frac{3\sqrt{455}}{364}$	0	$-\frac{3\sqrt{455}i}{364}$	0	0	0	0	0	0	0	
	0	0	$-\frac{\sqrt{273}i}{364}$	0	0	$\frac{3\sqrt{455}i}{364}$	0	$-\frac{3\sqrt{455}}{364}$	0	0	0	0	0	0	
	0	0	0	$\frac{\sqrt{273}i}{364}$	$-\frac{3\sqrt{455}i}{364}$	0	$-\frac{3\sqrt{455}}{364}$	0	0	0	0	0	0	0	
	0	$\frac{\sqrt{455}}{182}$	0	$\frac{\sqrt{455}i}{182}$	0	0	0	0	0	0	0	0	0	0	
	$\frac{\sqrt{455}}{182}$	0	$-\frac{\sqrt{455}i}{182}$	0	0	0	0	0	0	0	0	0	0	0	
1000	symmetry	$\frac{\sqrt{6006x(y-z)(y+z)(y^2-4yz+z^2)(y^2+4yz+z^2)}}{32}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_7^{(1,-1;a)}(B,5)$	0	0	0	$-\frac{3\sqrt{7}i}{224}$	$-\frac{3\sqrt{42}}{224}$	0	0	0	0	0	0	$-\frac{3\sqrt{105}i}{224}$	$-\frac{3\sqrt{70}}{224}$	0		
	0	0	$\frac{3\sqrt{7}i}{224}$	0	0	$\frac{3\sqrt{42}}{224}$	0	0	0	0	$\frac{3\sqrt{105}i}{224}$	0	0	$\frac{3\sqrt{70}}{224}$		
	0	$-\frac{3\sqrt{7}i}{224}$	0	$\frac{\sqrt{7}}{224}$	0	0	$\frac{\sqrt{42}}{112}$	0	0	$-\frac{\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	0	
	$\frac{3\sqrt{7}i}{224}$	0	$\frac{\sqrt{7}}{224}$	0	0	0	0	$-\frac{\sqrt{42}}{112}$	$\frac{\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	0	0	
	$-\frac{3\sqrt{42}}{224}$	0	0	0	0	$-\frac{3\sqrt{7}}{112}$	0	$-\frac{3\sqrt{7}i}{56}$	$-\frac{3\sqrt{70}}{224}$	0	0	0	0	$-\frac{\sqrt{105}}{112}$		
	0	$\frac{3\sqrt{42}}{224}$	0	0	$-\frac{3\sqrt{7}}{112}$	0	$\frac{3\sqrt{7}i}{56}$	0	0	$\frac{3\sqrt{70}}{224}$	0	0	$-\frac{\sqrt{105}}{112}$	0		
	0	0	$\frac{\sqrt{42}}{112}$	0	0	$-\frac{3\sqrt{7}i}{56}$	0	0	0	$\frac{3\sqrt{70}}{112}$	0	0	$-\frac{\sqrt{105}i}{56}$			
	0	0	0	$-\frac{\sqrt{42}}{112}$	$\frac{3\sqrt{7}i}{56}$	0	0	0	0	0	$-\frac{3\sqrt{70}}{112}$	$\frac{\sqrt{105}i}{56}$	0			
	0	0	0	$-\frac{\sqrt{105}i}{224}$	$-\frac{3\sqrt{70}}{224}$	0	0	0	0	0	$-\frac{15\sqrt{7}i}{224}$	$-\frac{5\sqrt{42}}{224}$	0			
	0	0	$\frac{\sqrt{105}i}{224}$	0	0	$\frac{3\sqrt{70}}{224}$	0	0	0	0	$\frac{15\sqrt{7}i}{224}$	0	0	$\frac{5\sqrt{42}}{224}$		
	0	$-\frac{3\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	$\frac{3\sqrt{70}}{112}$	0	0	$-\frac{15\sqrt{7}i}{224}$	0	$\frac{15\sqrt{7}}{224}$	0	0	0	
	$\frac{3\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	0	0	$-\frac{3\sqrt{70}}{112}$	$\frac{15\sqrt{7}i}{224}$	0	$\frac{15\sqrt{7}}{224}$	0	0	0		
	$-\frac{3\sqrt{70}}{224}$	0	0	0	$-\frac{\sqrt{105}}{112}$	0	$-\frac{\sqrt{105}i}{56}$	$-\frac{5\sqrt{42}}{224}$	0	0	0	0	$-\frac{5\sqrt{7}}{112}$			
	0	$\frac{3\sqrt{70}}{224}$	0	0	$-\frac{\sqrt{105}}{112}$	0	$\frac{\sqrt{105}i}{56}$	0	0	$\frac{5\sqrt{42}}{224}$	0	0	$-\frac{5\sqrt{7}}{112}$	0		
1001	symmetry	$\frac{\sqrt{6006}z(x-y)(x+y)(x^2-4xy+y^2)(x^2+4xy+y^2)}{32}$														

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}}{14} & -\frac{\sqrt{42}i}{28} & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{28} & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{42}}{28} & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{28} & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{28} & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
1002	symmetry	$\frac{\sqrt{42}x(y-z)(y+z)(48x^4-80x^2y^2-80x^2z^2+15y^4+30y^2z^2+15z^4)}{32}$

*continued ...*

Table 10

No.	multipole	matrix														
$\mathbb{M}_7^{(1,-1;a)}(B, 7)$	0	$-\frac{15\sqrt{1001}}{2002}$	0	$-\frac{23\sqrt{1001}i}{2912}$	$-\frac{\sqrt{6006}}{2464}$	0	0	0	0	$-\frac{\sqrt{15015}}{2002}$	0	$\frac{3\sqrt{15015}i}{32032}$	$\frac{19\sqrt{10010}}{32032}$	0		
	$-\frac{15\sqrt{1001}}{2002}$	0	$\frac{23\sqrt{1001}i}{2912}$	0	0	$\frac{\sqrt{6006}}{2464}$	0	0	$-\frac{\sqrt{15015}}{2002}$	0	$-\frac{3\sqrt{15015}i}{32032}$	0	0	$-\frac{19\sqrt{10010}}{32032}$		
	0	$-\frac{23\sqrt{1001}i}{2912}$	0	$\frac{255\sqrt{1001}}{32032}$	0	0	$-\frac{\sqrt{6006}}{16016}$	0	0	$\frac{\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	0	
	$\frac{23\sqrt{1001}i}{2912}$	0	$\frac{255\sqrt{1001}}{32032}$	0	0	0	0	$\frac{\sqrt{6006}}{16016}$	$-\frac{\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	0	0	
	$-\frac{\sqrt{6006}}{2464}$	0	0	0	0	$-\frac{45\sqrt{1001}}{16016}$	0	$\frac{3\sqrt{1001}i}{8008}$	$\frac{51\sqrt{10010}}{32032}$	0	0	0	0	0	$\frac{17\sqrt{15015}}{16016}$	
	0	$\frac{\sqrt{6006}}{2464}$	0	0	$-\frac{45\sqrt{1001}}{16016}$	0	$-\frac{3\sqrt{1001}i}{8008}$	0	0	$-\frac{51\sqrt{10010}}{32032}$	0	0	$\frac{17\sqrt{15015}}{16016}$	0		
	0	0	$-\frac{\sqrt{6006}}{16016}$	0	0	$\frac{3\sqrt{1001}i}{8008}$	0	0	0	0	$-\frac{3\sqrt{10010}}{16016}$	0	0	$\frac{\sqrt{15015}i}{8008}$		
	0	0	0	$\frac{\sqrt{6006}}{16016}$	$-\frac{3\sqrt{1001}i}{8008}$	0	0	0	0	0	0	$\frac{3\sqrt{10010}}{16016}$	$-\frac{\sqrt{15015}i}{8008}$	0		
	0	$-\frac{\sqrt{15015}}{2002}$	0	$\frac{\sqrt{15015}i}{32032}$	$\frac{51\sqrt{10010}}{32032}$	0	0	0	0	$\frac{15\sqrt{1001}}{2002}$	0	$\frac{15\sqrt{1001}i}{32032}$	$-\frac{75\sqrt{6006}}{32032}$	0		
	$-\frac{\sqrt{15015}}{2002}$	0	$-\frac{\sqrt{15015}i}{32032}$	0	0	$-\frac{51\sqrt{10010}}{32032}$	0	0	$\frac{15\sqrt{1001}}{2002}$	0	$-\frac{15\sqrt{1001}i}{32032}$	0	0	$\frac{75\sqrt{6006}}{32032}$		
	0	$\frac{3\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	$-\frac{3\sqrt{10010}}{16016}$	0	0	$\frac{15\sqrt{1001}i}{32032}$	0	$-\frac{15\sqrt{1001}}{32032}$	0	0		
	$-\frac{3\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	0	0	$\frac{3\sqrt{10010}}{16016}$	$-\frac{15\sqrt{1001}i}{32032}$	0	$-\frac{15\sqrt{1001}}{32032}$	0	0	0		
	$\frac{19\sqrt{10010}}{32032}$	0	0	0	0	$\frac{17\sqrt{15015}}{16016}$	0	$-\frac{\sqrt{15015}i}{8008}$	$-\frac{75\sqrt{6006}}{32032}$	0	0	0	0	0	$-\frac{75\sqrt{1001}}{16016}$	
	0	$-\frac{19\sqrt{10010}}{32032}$	0	0	$\frac{17\sqrt{15015}}{16016}$	0	$-\frac{\sqrt{15015}i}{8008}$	0	0	$\frac{75\sqrt{6006}}{32032}$	0	0	0	$-\frac{75\sqrt{1001}}{16016}$	0	
1003	symmetry	$\frac{\sqrt{42z(x-y)(x+y)(15x^4+30x^2y^2-80x^2z^2+15y^4-80y^2z^2+48z^4)}}{32}$														

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_7^{(1,-1;a)}(B,8)$	0	0	0	0	0	$\frac{\sqrt{6006}}{4004}$	0	$-\frac{\sqrt{6006}i}{4004}$	$-\frac{\sqrt{15015}}{2002}$	0	0	0	0	$-\frac{\sqrt{10010}}{2002}$	
	0	0	0	0	$\frac{\sqrt{6006}}{4004}$	0	$\frac{\sqrt{6006}i}{4004}$	0	0	$\frac{\sqrt{15015}}{2002}$	0	0	$-\frac{\sqrt{10010}}{2002}$	0	
	0	0	0	0	0	$\frac{\sqrt{6006}i}{4004}$	0	$\frac{\sqrt{6006}}{4004}$	0	0	$-\frac{\sqrt{15015}}{2002}$	0	0	$\frac{\sqrt{10010}i}{2002}$	
	0	0	0	0	$-\frac{\sqrt{6006}i}{4004}$	0	$\frac{\sqrt{6006}}{4004}$	0	0	0	$\frac{\sqrt{15015}}{2002}$	$-\frac{\sqrt{10010}i}{2002}$	0	0	
	0	$\frac{\sqrt{6006}}{4004}$	0	$\frac{\sqrt{6006}i}{4004}$	0	0	0	0	$-\frac{3\sqrt{10010}}{2002}$	0	$\frac{3\sqrt{10010}i}{2002}$	$\frac{2\sqrt{15015}}{1001}$	0	0	
	$\frac{\sqrt{6006}}{4004}$	0	$-\frac{\sqrt{6006}i}{4004}$	0	0	0	0	0	$-\frac{3\sqrt{10010}}{2002}$	0	$-\frac{3\sqrt{10010}i}{2002}$	0	0	$-\frac{2\sqrt{15015}}{1001}$	
	0	$-\frac{\sqrt{6006}i}{4004}$	0	$\frac{\sqrt{6006}}{4004}$	0	0	0	0	0	0	0	0	0	0	0
	$\frac{\sqrt{6006}i}{4004}$	0	$\frac{\sqrt{6006}}{4004}$	0	0	0	0	0	0	0	0	0	0	0	0
	$-\frac{\sqrt{15015}}{2002}$	0	0	0	$-\frac{3\sqrt{10010}}{2002}$	0	0	$\frac{15\sqrt{1001}}{2002}$	0	0	0	0	0	$\frac{5\sqrt{6006}}{2002}$	
	0	$\frac{\sqrt{15015}}{2002}$	0	0	$-\frac{3\sqrt{10010}}{2002}$	0	0	0	$-\frac{15\sqrt{1001}}{2002}$	0	0	$\frac{5\sqrt{6006}}{2002}$	0	0	
	0	0	$-\frac{\sqrt{15015}}{2002}$	0	0	$\frac{3\sqrt{10010}i}{2002}$	0	0	0	0	$-\frac{15\sqrt{1001}}{2002}$	0	0	$\frac{5\sqrt{6006}i}{2002}$	
	0	0	0	$\frac{\sqrt{15015}}{2002}$	$-\frac{3\sqrt{10010}i}{2002}$	0	0	0	0	0	$\frac{15\sqrt{1001}}{2002}$	$-\frac{5\sqrt{6006}i}{2002}$	0	0	
	0	$-\frac{\sqrt{10010}}{2002}$	0	$\frac{\sqrt{10010}i}{2002}$	$\frac{2\sqrt{15015}}{1001}$	0	0	0	$\frac{5\sqrt{6006}}{2002}$	0	$\frac{5\sqrt{6006}i}{2002}$	0	0	0	
	$-\frac{\sqrt{10010}}{2002}$	0	$-\frac{\sqrt{10010}i}{2002}$	0	0	$-\frac{2\sqrt{15015}}{1001}$	0	0	$\frac{5\sqrt{6006}}{2002}$	0	$-\frac{5\sqrt{6006}i}{2002}$	0	0	0	

1004 symmetry

y

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_1^{(1,1;a)}(A)$	0	$-\frac{\sqrt{105}i}{84}$	0	0	0	0	$-\frac{\sqrt{70}}{56}$	0	0	$-\frac{\sqrt{7}i}{28}$	0	$\frac{\sqrt{7}}{28}$	0	0	0
	$\frac{\sqrt{105}i}{84}$	0	0	0	0	0	0	$\frac{\sqrt{70}}{56}$	$\frac{\sqrt{7}i}{28}$	0	$\frac{\sqrt{7}}{28}$	0	0	0	0
	0	0	0	$-\frac{\sqrt{105}i}{84}$	$\frac{\sqrt{70}}{56}$	0	0	0	0	$-\frac{\sqrt{7}}{28}$	0	$-\frac{\sqrt{7}i}{28}$	0	0	0
	0	0	$\frac{\sqrt{105}i}{84}$	0	0	$-\frac{\sqrt{70}}{56}$	0	0	$-\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	0	0
	0	0	$\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	0	$-\frac{\sqrt{42}}{56}$	0	0	$-\frac{\sqrt{7}i}{14}$	
	0	0	0	$-\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	$\frac{\sqrt{42}}{56}$	$\frac{\sqrt{7}i}{14}$	0		
	$-\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	0	$\frac{\sqrt{42}}{56}$	0	0	0	0	$-\frac{\sqrt{7}}{14}$	
	0	$\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	0	$-\frac{\sqrt{42}}{56}$	0	0	$-\frac{\sqrt{7}}{14}$	0	
	0	$-\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	$\frac{\sqrt{42}}{56}$	0	0	$\frac{3\sqrt{105}i}{140}$	0	$\frac{\sqrt{105}}{70}$	0	0	0
	$\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	0	0	$-\frac{\sqrt{42}}{56}$	$-\frac{3\sqrt{105}i}{140}$	0	$\frac{\sqrt{105}}{70}$	0	0	0	
	0	$\frac{\sqrt{7}}{28}$	0	$-\frac{\sqrt{7}i}{28}$	$-\frac{\sqrt{42}}{56}$	0	0	0	0	$\frac{\sqrt{105}}{70}$	0	$-\frac{\sqrt{105}i}{140}$	$\frac{\sqrt{70}}{140}$	0	
	$\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	$\frac{\sqrt{42}}{56}$	0	0	$\frac{\sqrt{105}}{70}$	0	$\frac{\sqrt{105}i}{140}$	0	0	$-\frac{\sqrt{70}}{140}$	
	0	0	0	0	0	$-\frac{\sqrt{7}i}{14}$	0	$-\frac{\sqrt{7}}{14}$	0	0	$\frac{\sqrt{70}}{140}$	0	0	$\frac{\sqrt{105}i}{105}$	
	0	0	0	0	$\frac{\sqrt{7}i}{14}$	0	$-\frac{\sqrt{7}}{14}$	0	0	0	$-\frac{\sqrt{70}}{140}$	$-\frac{\sqrt{105}i}{105}$	0		

1005 symmetry

x

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_1^{(1,1;a)}(B, 1)$	0	$\frac{\sqrt{105}}{84}$	0	0	$\frac{\sqrt{70}}{56}$	0	0	0	0	$-\frac{\sqrt{7}}{28}$	0	$-\frac{\sqrt{7}i}{28}$	0	0	0
	$\frac{\sqrt{105}}{84}$	0	0	0	0	$-\frac{\sqrt{70}}{56}$	0	0	$-\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	0	0
	0	0	0	$\frac{\sqrt{105}}{84}$	0	0	$\frac{\sqrt{70}}{56}$	0	0	$\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	0
	0	0	$\frac{\sqrt{105}}{84}$	0	0	0	0	$-\frac{\sqrt{70}}{56}$	$-\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	0	0
	$\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	0	$\frac{\sqrt{42}}{56}$	0	0	0	0	$-\frac{\sqrt{7}}{14}$	
	0	$-\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	0	$-\frac{\sqrt{42}}{56}$	0	0	$-\frac{\sqrt{7}}{14}$	0	
	0	0	$\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	$\frac{\sqrt{42}}{56}$	0	0	0	$\frac{\sqrt{7}i}{14}$	
	0	0	0	$-\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	$-\frac{\sqrt{42}}{56}$	$-\frac{\sqrt{7}i}{14}$	0		
	0	$-\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	$\frac{\sqrt{42}}{56}$	0	0	0	0	$\frac{\sqrt{105}}{140}$	0	$-\frac{\sqrt{105}i}{70}$	$\frac{\sqrt{70}}{140}$	0	
	$-\frac{\sqrt{7}}{28}$	0	$-\frac{\sqrt{7}i}{28}$	0	0	$-\frac{\sqrt{42}}{56}$	0	0	$\frac{\sqrt{105}}{140}$	0	$\frac{\sqrt{105}i}{70}$	0	0	$-\frac{\sqrt{70}}{140}$	
	0	$-\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	$\frac{\sqrt{42}}{56}$	0	0	$-\frac{\sqrt{105}i}{70}$	0	$-\frac{3\sqrt{105}}{140}$	0	0	
	$\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	0	0	$-\frac{\sqrt{42}}{56}$	$\frac{\sqrt{105}i}{70}$	0	$-\frac{3\sqrt{105}}{140}$	0	0	0	
	0	0	0	0	0	$-\frac{\sqrt{7}}{14}$	0	$\frac{\sqrt{7}i}{14}$	$\frac{\sqrt{70}}{140}$	0	0	0	0	$-\frac{\sqrt{105}}{105}$	
	0	0	0	0	$-\frac{\sqrt{7}}{14}$	0	$-\frac{\sqrt{7}i}{14}$	0	0	$-\frac{\sqrt{70}}{140}$	0	0	$-\frac{\sqrt{105}}{105}$	0	

1006 symmetry

z

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(1,1;a)}(B, 2)$	$-\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42} \quad \frac{\sqrt{70}i}{56} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{70}}{56} \quad 0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{70}i}{56} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{140} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{140} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{140} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad \frac{\sqrt{70}i}{140} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{70}}{140} \quad 0 \quad -\frac{\sqrt{70}i}{140} \quad \frac{2\sqrt{105}}{105} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{70}}{140} \quad 0 \quad \frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad -\frac{2\sqrt{105}}{105}$	
1007	symmetry	$\sqrt{15}xyz$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(A, 1)$	0 0 0 0 0 $-\frac{\sqrt{770}i}{616}$ 0 $-\frac{\sqrt{770}}{616}$ 0 0 $-\frac{3\sqrt{77}}{154}$ 0 0 $-\frac{\sqrt{462}i}{88}$	
	0 0 0 0 $\frac{\sqrt{770}i}{616}$ 0 $-\frac{\sqrt{770}}{616}$ 0 0 0 0 $\frac{3\sqrt{77}}{154}$ $\frac{\sqrt{462}i}{88}$ 0	
	0 0 0 0 0 $\frac{\sqrt{770}}{616}$ 0 $-\frac{\sqrt{770}i}{616}$ $\frac{3\sqrt{77}}{154}$ 0 0 0 0 $-\frac{\sqrt{462}}{88}$	
	0 0 0 0 $\frac{\sqrt{770}}{616}$ 0 $\frac{\sqrt{770}i}{616}$ 0 0 $-\frac{3\sqrt{77}}{154}$ 0 0 $-\frac{\sqrt{462}}{88}$ 0	
	0 $-\frac{\sqrt{770}i}{616}$ 0 $\frac{\sqrt{770}}{616}$ 0 0 0 0 $\frac{\sqrt{462}i}{168}$ 0 $\frac{\sqrt{462}}{168}$ 0 0	
	$\frac{\sqrt{770}i}{616}$ 0 $\frac{\sqrt{770}}{616}$ 0 0 0 0 $-\frac{\sqrt{462}i}{168}$ 0 $\frac{\sqrt{462}}{168}$ 0 0 0	
	0 $-\frac{\sqrt{770}}{616}$ 0 $-\frac{\sqrt{770}i}{616}$ 0 0 0 0 0 $\frac{\sqrt{462}}{616}$ 0 $-\frac{\sqrt{462}i}{616}$ $-\frac{\sqrt{77}}{154}$ 0	
	$-\frac{\sqrt{770}}{616}$ 0 $\frac{\sqrt{770}i}{616}$ 0 0 0 0 0 $\frac{\sqrt{462}}{616}$ 0 $\frac{\sqrt{462}i}{616}$ 0 0 $\frac{\sqrt{77}}{154}$	
	0 0 $\frac{3\sqrt{77}}{154}$ 0 0 $\frac{\sqrt{462}i}{168}$ 0 $\frac{\sqrt{462}}{616}$ 0 0 $\frac{\sqrt{1155}}{231}$ 0 0 $\frac{\sqrt{770}i}{616}$	
	0 0 0 $-\frac{3\sqrt{77}}{154}$ $-\frac{\sqrt{462}i}{168}$ 0 $\frac{\sqrt{462}}{616}$ 0 0 0 0 $-\frac{\sqrt{1155}}{231}$ $-\frac{\sqrt{770}i}{616}$ 0	
	$-\frac{3\sqrt{77}}{154}$ 0 0 0 0 $\frac{\sqrt{462}}{168}$ 0 $-\frac{\sqrt{462}i}{616}$ $\frac{\sqrt{1155}}{231}$ 0 0 0 0 $-\frac{\sqrt{770}}{616}$	
	0 $\frac{3\sqrt{77}}{154}$ 0 0 $\frac{\sqrt{462}}{168}$ 0 $\frac{\sqrt{462}i}{616}$ 0 0 $-\frac{\sqrt{1155}}{231}$ 0 0 $-\frac{\sqrt{770}}{616}$ 0	
	0 $-\frac{\sqrt{462}i}{88}$ 0 $-\frac{\sqrt{462}}{88}$ 0 0 $-\frac{\sqrt{77}}{154}$ 0 0 $\frac{\sqrt{770}i}{616}$ 0 $-\frac{\sqrt{770}}{616}$ 0 0	
	$\frac{\sqrt{462}i}{88}$ 0 $-\frac{\sqrt{462}}{88}$ 0 0 0 0 $\frac{\sqrt{77}}{154}$ $-\frac{\sqrt{770}i}{616}$ 0 $-\frac{\sqrt{770}}{616}$ 0 0 0	
1008	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,1;a)}(A, 2)$	0	$-\frac{3\sqrt{77}i}{616}$	0	0	0	0	$-\frac{5\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{1155}i}{1848}$	0	$\frac{5\sqrt{1155}}{924}$	0	0	
	$\frac{3\sqrt{77}i}{616}$	0	0	0	0	0	0	$\frac{5\sqrt{462}}{1232}$	$-\frac{\sqrt{1155}i}{1848}$	0	$\frac{5\sqrt{1155}}{924}$	0	0	0	
	0	0	0	$-\frac{3\sqrt{77}i}{616}$	$\frac{5\sqrt{462}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{462}$	0	$-\frac{13\sqrt{1155}i}{1848}$	$\frac{\sqrt{770}}{176}$	0	
	0	0	$\frac{3\sqrt{77}i}{616}$	0	0	$-\frac{5\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{1155}}{462}$	0	$\frac{13\sqrt{1155}i}{1848}$	0	0	$-\frac{\sqrt{770}}{176}$	
	0	0	$\frac{5\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{77}i}{132}$	0	$-\frac{5\sqrt{77}}{264}$	0	0	$\frac{5\sqrt{770}}{3696}$	0	0	$\frac{\sqrt{1155}i}{924}$	
	0	0	0	$-\frac{5\sqrt{462}}{1232}$	$\frac{\sqrt{77}i}{132}$	0	$-\frac{5\sqrt{77}}{264}$	0	0	0	0	$-\frac{5\sqrt{770}}{3696}$	$-\frac{\sqrt{1155}i}{924}$	0	
	$-\frac{5\sqrt{462}}{1232}$	0	0	0	0	$-\frac{5\sqrt{77}}{264}$	0	$\frac{\sqrt{77}i}{33}$	$-\frac{19\sqrt{770}}{3696}$	0	0	0	0	$\frac{\sqrt{1155}}{1848}$	
	0	$\frac{5\sqrt{462}}{1232}$	0	0	$-\frac{5\sqrt{77}}{264}$	0	$-\frac{\sqrt{77}i}{33}$	0	0	$\frac{19\sqrt{770}}{3696}$	0	0	$\frac{\sqrt{1155}}{1848}$	0	
	0	$\frac{\sqrt{1155}i}{1848}$	0	$\frac{\sqrt{1155}}{462}$	0	0	$-\frac{19\sqrt{770}}{3696}$	0	0	$-\frac{23\sqrt{77}i}{1848}$	0	$-\frac{5\sqrt{77}}{924}$	0	0	
	$-\frac{\sqrt{1155}i}{1848}$	0	$\frac{\sqrt{1155}}{462}$	0	0	0	0	$\frac{19\sqrt{770}}{3696}$	$\frac{23\sqrt{77}i}{1848}$	0	$-\frac{5\sqrt{77}}{924}$	0	0	0	
	0	$\frac{5\sqrt{1155}}{924}$	0	$-\frac{13\sqrt{1155}i}{1848}$	$\frac{5\sqrt{770}}{3696}$	0	0	0	0	$-\frac{5\sqrt{77}}{924}$	0	$\frac{17\sqrt{77}i}{1848}$	$-\frac{5\sqrt{462}}{1232}$	0	
	$\frac{5\sqrt{1155}}{924}$	0	$\frac{13\sqrt{1155}i}{1848}$	0	0	$-\frac{5\sqrt{770}}{3696}$	0	0	$-\frac{5\sqrt{77}}{924}$	0	$-\frac{17\sqrt{77}i}{1848}$	0	0	$\frac{5\sqrt{462}}{1232}$	
	0	0	$\frac{\sqrt{770}}{176}$	0	0	$\frac{\sqrt{1155}i}{924}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	$-\frac{5\sqrt{462}}{1232}$	0	0	$-\frac{3\sqrt{77}i}{308}$	
	0	0	0	$-\frac{\sqrt{770}}{176}$	$-\frac{\sqrt{1155}i}{924}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	0	0	$\frac{5\sqrt{462}}{1232}$	$\frac{3\sqrt{77}i}{308}$	0	
1009	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$													

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,1;a)}(A, 3)$	0	$\frac{\sqrt{1155}i}{616}$	0	0	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{13\sqrt{77}i}{616}$	0	$-\frac{\sqrt{77}}{308}$	0	0	0
	$-\frac{\sqrt{1155}i}{616}$	0	0	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	$-\frac{13\sqrt{77}i}{616}$	0	$-\frac{\sqrt{77}}{308}$	0	0	0	0
	0	0	0	$\frac{\sqrt{1155}i}{616}$	$-\frac{5\sqrt{770}}{1232}$	0	0	0	0	$\frac{2\sqrt{77}}{77}$	0	$-\frac{\sqrt{77}i}{616}$	$\frac{\sqrt{462}}{176}$	0	0
	0	0	$-\frac{\sqrt{1155}i}{616}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{2\sqrt{77}}{77}$	0	$\frac{\sqrt{77}i}{616}$	0	0	$-\frac{\sqrt{462}}{176}$	0
	0	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$-\frac{\sqrt{1155}i}{132}$	0	$-\frac{\sqrt{1155}}{264}$	0	0	$-\frac{9\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{77}i}{308}$	0
	0	0	0	$\frac{5\sqrt{770}}{1232}$	$\frac{\sqrt{1155}i}{132}$	0	$-\frac{\sqrt{1155}}{264}$	0	0	0	0	$\frac{9\sqrt{462}}{1232}$	$\frac{\sqrt{77}i}{308}$	0	0
	$\frac{5\sqrt{770}}{1232}$	0	0	0	0	$-\frac{\sqrt{1155}}{264}$	0	0	$\frac{13\sqrt{462}}{3696}$	0	0	0	0	$-\frac{3\sqrt{77}}{616}$	0
	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$-\frac{\sqrt{1155}}{264}$	0	0	0	0	$-\frac{13\sqrt{462}}{3696}$	0	0	$-\frac{3\sqrt{77}}{616}$	0	0
	0	$\frac{13\sqrt{77}i}{616}$	0	$\frac{2\sqrt{77}}{77}$	0	0	$\frac{13\sqrt{462}}{3696}$	0	0	$\frac{5\sqrt{1155}i}{1848}$	0	$\frac{\sqrt{1155}}{308}$	0	0	0
	$-\frac{13\sqrt{77}i}{616}$	0	$\frac{2\sqrt{77}}{77}$	0	0	0	0	$-\frac{13\sqrt{462}}{3696}$	$-\frac{5\sqrt{1155}i}{1848}$	0	$\frac{\sqrt{1155}}{308}$	0	0	0	0
	0	$-\frac{\sqrt{77}}{308}$	0	$-\frac{\sqrt{77}i}{616}$	$-\frac{9\sqrt{462}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{308}$	0	$-\frac{\sqrt{1155}i}{616}$	$\frac{5\sqrt{770}}{1232}$	0	0
	$-\frac{\sqrt{77}}{308}$	0	$\frac{\sqrt{77}i}{616}$	0	0	$\frac{9\sqrt{462}}{1232}$	0	0	0	$\frac{\sqrt{1155}}{308}$	0	$\frac{\sqrt{1155}i}{616}$	0	0	$-\frac{5\sqrt{770}}{1232}$
	0	0	$\frac{\sqrt{462}}{176}$	0	0	$-\frac{\sqrt{77}i}{308}$	0	$-\frac{3\sqrt{77}}{616}$	0	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}i}{308}$
	0	0	0	$-\frac{\sqrt{462}}{176}$	$\frac{\sqrt{77}i}{308}$	0	$-\frac{3\sqrt{77}}{616}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	$-\frac{\sqrt{1155}i}{308}$	0	0
1010	symmetry	$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$													

continued ...

Table 10

No.	multipole	matrix															
$\mathbb{M}_3^{(1,1;a)}(B, 1)$	0	$\frac{3\sqrt{77}}{616}$	0	0	$\frac{5\sqrt{462}}{1232}$	0	0	0	0	$-\frac{13\sqrt{1155}}{1848}$	0	$\frac{\sqrt{1155}i}{462}$	$-\frac{\sqrt{770}}{176}$	0			
	$\frac{3\sqrt{77}}{616}$	0	0	0	0	$-\frac{5\sqrt{462}}{1232}$	0	0	$-\frac{13\sqrt{1155}}{1848}$	0	$-\frac{\sqrt{1155}i}{462}$	0	0	$\frac{\sqrt{770}}{176}$			
	0	0	0	$\frac{3\sqrt{77}}{616}$	0	0	$\frac{5\sqrt{462}}{1232}$	0	0	$\frac{5\sqrt{1155}i}{924}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	0		
	0	0	$\frac{3\sqrt{77}}{616}$	0	0	0	0	$-\frac{5\sqrt{462}}{1232}$	$-\frac{5\sqrt{1155}i}{924}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	0	0		
	$\frac{5\sqrt{462}}{1232}$	0	0	0	0	$\frac{\sqrt{77}}{132}$	0	$-\frac{5\sqrt{77}i}{264}$	$-\frac{5\sqrt{770}}{3696}$	0	0	0	0	$\frac{\sqrt{1155}}{924}$			
	0	$-\frac{5\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{77}}{132}$	0	$\frac{5\sqrt{77}i}{264}$	0	0	$\frac{5\sqrt{770}}{3696}$	0	0	$\frac{\sqrt{1155}}{924}$	0	$\frac{\sqrt{1155}}{924}$		
	0	0	$\frac{5\sqrt{462}}{1232}$	0	0	$-\frac{5\sqrt{77}i}{264}$	0	$-\frac{\sqrt{77}}{33}$	0	0	$-\frac{19\sqrt{770}}{3696}$	0	0	$-\frac{\sqrt{1155}i}{1848}$			
	0	0	0	$-\frac{5\sqrt{462}}{1232}$	$\frac{5\sqrt{77}i}{264}$	0	$-\frac{\sqrt{77}}{33}$	0	0	0	0	$\frac{19\sqrt{770}}{3696}$	$\frac{\sqrt{1155}i}{1848}$	0			
	0	$-\frac{13\sqrt{1155}}{1848}$	0	$\frac{5\sqrt{1155}i}{924}$	$-\frac{5\sqrt{770}}{3696}$	0	0	0	0	$-\frac{17\sqrt{77}}{1848}$	0	$\frac{5\sqrt{77}i}{924}$	$-\frac{5\sqrt{462}}{1232}$	0			
	$-\frac{13\sqrt{1155}}{1848}$	0	$-\frac{5\sqrt{1155}i}{924}$	0	0	$\frac{5\sqrt{770}}{3696}$	0	0	$-\frac{17\sqrt{77}}{1848}$	0	$-\frac{5\sqrt{77}i}{924}$	0	0	$\frac{5\sqrt{462}}{1232}$			
	0	$\frac{\sqrt{1155}i}{462}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	$-\frac{19\sqrt{770}}{3696}$	0	0	$\frac{5\sqrt{77}i}{924}$	0	$\frac{23\sqrt{77}}{1848}$	0	0	0		
	$-\frac{\sqrt{1155}i}{462}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	0	0	$\frac{19\sqrt{770}}{3696}$	$-\frac{5\sqrt{77}i}{924}$	0	$\frac{23\sqrt{77}}{1848}$	0	0	0	0		
	$-\frac{\sqrt{770}}{176}$	0	0	0	0	$\frac{\sqrt{1155}}{924}$	0	$-\frac{\sqrt{1155}i}{1848}$	$-\frac{5\sqrt{462}}{1232}$	0	0	0	0	$\frac{3\sqrt{77}}{308}$			
	0	$\frac{\sqrt{770}}{176}$	0	0	$\frac{\sqrt{1155}}{924}$	0	$\frac{\sqrt{1155}i}{1848}$	0	0	$\frac{5\sqrt{462}}{1232}$	0	0	$\frac{3\sqrt{77}}{308}$	0			
1011	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$															

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(B, 2)$	$\frac{\sqrt{77}}{77}$	0 0 0 0 0 $-\frac{5\sqrt{462}}{924}$ 0 $-\frac{5\sqrt{462}i}{924}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{77}}{77}$ 0 0 0 $-\frac{5\sqrt{462}}{924}$ 0 $\frac{5\sqrt{462}i}{924}$ 0 0 0 0 0 0 0
	0	0 $\frac{\sqrt{77}}{77}$ 0 0 0 $\frac{5\sqrt{462}i}{924}$ 0 $-\frac{5\sqrt{462}}{924}$ 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{77}}{77}$ $-\frac{5\sqrt{462}i}{924}$ 0 $-\frac{5\sqrt{462}}{924}$ 0 0 0 0 0 0 0 0
	0	$-\frac{5\sqrt{462}}{924}$ 0 $\frac{5\sqrt{462}i}{924}$ $-\frac{\sqrt{77}}{33}$ 0 0 0 0 $\frac{\sqrt{770}}{231}$ 0 $\frac{\sqrt{770}i}{231}$ 0 0 0
	$-\frac{5\sqrt{462}}{924}$	0 $-\frac{5\sqrt{462}i}{924}$ 0 $-\frac{5\sqrt{462}}{924}$ 0 0 $\frac{\sqrt{77}}{33}$ 0 0 $\frac{\sqrt{770}}{231}$ 0 $-\frac{\sqrt{770}i}{231}$ 0 0 0
	0	$-\frac{5\sqrt{462}i}{924}$ 0 $-\frac{5\sqrt{462}}{924}$ 0 0 0 $-\frac{\sqrt{77}}{33}$ 0 0 $-\frac{\sqrt{770}i}{231}$ 0 $\frac{\sqrt{770}}{231}$ 0 0 0
	$\frac{5\sqrt{462}i}{924}$	0 $-\frac{5\sqrt{462}}{924}$ 0 0 0 0 0 $\frac{\sqrt{77}}{33}$ $\frac{\sqrt{770}i}{231}$ 0 $\frac{\sqrt{770}}{231}$ 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{770}}{231}$ 0 $\frac{\sqrt{770}i}{231}$ 0 0 $-\frac{\sqrt{77}}{231}$ 0 0 0 $\frac{5\sqrt{462}}{924}$
	0	0 0 0 0 0 0 $\frac{\sqrt{770}i}{231}$ 0 $\frac{\sqrt{770}}{231}$ 0 0 0 $\frac{\sqrt{77}}{231}$ 0 0 $-\frac{5\sqrt{462}i}{924}$
	0	0 0 0 0 $-\frac{\sqrt{770}i}{231}$ 0 $\frac{\sqrt{770}}{231}$ 0 0 0 0 $-\frac{\sqrt{77}}{231}$ $\frac{5\sqrt{462}i}{924}$ 0
	0	0 0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{462}}{924}$ 0 $-\frac{5\sqrt{462}i}{924}$ $\frac{2\sqrt{77}}{77}$ 0
	0	0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{462}}{924}$ 0 $\frac{5\sqrt{462}i}{924}$ 0 0 $-\frac{2\sqrt{77}}{77}$

1012 symmetry

 $\frac{\sqrt{15}x(y-z)(y+z)}{2}$ 

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_3^{(1,1;a)}(B,3)$	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	0	0	$\frac{\sqrt{77}}{616}$	0	$-\frac{2\sqrt{77}i}{77}$	$\frac{\sqrt{462}}{176}$	0	0	
	$\frac{\sqrt{1155}}{616}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{77}}{616}$	0	$\frac{2\sqrt{77}i}{77}$	0	0	$-\frac{\sqrt{462}}{176}$		
	0	0	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{77}i}{308}$	0	$-\frac{13\sqrt{77}}{616}$	0	0	0	
	0	0	$\frac{\sqrt{1155}}{616}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	$-\frac{\sqrt{77}i}{308}$	0	$-\frac{13\sqrt{77}}{616}$	0	0	0	0	
	$\frac{5\sqrt{770}}{1232}$	0	0	0	0	$-\frac{\sqrt{1155}}{132}$	0	$\frac{\sqrt{1155}i}{264}$	$-\frac{9\sqrt{462}}{1232}$	0	0	0	0	$\frac{\sqrt{77}}{308}$		
	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$-\frac{\sqrt{1155}}{132}$	0	$-\frac{\sqrt{1155}i}{264}$	0	0	$\frac{9\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{77}}{308}$	0		
	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}i}{264}$	0	0	0	0	$-\frac{13\sqrt{462}}{3696}$	0	0	$-\frac{3\sqrt{77}i}{616}$		
	0	0	0	$-\frac{5\sqrt{770}}{1232}$	$-\frac{\sqrt{1155}i}{264}$	0	0	0	0	0	$\frac{13\sqrt{462}}{3696}$	$\frac{3\sqrt{77}i}{616}$	0			
	0	$\frac{\sqrt{77}}{616}$	0	$\frac{\sqrt{77}i}{308}$	$-\frac{9\sqrt{462}}{1232}$	0	0	0	0	$-\frac{\sqrt{1155}}{616}$	0	$\frac{\sqrt{1155}i}{308}$	$-\frac{5\sqrt{770}}{1232}$	0		
	$\frac{\sqrt{77}}{616}$	0	$-\frac{\sqrt{77}i}{308}$	0	0	$\frac{9\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{1155}}{616}$	0	$-\frac{\sqrt{1155}i}{308}$	0	0	$\frac{5\sqrt{770}}{1232}$		
	0	$-\frac{2\sqrt{77}i}{77}$	0	$-\frac{13\sqrt{77}}{616}$	0	0	$-\frac{13\sqrt{462}}{3696}$	0	0	$\frac{\sqrt{1155}i}{308}$	0	$\frac{5\sqrt{1155}}{1848}$	0	0	0	
	$\frac{2\sqrt{77}i}{77}$	0	$-\frac{13\sqrt{77}}{616}$	0	0	0	0	$\frac{13\sqrt{462}}{3696}$	$-\frac{\sqrt{1155}i}{308}$	0	$\frac{5\sqrt{1155}}{1848}$	0	0	0		
	$\frac{\sqrt{462}}{176}$	0	0	0	0	$\frac{\sqrt{77}}{308}$	0	$-\frac{3\sqrt{77}i}{616}$	$-\frac{5\sqrt{770}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{308}$		
	0	$-\frac{\sqrt{462}}{176}$	0	0	$\frac{\sqrt{77}}{308}$	0	$\frac{3\sqrt{77}i}{616}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}}{308}$	0		
1013	symmetry	$\frac{\sqrt{15z(x-y)(x+y)}}{2}$														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(B, 4)$	0	0 0 0 0 0 $\frac{\sqrt{770}}{616}$ 0 $-\frac{\sqrt{770}i}{616}$ $\frac{3\sqrt{77}}{154}$ 0 0 0 0 $-\frac{\sqrt{462}}{88}$
	0	0 0 0 0 $\frac{\sqrt{770}}{616}$ 0 $\frac{\sqrt{770}i}{616}$ 0 0 $-\frac{3\sqrt{77}}{154}$ 0 0 $-\frac{\sqrt{462}}{88}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{770}i}{616}$ 0 $\frac{\sqrt{770}}{616}$ 0 0 $\frac{3\sqrt{77}}{154}$ 0 0 $\frac{\sqrt{462}i}{88}$
	0	0 0 0 0 $-\frac{\sqrt{770}i}{616}$ 0 $\frac{\sqrt{770}}{616}$ 0 0 0 0 $-\frac{3\sqrt{77}}{154}$ $-\frac{\sqrt{462}i}{88}$ 0
	0	$\frac{\sqrt{770}}{616}$ 0 $\frac{\sqrt{770}i}{616}$ 0 0 0 0 0 $\frac{\sqrt{462}}{616}$ 0 $-\frac{\sqrt{462}i}{616}$ $-\frac{\sqrt{77}}{154}$ 0
	$\frac{\sqrt{770}}{616}$	0 $-\frac{\sqrt{770}i}{616}$ 0 0 0 0 0 0 $\frac{\sqrt{462}}{616}$ 0 $\frac{\sqrt{462}i}{616}$ 0 0 $\frac{\sqrt{77}}{154}$
	0	$-\frac{\sqrt{770}i}{616}$ 0 $\frac{\sqrt{770}}{616}$ 0 0 0 0 0 0 $-\frac{\sqrt{462}i}{168}$ 0 $-\frac{\sqrt{462}}{168}$ 0 0 0
	$\frac{\sqrt{770}i}{616}$	0 $\frac{\sqrt{770}}{616}$ 0 0 0 0 0 0 $\frac{\sqrt{462}i}{168}$ 0 $-\frac{\sqrt{462}}{168}$ 0 0 0 0
	$\frac{3\sqrt{77}}{154}$	0 0 0 0 $\frac{\sqrt{462}}{616}$ 0 $-\frac{\sqrt{462}i}{168}$ $\frac{\sqrt{1155}}{231}$ 0 0 0 0 0 $-\frac{\sqrt{770}}{616}$
	0	$-\frac{3\sqrt{77}}{154}$ 0 0 $\frac{\sqrt{462}}{616}$ 0 $\frac{\sqrt{462}i}{168}$ 0 0 $-\frac{\sqrt{1155}}{231}$ 0 0 $-\frac{\sqrt{770}}{616}$ 0
	0	0 $\frac{3\sqrt{77}}{154}$ 0 0 $-\frac{\sqrt{462}i}{616}$ 0 $-\frac{\sqrt{462}}{168}$ 0 0 0 $-\frac{\sqrt{1155}}{231}$ 0 0 $-\frac{\sqrt{770}i}{616}$
	0	0 0 0 $-\frac{3\sqrt{77}}{154}$ $\frac{\sqrt{462}i}{616}$ 0 $-\frac{\sqrt{462}}{168}$ 0 0 0 0 $\frac{\sqrt{1155}}{231}$ $\frac{\sqrt{770}i}{616}$ 0
	0	$-\frac{\sqrt{462}}{88}$ 0 $\frac{\sqrt{462}i}{88}$ $-\frac{\sqrt{77}}{154}$ 0 0 0 0 $-\frac{\sqrt{770}}{616}$ 0 $-\frac{\sqrt{770}i}{616}$ 0 0 0
	$-\frac{\sqrt{462}}{88}$	0 $-\frac{\sqrt{462}i}{88}$ 0 0 $\frac{\sqrt{77}}{154}$ 0 0 $-\frac{\sqrt{770}}{616}$ 0 $\frac{\sqrt{770}i}{616}$ 0 0 0 0

1014 symmetry

$$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,1;a)}(A, 1)$	0	0	0	0	0	$\frac{\sqrt{4290}i}{312}$	0	$\frac{\sqrt{4290}}{312}$	0	0	$\frac{5\sqrt{429}}{858}$	0	0	$\frac{\sqrt{286}i}{572}$	
	0	0	0	0	$-\frac{\sqrt{4290}i}{312}$	0	$\frac{\sqrt{4290}}{312}$	0	0	0	$-\frac{5\sqrt{429}}{858}$	$-\frac{\sqrt{286}i}{572}$	0		
	0	0	0	0	0	$\frac{\sqrt{4290}}{312}$	0	$-\frac{\sqrt{4290}i}{312}$	$\frac{5\sqrt{429}}{858}$	0	0	0	0	$-\frac{\sqrt{286}}{572}$	
	0	0	0	0	$\frac{\sqrt{4290}}{312}$	0	$\frac{\sqrt{4290}i}{312}$	0	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{\sqrt{286}}{572}$	0	
	0	$\frac{\sqrt{4290}i}{312}$	0	$\frac{\sqrt{4290}}{312}$	0	0	$\frac{\sqrt{715}}{143}$	0	0	$\frac{3\sqrt{286}i}{1144}$	0	$-\frac{3\sqrt{286}}{1144}$	0	0	
	$-\frac{\sqrt{4290}i}{312}$	0	$\frac{\sqrt{4290}}{312}$	0	0	0	0	$-\frac{\sqrt{715}}{143}$	$-\frac{3\sqrt{286}i}{1144}$	0	$-\frac{3\sqrt{286}}{1144}$	0	0	0	
	0	$\frac{\sqrt{4290}}{312}$	0	$-\frac{\sqrt{4290}i}{312}$	$\frac{\sqrt{715}}{143}$	0	0	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$-\frac{3\sqrt{286}i}{1144}$	0	0	
	$\frac{\sqrt{4290}}{312}$	0	$\frac{\sqrt{4290}i}{312}$	0	0	$-\frac{\sqrt{715}}{143}$	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$\frac{3\sqrt{286}i}{1144}$	0	0	0	
	0	0	$\frac{5\sqrt{429}}{858}$	0	0	$\frac{3\sqrt{286}i}{1144}$	0	$-\frac{3\sqrt{286}}{1144}$	0	0	0	0	0	0	
	0	0	0	$-\frac{5\sqrt{429}}{858}$	$-\frac{3\sqrt{286}i}{1144}$	0	$-\frac{3\sqrt{286}}{1144}$	0	0	0	0	0	0	0	
	$\frac{5\sqrt{429}}{858}$	0	0	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$-\frac{3\sqrt{286}i}{1144}$	0	0	0	0	0	0	
	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$\frac{3\sqrt{286}i}{1144}$	0	0	0	0	0	0	0	
	0	$\frac{\sqrt{286}i}{572}$	0	$-\frac{\sqrt{286}}{572}$	0	0	0	0	0	0	0	0	0	0	
	$-\frac{\sqrt{286}i}{572}$	0	$-\frac{\sqrt{286}}{572}$	0	0	0	0	0	0	0	0	0	0	0	
1015	symmetry	$\frac{\sqrt{105xyz(x^2+y^2-2z^2)}}{2}$													

continued ...

Table 10

No.	multipole	matrix															
$\mathbb{M}_5^{(1,1;a)}(A, 2)$	0	0	0	0	0	$-\frac{\sqrt{1430}i}{3432}$	0	$-\frac{\sqrt{1430}}{3432}$	0	0	$-\frac{2\sqrt{143}}{429}$	0	0	$-\frac{\sqrt{858}i}{286}$			
	0	0	0	0	$\frac{\sqrt{1430}i}{3432}$	0	$-\frac{\sqrt{1430}}{3432}$	0	0	0	$\frac{2\sqrt{143}}{429}$	$\frac{\sqrt{858}i}{286}$	0				
	0	0	0	0	0	$\frac{\sqrt{1430}}{3432}$	0	$-\frac{\sqrt{1430}i}{3432}$	$\frac{2\sqrt{143}}{429}$	0	0	0	0	$-\frac{\sqrt{858}}{286}$			
	0	0	0	0	$\frac{\sqrt{1430}}{3432}$	0	$-\frac{\sqrt{1430}i}{3432}$	0	0	$-\frac{2\sqrt{143}}{429}$	0	0	$-\frac{\sqrt{858}}{286}$	0			
	0	$-\frac{\sqrt{1430}i}{3432}$	0	$\frac{\sqrt{1430}}{3432}$	0	0	0	0	0	$-\frac{\sqrt{858}i}{264}$	0	$-\frac{\sqrt{858}}{264}$	0	0	0		
	$\frac{\sqrt{1430}i}{3432}$	0	$\frac{\sqrt{1430}}{3432}$	0	0	0	0	0	$\frac{\sqrt{858}i}{264}$	0	$-\frac{\sqrt{858}}{264}$	0	0	0			
	0	$-\frac{\sqrt{1430}}{3432}$	0	$-\frac{\sqrt{1430}i}{3432}$	0	0	0	0	0	$-\frac{23\sqrt{858}}{3432}$	0	$\frac{23\sqrt{858}i}{3432}$	$-\frac{8\sqrt{143}}{429}$	0			
	$-\frac{\sqrt{1430}}{3432}$	0	$\frac{\sqrt{1430}i}{3432}$	0	0	0	0	0	$-\frac{23\sqrt{858}}{3432}$	0	$-\frac{23\sqrt{858}i}{3432}$	0	0	$\frac{8\sqrt{143}}{429}$			
	0	0	$\frac{2\sqrt{143}}{429}$	0	0	$-\frac{\sqrt{858}i}{264}$	0	$-\frac{23\sqrt{858}}{3432}$	0	0	$-\frac{2\sqrt{2145}}{429}$	0	0	$-\frac{5\sqrt{1430}i}{1716}$			
	0	0	0	$-\frac{2\sqrt{143}}{429}$	$\frac{\sqrt{858}i}{264}$	0	$-\frac{23\sqrt{858}}{3432}$	0	0	0	$\frac{2\sqrt{2145}}{429}$	$\frac{5\sqrt{1430}i}{1716}$	0				
	$-\frac{2\sqrt{143}}{429}$	0	0	0	0	$-\frac{\sqrt{858}}{264}$	0	$\frac{23\sqrt{858}i}{3432}$	$-\frac{2\sqrt{2145}}{429}$	0	0	0	0	$\frac{5\sqrt{1430}}{1716}$			
	0	$\frac{2\sqrt{143}}{429}$	0	0	$-\frac{\sqrt{858}}{264}$	0	$-\frac{23\sqrt{858}i}{3432}$	0	0	$\frac{2\sqrt{2145}}{429}$	0	0	$\frac{5\sqrt{1430}}{1716}$	0			
	0	$-\frac{\sqrt{858}i}{286}$	0	$-\frac{\sqrt{858}}{286}$	0	0	$-\frac{8\sqrt{143}}{429}$	0	0	$-\frac{5\sqrt{1430}i}{1716}$	0	$\frac{5\sqrt{1430}}{1716}$	0	0	0		
	$\frac{\sqrt{858}i}{286}$	0	$-\frac{\sqrt{858}}{286}$	0	0	0	0	$\frac{8\sqrt{143}}{429}$	$\frac{5\sqrt{1430}i}{1716}$	0	$\frac{5\sqrt{1430}}{1716}$	0	0	0	0		
1016	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$															

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,1;a)}(A, 3)$	0	$\frac{113\sqrt{1001}i}{16016}$	0	$\frac{3\sqrt{1001}}{416}$	0	0	$\frac{7\sqrt{6006}}{6864}$	0	0	$\frac{\sqrt{15015}i}{2288}$	0	$\frac{7\sqrt{15015}}{13728}$	0	0	0	
	$-\frac{113\sqrt{1001}i}{16016}$	0	$\frac{3\sqrt{1001}}{416}$	0	0	0	0	$-\frac{7\sqrt{6006}}{6864}$	$-\frac{\sqrt{15015}i}{2288}$	0	$\frac{7\sqrt{15015}}{13728}$	0	0	0		
	0	$\frac{3\sqrt{1001}}{416}$	0	$-\frac{59\sqrt{1001}i}{8008}$	$\frac{19\sqrt{6006}}{13728}$	0	0	0	0	$\frac{5\sqrt{15015}}{13728}$	0	$-\frac{\sqrt{15015}i}{1144}$	$\frac{3\sqrt{10010}}{4576}$	0		
	$\frac{3\sqrt{1001}}{416}$	0	$\frac{59\sqrt{1001}i}{8008}$	0	0	$-\frac{19\sqrt{6006}}{13728}$	0	0	$\frac{5\sqrt{15015}}{13728}$	0	$\frac{\sqrt{15015}i}{1144}$	0	0	$-\frac{3\sqrt{10010}}{4576}$		
	0	0	$\frac{19\sqrt{6006}}{13728}$	0	0	$\frac{3\sqrt{1001}i}{616}$	0	$\frac{3\sqrt{1001}}{1144}$	0	0	$\frac{7\sqrt{10010}}{4576}$	0	0	$\frac{\sqrt{15015}i}{1144}$		
	0	0	0	$-\frac{19\sqrt{6006}}{13728}$	$-\frac{3\sqrt{1001}i}{616}$	0	$\frac{3\sqrt{1001}}{1144}$	0	0	0	0	$-\frac{7\sqrt{10010}}{4576}$	$-\frac{\sqrt{15015}i}{1144}$	0		
	$\frac{7\sqrt{6006}}{6864}$	0	0	0	0	$\frac{3\sqrt{1001}}{1144}$	0	$-\frac{3\sqrt{1001}i}{1001}$	$\frac{\sqrt{10010}}{2288}$	0	0	0	0	$\frac{\sqrt{15015}}{3432}$		
	0	$-\frac{7\sqrt{6006}}{6864}$	0	0	$\frac{3\sqrt{1001}}{1144}$	0	$\frac{3\sqrt{1001}i}{1001}$	0	0	$-\frac{\sqrt{10010}}{2288}$	0	0	$\frac{\sqrt{15015}}{3432}$	0		
	0	$\frac{\sqrt{15015}i}{2288}$	0	$\frac{5\sqrt{15015}}{13728}$	0	0	$\frac{\sqrt{10010}}{2288}$	0	0	$\frac{15\sqrt{1001}i}{16016}$	0	$\frac{5\sqrt{1001}}{4576}$	0	0		
	$-\frac{\sqrt{15015}i}{2288}$	0	$\frac{5\sqrt{15015}}{13728}$	0	0	0	0	$-\frac{\sqrt{10010}}{2288}$	$-\frac{15\sqrt{1001}i}{16016}$	0	$\frac{5\sqrt{1001}}{4576}$	0	0	0		
	0	$\frac{7\sqrt{15015}}{13728}$	0	$-\frac{\sqrt{15015}i}{1144}$	$\frac{7\sqrt{10010}}{4576}$	0	0	0	0	$\frac{5\sqrt{1001}}{4576}$	0	$-\frac{45\sqrt{1001}i}{8008}$	$\frac{25\sqrt{6006}}{13728}$	0		
	$\frac{7\sqrt{15015}}{13728}$	0	$\frac{\sqrt{15015}i}{1144}$	0	0	$-\frac{7\sqrt{10010}}{4576}$	0	0	$\frac{5\sqrt{1001}}{4576}$	0	$\frac{45\sqrt{1001}i}{8008}$	0	0	$-\frac{25\sqrt{6006}}{13728}$		
	0	0	$\frac{3\sqrt{10010}}{4576}$	0	0	$\frac{\sqrt{15015}i}{1144}$	0	$\frac{\sqrt{15015}}{3432}$	0	0	$\frac{25\sqrt{6006}}{13728}$	0	0	$\frac{25\sqrt{1001}i}{8008}$		
	0	0	0	$-\frac{3\sqrt{10010}}{4576}$	$-\frac{\sqrt{15015}i}{1144}$	0	$\frac{\sqrt{15015}}{3432}$	0	0	0	0	$-\frac{25\sqrt{6006}}{13728}$	$-\frac{25\sqrt{1001}i}{8008}$	0		

1017 symmetry

$$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$$

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,1;a)}(A, 4)$	0	$\frac{5\sqrt{715}i}{2288}$	0	$\frac{\sqrt{715}}{416}$	0	0	$\frac{\sqrt{4290}}{6864}$	0	0	$-\frac{35\sqrt{429}i}{6864}$	0	$-\frac{47\sqrt{429}}{13728}$	0	0	0	
	$-\frac{5\sqrt{715}i}{2288}$	0	$\frac{\sqrt{715}}{416}$	0	0	0	0	$-\frac{\sqrt{4290}}{6864}$	$\frac{35\sqrt{429}i}{6864}$	0	$-\frac{47\sqrt{429}}{13728}$	0	0	0	0	
	0	$\frac{\sqrt{715}}{416}$	0	$-\frac{3\sqrt{715}i}{1144}$	$\frac{3\sqrt{4290}}{4576}$	0	0	0	0	$-\frac{31\sqrt{429}}{4576}$	0	$\frac{5\sqrt{429}i}{1144}$	$-\frac{27\sqrt{286}}{4576}$	0	0	
	$\frac{\sqrt{715}}{416}$	0	$\frac{3\sqrt{715}i}{1144}$	0	0	$-\frac{3\sqrt{4290}}{4576}$	0	0	$-\frac{31\sqrt{429}}{4576}$	0	$-\frac{5\sqrt{429}i}{1144}$	0	0	$\frac{27\sqrt{286}}{4576}$	0	
	0	0	$\frac{3\sqrt{4290}}{4576}$	0	0	$-\frac{5\sqrt{715}i}{1144}$	0	$-\frac{7\sqrt{715}}{1144}$	0	0	$-\frac{23\sqrt{286}}{4576}$	0	0	$\frac{5\sqrt{429}i}{3432}$	0	
	0	0	0	$-\frac{3\sqrt{4290}}{4576}$	$\frac{5\sqrt{715}i}{1144}$	0	$-\frac{7\sqrt{715}}{1144}$	0	0	0	0	$\frac{23\sqrt{286}}{4576}$	$-\frac{5\sqrt{429}i}{3432}$	0	0	
	$\frac{\sqrt{4290}}{6864}$	0	0	0	0	$-\frac{7\sqrt{715}}{1144}$	0	$\frac{\sqrt{715}i}{143}$	$-\frac{29\sqrt{286}}{2288}$	0	0	0	0	$\frac{23\sqrt{429}}{3432}$	0	
	0	$-\frac{\sqrt{4290}}{6864}$	0	0	$-\frac{7\sqrt{715}}{1144}$	0	$-\frac{\sqrt{715}i}{143}$	0	0	$\frac{29\sqrt{286}}{2288}$	0	0	$\frac{23\sqrt{429}}{3432}$	0	0	
	0	$-\frac{35\sqrt{429}i}{6864}$	0	$-\frac{31\sqrt{429}}{4576}$	0	0	$-\frac{29\sqrt{286}}{2288}$	0	0	$-\frac{5\sqrt{715}i}{2288}$	0	$\frac{23\sqrt{715}}{4576}$	0	0	0	
	$\frac{35\sqrt{429}i}{6864}$	0	$-\frac{31\sqrt{429}}{4576}$	0	0	0	0	$\frac{29\sqrt{286}}{2288}$	$\frac{5\sqrt{715}i}{2288}$	0	$\frac{23\sqrt{715}}{4576}$	0	0	0	0	
	0	$-\frac{47\sqrt{429}}{13728}$	0	$\frac{5\sqrt{429}i}{1144}$	$-\frac{23\sqrt{286}}{4576}$	0	0	0	0	$\frac{23\sqrt{715}}{4576}$	0	$-\frac{5\sqrt{715}i}{1144}$	$\frac{35\sqrt{4290}}{13728}$	0	0	
	$-\frac{47\sqrt{429}}{13728}$	0	$-\frac{5\sqrt{429}i}{1144}$	0	0	$\frac{23\sqrt{286}}{4576}$	0	0	$\frac{23\sqrt{715}}{4576}$	0	$\frac{5\sqrt{715}i}{1144}$	0	0	$-\frac{35\sqrt{4290}}{13728}$	0	
	0	0	$-\frac{27\sqrt{286}}{4576}$	0	0	$\frac{5\sqrt{429}i}{3432}$	0	$\frac{23\sqrt{429}}{3432}$	0	0	$\frac{35\sqrt{4290}}{13728}$	0	0	$\frac{5\sqrt{715}i}{1144}$	0	
	0	0	0	$\frac{27\sqrt{286}}{4576}$	$-\frac{5\sqrt{429}i}{3432}$	0	$\frac{23\sqrt{429}}{3432}$	0	0	0	0	$-\frac{35\sqrt{4290}}{13728}$	$-\frac{5\sqrt{715}i}{1144}$	0	0	
1018	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,1;a)}(A, 5)$	0	$\frac{17\sqrt{2145}i}{3432}$ 0 $\frac{\sqrt{2145}}{208}$ 0 0 0 $\frac{5\sqrt{1430}}{1716}$ 0 0 $\frac{\sqrt{143}i}{3432}$ 0 $-\frac{41\sqrt{143}}{6864}$ 0 0
	$-\frac{17\sqrt{2145}i}{3432}$	0 $\frac{\sqrt{2145}}{208}$ 0 0 0 0 0 $-\frac{5\sqrt{1430}}{1716}$ $-\frac{\sqrt{143}i}{3432}$ 0 $-\frac{41\sqrt{143}}{6864}$ 0 0 0
	0	$\frac{\sqrt{2145}}{208}$ 0 $-\frac{2\sqrt{2145}i}{429}$ $\frac{\sqrt{1430}}{528}$ 0 0 0 0 $-\frac{19\sqrt{143}}{6864}$ 0 $\frac{2\sqrt{143}i}{429}$ $-\frac{3\sqrt{858}}{2288}$ 0
	$\frac{\sqrt{2145}}{208}$	0 $\frac{2\sqrt{2145}i}{429}$ 0 0 0 $-\frac{\sqrt{1430}}{528}$ 0 0 $-\frac{19\sqrt{143}}{6864}$ 0 $-\frac{2\sqrt{143}i}{429}$ 0 0 $\frac{3\sqrt{858}}{2288}$
	0	0 $\frac{\sqrt{1430}}{528}$ 0 0 0 $-\frac{\sqrt{2145}i}{572}$ 0 0 $-\frac{\sqrt{2145}}{572}$ 0 0 $-\frac{31\sqrt{858}}{6864}$ 0 0 $-\frac{17\sqrt{143}i}{1716}$
	0	0 0 $-\frac{\sqrt{1430}}{528}$ $\frac{\sqrt{2145}i}{572}$ 0 $-\frac{\sqrt{2145}}{572}$ 0 0 0 0 $\frac{31\sqrt{858}}{6864}$ $\frac{17\sqrt{143}i}{1716}$ 0
	$\frac{5\sqrt{1430}}{1716}$	0 0 0 0 0 $-\frac{\sqrt{2145}}{572}$ 0 0 $\frac{\sqrt{858}}{1716}$ 0 0 0 0 $-\frac{\sqrt{143}}{156}$
	0	$-\frac{5\sqrt{1430}}{1716}$ 0 0 $-\frac{\sqrt{2145}}{572}$ 0 0 0 0 $-\frac{\sqrt{858}}{1716}$ 0 0 $-\frac{\sqrt{143}}{156}$ 0
	0	$\frac{\sqrt{143}i}{3432}$ 0 $-\frac{19\sqrt{143}}{6864}$ 0 0 $\frac{\sqrt{858}}{1716}$ 0 0 $-\frac{\sqrt{2145}i}{3432}$ 0 $-\frac{\sqrt{2145}}{624}$ 0 0
	$-\frac{\sqrt{143}i}{3432}$	0 $-\frac{19\sqrt{143}}{6864}$ 0 0 0 0 $-\frac{\sqrt{858}}{1716}$ $\frac{\sqrt{2145}i}{3432}$ 0 $-\frac{\sqrt{2145}}{624}$ 0 0 0
	0	$-\frac{41\sqrt{143}}{6864}$ 0 $\frac{2\sqrt{143}i}{429}$ $-\frac{31\sqrt{858}}{6864}$ 0 0 0 0 $-\frac{\sqrt{2145}}{624}$ 0 $\frac{2\sqrt{2145}i}{429}$ $-\frac{35\sqrt{1430}}{6864}$ 0
	$-\frac{41\sqrt{143}}{6864}$	0 $-\frac{2\sqrt{143}i}{429}$ 0 0 $\frac{31\sqrt{858}}{6864}$ 0 0 $-\frac{\sqrt{2145}}{624}$ 0 $-\frac{2\sqrt{2145}i}{429}$ 0 0 $\frac{35\sqrt{1430}}{6864}$
	0	0 $-\frac{3\sqrt{858}}{2288}$ 0 0 $-\frac{17\sqrt{143}i}{1716}$ 0 $-\frac{\sqrt{143}}{156}$ 0 0 $-\frac{35\sqrt{1430}}{6864}$ 0 0 $-\frac{5\sqrt{2145}i}{1716}$
	0	0 0 0 $\frac{3\sqrt{858}}{2288}$ $\frac{17\sqrt{143}i}{1716}$ 0 $-\frac{\sqrt{143}}{156}$ 0 0 0 0 $\frac{35\sqrt{1430}}{6864}$ $\frac{5\sqrt{2145}i}{1716}$ 0
1019	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,1;a)}(B, 1)$	0	$\frac{59\sqrt{1001}}{8008}$	0	$-\frac{3\sqrt{1001}i}{416}$	$\frac{19\sqrt{6006}}{13728}$	0	0	0	0	$-\frac{\sqrt{15015}}{1144}$	0	$\frac{5\sqrt{15015}i}{13728}$	$-\frac{3\sqrt{10010}}{4576}$	0	
	$\frac{59\sqrt{1001}}{8008}$	0	$\frac{3\sqrt{1001}i}{416}$	0	0	$-\frac{19\sqrt{6006}}{13728}$	0	0	$-\frac{\sqrt{15015}}{1144}$	0	$-\frac{5\sqrt{15015}i}{13728}$	0	0	$\frac{3\sqrt{10010}}{4576}$	
	0	$-\frac{3\sqrt{1001}i}{416}$	0	$-\frac{113\sqrt{1001}}{16016}$	0	0	$-\frac{7\sqrt{6006}}{6864}$	0	0	$\frac{7\sqrt{15015}i}{13728}$	0	$\frac{\sqrt{15015}}{2288}$	0	0	0
	$\frac{3\sqrt{1001}i}{416}$	0	$-\frac{113\sqrt{1001}}{16016}$	0	0	0	0	$\frac{7\sqrt{6006}}{6864}$	$-\frac{7\sqrt{15015}i}{13728}$	0	$\frac{\sqrt{15015}}{2288}$	0	0	0	
	$\frac{19\sqrt{6006}}{13728}$	0	0	0	0	$-\frac{3\sqrt{1001}}{616}$	0	$\frac{3\sqrt{1001}i}{1144}$	$-\frac{7\sqrt{10010}}{4576}$	0	0	0	0	$\frac{\sqrt{15015}}{1144}$	
	0	$-\frac{19\sqrt{6006}}{13728}$	0	0	$-\frac{3\sqrt{1001}}{616}$	0	$-\frac{3\sqrt{1001}i}{1144}$	0	0	$\frac{7\sqrt{10010}}{4576}$	0	0	$\frac{\sqrt{15015}}{1144}$	0	
	0	0	$-\frac{7\sqrt{6006}}{6864}$	0	0	$\frac{3\sqrt{1001}i}{1144}$	0	$\frac{3\sqrt{1001}}{1001}$	0	0	$\frac{\sqrt{10010}}{2288}$	0	0	$-\frac{\sqrt{15015}i}{3432}$	
	0	0	0	$\frac{7\sqrt{6006}}{6864}$	$-\frac{3\sqrt{1001}i}{1144}$	0	$\frac{3\sqrt{1001}}{1001}$	0	0	0	0	$-\frac{\sqrt{10010}}{2288}$	$\frac{\sqrt{15015}i}{3432}$	0	
	0	$-\frac{\sqrt{15015}}{1144}$	0	$\frac{7\sqrt{15015}i}{13728}$	$-\frac{7\sqrt{10010}}{4576}$	0	0	0	0	$\frac{45\sqrt{1001}}{8008}$	0	$-\frac{5\sqrt{1001}i}{4576}$	$\frac{25\sqrt{6006}}{13728}$	0	
	$-\frac{\sqrt{15015}}{1144}$	0	$-\frac{7\sqrt{15015}i}{13728}$	0	$\frac{7\sqrt{10010}}{4576}$	0	0	$\frac{45\sqrt{1001}}{8008}$	0	$\frac{5\sqrt{1001}i}{4576}$	0	0	0	$-\frac{25\sqrt{6006}}{13728}$	
1020	symmetry	$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,1;a)}(B, 2)$	$-\frac{\sqrt{1001}}{2002}$	0	0	0	0	$\frac{\sqrt{6006}}{3432}$	0	$\frac{\sqrt{6006}i}{3432}$	0	0	0	0	0	0	0	0
	0	$\frac{\sqrt{1001}}{2002}$	0	0	$\frac{\sqrt{6006}}{3432}$	0	$-\frac{\sqrt{6006}i}{3432}$	0	0	0	0	0	0	0	0	0
	0	0	$-\frac{\sqrt{1001}}{2002}$	0	0	$-\frac{\sqrt{6006}i}{3432}$	0	$\frac{\sqrt{6006}}{3432}$	0	0	0	0	0	0	0	0
	0	0	0	$\frac{\sqrt{1001}}{2002}$	$\frac{\sqrt{6006}i}{3432}$	0	$\frac{\sqrt{6006}}{3432}$	0	0	0	0	0	0	0	0	0
	0	$\frac{\sqrt{6006}}{3432}$	0	$-\frac{\sqrt{6006}i}{3432}$	$\frac{3\sqrt{1001}}{1001}$	0	0	0	0	$-\frac{\sqrt{10010}}{1144}$	0	$-\frac{\sqrt{10010}i}{1144}$	0	0	0	0
	$\frac{\sqrt{6006}}{3432}$	0	$\frac{\sqrt{6006}i}{3432}$	0	0	$-\frac{3\sqrt{1001}}{1001}$	0	0	$-\frac{\sqrt{10010}}{1144}$	0	$\frac{\sqrt{10010}i}{1144}$	0	0	0	0	0
	0	$\frac{\sqrt{6006}i}{3432}$	0	$\frac{\sqrt{6006}}{3432}$	0	0	$\frac{3\sqrt{1001}}{1001}$	0	0	$\frac{\sqrt{10010}i}{1144}$	0	$-\frac{\sqrt{10010}}{1144}$	0	0	0	0
	$-\frac{\sqrt{6006}i}{3432}$	0	$\frac{\sqrt{6006}}{3432}$	0	0	0	0	$-\frac{3\sqrt{1001}}{1001}$	$-\frac{\sqrt{10010}i}{1144}$	0	$-\frac{\sqrt{10010}}{1144}$	0	0	0	0	0
	0	0	0	0	0	$-\frac{\sqrt{10010}}{1144}$	0	$\frac{\sqrt{10010}i}{1144}$	$-\frac{15\sqrt{1001}}{2002}$	0	0	0	0	$\frac{5\sqrt{6006}}{1716}$	0	
	0	0	0	0	$-\frac{\sqrt{10010}}{1144}$	0	$-\frac{\sqrt{10010}i}{1144}$	0	0	$\frac{15\sqrt{1001}}{2002}$	0	0	$\frac{5\sqrt{6006}}{1716}$	0	0	0
	0	0	0	0	$\frac{\sqrt{10010}i}{1144}$	0	$-\frac{\sqrt{10010}}{1144}$	0	0	0	$-\frac{15\sqrt{1001}}{2002}$	0	0	$-\frac{5\sqrt{6006}i}{1716}$	0	0
	0	0	0	0	0	0	0	0	$\frac{5\sqrt{6006}}{1716}$	0	$-\frac{5\sqrt{6006}i}{1716}$	$\frac{10\sqrt{1001}}{1001}$	0	0	0	0
	0	0	0	0	0	0	0	$\frac{5\sqrt{6006}}{1716}$	0	$\frac{5\sqrt{6006}i}{1716}$	0	0	0	$-\frac{10\sqrt{1001}}{1001}$	0	0
1021	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,1;a)}(B, 3)$	0	$\begin{pmatrix} 0 & \frac{3\sqrt{715}}{1144} & 0 & -\frac{\sqrt{715}i}{416} & \frac{3\sqrt{4290}}{4576} & 0 & 0 & 0 & 0 & \frac{5\sqrt{429}}{1144} & 0 & -\frac{31\sqrt{429}i}{4576} & \frac{27\sqrt{286}}{4576} & 0 \\ \frac{3\sqrt{715}}{1144} & 0 & \frac{\sqrt{715}i}{416} & 0 & 0 & -\frac{3\sqrt{4290}}{4576} & 0 & 0 & 0 & \frac{5\sqrt{429}}{1144} & 0 & \frac{31\sqrt{429}i}{4576} & 0 & 0 & -\frac{27\sqrt{286}}{4576} \\ 0 & -\frac{\sqrt{715}i}{416} & 0 & -\frac{5\sqrt{715}}{2288} & 0 & 0 & -\frac{\sqrt{4290}}{6864} & 0 & 0 & -\frac{47\sqrt{429}i}{13728} & 0 & -\frac{35\sqrt{429}}{6864} & 0 & 0 & 0 \\ \frac{\sqrt{715}i}{416} & 0 & -\frac{5\sqrt{715}}{2288} & 0 & 0 & 0 & 0 & \frac{\sqrt{4290}}{6864} & \frac{47\sqrt{429}i}{13728} & 0 & -\frac{35\sqrt{429}}{6864} & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{4290}}{4576} & 0 & 0 & 0 & 0 & \frac{5\sqrt{715}}{1144} & 0 & -\frac{7\sqrt{715}i}{1144} & \frac{23\sqrt{286}}{4576} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{429}}{3432} \\ 0 & -\frac{3\sqrt{4290}}{4576} & 0 & 0 & \frac{5\sqrt{715}}{1144} & 0 & \frac{7\sqrt{715}i}{1144} & 0 & 0 & -\frac{23\sqrt{286}}{4576} & 0 & 0 & \frac{5\sqrt{429}}{3432} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{4290}}{6864} & 0 & 0 & -\frac{7\sqrt{715}i}{1144} & 0 & -\frac{\sqrt{715}}{143} & 0 & 0 & -\frac{29\sqrt{286}}{2288} & 0 & 0 & 0 & -\frac{23\sqrt{429}i}{3432} \\ 0 & 0 & 0 & \frac{\sqrt{4290}}{6864} & \frac{7\sqrt{715}i}{1144} & 0 & -\frac{\sqrt{715}}{143} & 0 & 0 & 0 & 0 & \frac{29\sqrt{286}}{2288} & \frac{23\sqrt{429}i}{3432} & 0 & 0 \\ 0 & \frac{5\sqrt{429}}{1144} & 0 & -\frac{47\sqrt{429}i}{13728} & \frac{23\sqrt{286}}{4576} & 0 & 0 & 0 & 0 & \frac{5\sqrt{715}}{1144} & 0 & -\frac{23\sqrt{715}i}{4576} & \frac{35\sqrt{4290}}{13728} & 0 & 0 \\ \frac{5\sqrt{429}}{1144} & 0 & \frac{47\sqrt{429}i}{13728} & 0 & 0 & -\frac{23\sqrt{286}}{4576} & 0 & 0 & \frac{5\sqrt{715}}{1144} & 0 & \frac{23\sqrt{715}i}{4576} & 0 & 0 & 0 & -\frac{35\sqrt{4290}}{13728} \\ 0 & -\frac{31\sqrt{429}i}{4576} & 0 & -\frac{35\sqrt{429}}{6864} & 0 & 0 & -\frac{29\sqrt{286}}{2288} & 0 & 0 & -\frac{23\sqrt{715}i}{4576} & 0 & \frac{5\sqrt{715}}{2288} & 0 & 0 & 0 \\ \frac{31\sqrt{429}i}{4576} & 0 & -\frac{35\sqrt{429}}{6864} & 0 & 0 & 0 & 0 & \frac{29\sqrt{286}}{2288} & \frac{23\sqrt{715}i}{4576} & 0 & \frac{5\sqrt{715}}{2288} & 0 & 0 & 0 & 0 \\ \frac{27\sqrt{286}}{4576} & 0 & 0 & 0 & 0 & \frac{5\sqrt{429}}{3432} & 0 & -\frac{23\sqrt{429}i}{3432} & \frac{35\sqrt{4290}}{13728} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{715}}{1144} \\ 0 & -\frac{27\sqrt{286}}{4576} & 0 & 0 & \frac{5\sqrt{429}}{3432} & 0 & \frac{23\sqrt{429}i}{3432} & 0 & 0 & -\frac{35\sqrt{4290}}{13728} & 0 & 0 & 0 & -\frac{5\sqrt{715}}{1144} & 0 \end{pmatrix}$

1022 symmetry

$$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,1;a)}(B, 4)$	0	0	0	0	0	$\frac{\sqrt{4290}}{312}$	0	$-\frac{\sqrt{4290}i}{312}$	$\frac{5\sqrt{429}}{858}$	0	0	0	0	$-\frac{\sqrt{286}}{572}$	
	0	0	0	0	$\frac{\sqrt{4290}}{312}$	0	$\frac{\sqrt{4290}i}{312}$	0	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{\sqrt{286}}{572}$	0	
	0	0	0	0	0	$-\frac{\sqrt{4290}i}{312}$	0	$-\frac{\sqrt{4290}}{312}$	0	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{\sqrt{286}i}{572}$	
	0	0	0	0	$\frac{\sqrt{4290}i}{312}$	0	$-\frac{\sqrt{4290}}{312}$	0	0	0	0	$\frac{5\sqrt{429}}{858}$	$\frac{\sqrt{286}i}{572}$	0	
	0	$\frac{\sqrt{4290}}{312}$	0	$-\frac{\sqrt{4290}i}{312}$	$\frac{\sqrt{715}}{143}$	0	0	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$-\frac{3\sqrt{286}i}{1144}$	0	0	
	$\frac{\sqrt{4290}}{312}$	0	$\frac{\sqrt{4290}i}{312}$	0	0	$-\frac{\sqrt{715}}{143}$	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$\frac{3\sqrt{286}i}{1144}$	0	0	0	
	0	$-\frac{\sqrt{4290}i}{312}$	0	$-\frac{\sqrt{4290}}{312}$	0	0	$-\frac{\sqrt{715}}{143}$	0	0	$-\frac{3\sqrt{286}i}{1144}$	0	$\frac{3\sqrt{286}}{1144}$	0	0	
	$\frac{\sqrt{4290}i}{312}$	0	$-\frac{\sqrt{4290}}{312}$	0	0	0	0	$\frac{\sqrt{715}}{143}$	$\frac{3\sqrt{286}i}{1144}$	0	$\frac{3\sqrt{286}}{1144}$	0	0	0	
	$\frac{5\sqrt{429}}{858}$	0	0	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$-\frac{3\sqrt{286}i}{1144}$	0	0	0	0	0	0	
	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$\frac{3\sqrt{286}i}{1144}$	0	0	0	0	0	0	0	
	0	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{3\sqrt{286}i}{1144}$	0	$\frac{3\sqrt{286}}{1144}$	0	0	0	0	0	0	
	0	0	0	$\frac{5\sqrt{429}}{858}$	$\frac{3\sqrt{286}i}{1144}$	0	$\frac{3\sqrt{286}}{1144}$	0	0	0	0	0	0	0	
	0	$-\frac{\sqrt{286}}{572}$	0	$-\frac{\sqrt{286}i}{572}$	0	0	0	0	0	0	0	0	0	0	
	$-\frac{\sqrt{286}}{572}$	0	$\frac{\sqrt{286}i}{572}$	0	0	0	0	0	0	0	0	0	0	0	
1023	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,1;a)}(B, 5)$	0	$-\frac{2\sqrt{2145}}{429}$	0	$\frac{\sqrt{2145}i}{208}$	$-\frac{\sqrt{1430}}{528}$	0	0	0	0	$-\frac{2\sqrt{143}}{429}$	0	$\frac{19\sqrt{143}i}{6864}$	$-\frac{3\sqrt{858}}{2288}$	0		
	$-\frac{2\sqrt{2145}}{429}$	0	$-\frac{\sqrt{2145}i}{208}$	0	0	$\frac{\sqrt{1430}}{528}$	0	0	$-\frac{2\sqrt{143}}{429}$	0	$-\frac{19\sqrt{143}i}{6864}$	0	0	$\frac{3\sqrt{858}}{2288}$		
	0	$\frac{\sqrt{2145}i}{208}$	0	$\frac{17\sqrt{2145}}{3432}$	0	0	$\frac{5\sqrt{1430}}{1716}$	0	0	$\frac{41\sqrt{143}i}{6864}$	0	$-\frac{\sqrt{143}}{3432}$	0	0	0	
	$-\frac{\sqrt{2145}i}{208}$	0	$\frac{17\sqrt{2145}}{3432}$	0	0	0	0	$-\frac{5\sqrt{1430}}{1716}$	$-\frac{41\sqrt{143}i}{6864}$	0	$-\frac{\sqrt{143}}{3432}$	0	0	0	0	
	$-\frac{\sqrt{1430}}{528}$	0	0	0	0	$-\frac{\sqrt{2145}}{572}$	0	$\frac{\sqrt{2145}i}{572}$	$-\frac{31\sqrt{858}}{6864}$	0	0	0	0	$\frac{17\sqrt{143}}{1716}$		
	0	$\frac{\sqrt{1430}}{528}$	0	0	$-\frac{\sqrt{2145}}{572}$	0	$-\frac{\sqrt{2145}i}{572}$	0	0	$\frac{31\sqrt{858}}{6864}$	0	0	$\frac{17\sqrt{143}}{1716}$	0		
	0	0	$\frac{5\sqrt{1430}}{1716}$	0	0	$\frac{\sqrt{2145}i}{572}$	0	0	0	0	$-\frac{\sqrt{858}}{1716}$	0	0	$-\frac{\sqrt{143}i}{156}$		
	0	0	0	$-\frac{5\sqrt{1430}}{1716}$	$-\frac{\sqrt{2145}i}{572}$	0	0	0	0	0	$\frac{\sqrt{858}}{1716}$	$\frac{\sqrt{143}i}{156}$	0			
	0	$-\frac{2\sqrt{143}}{429}$	0	$\frac{41\sqrt{143}i}{6864}$	$-\frac{31\sqrt{858}}{6864}$	0	0	0	0	$\frac{2\sqrt{2145}}{429}$	0	$-\frac{\sqrt{2145}i}{624}$	$\frac{35\sqrt{1430}}{6864}$	0		
	$-\frac{2\sqrt{143}}{429}$	0	$-\frac{41\sqrt{143}i}{6864}$	0	0	$\frac{31\sqrt{858}}{6864}$	0	0	$\frac{2\sqrt{2145}}{429}$	0	$\frac{\sqrt{2145}i}{624}$	0	0	$-\frac{35\sqrt{1430}}{6864}$		
	0	$\frac{19\sqrt{143}i}{6864}$	0	$-\frac{\sqrt{143}}{3432}$	0	0	$-\frac{\sqrt{858}}{1716}$	0	0	$-\frac{\sqrt{2145}i}{624}$	0	$-\frac{\sqrt{2145}}{3432}$	0	0	0	
	$-\frac{19\sqrt{143}i}{6864}$	0	$-\frac{\sqrt{143}}{3432}$	0	0	0	0	$\frac{\sqrt{858}}{1716}$	$\frac{\sqrt{2145}i}{624}$	0	$-\frac{\sqrt{2145}}{3432}$	0	0	0		
	$-\frac{3\sqrt{858}}{2288}$	0	0	0	0	$\frac{17\sqrt{143}}{1716}$	0	$-\frac{\sqrt{143}i}{156}$	$\frac{35\sqrt{1430}}{6864}$	0	0	0	0	$-\frac{5\sqrt{2145}}{1716}$		
	0	$\frac{3\sqrt{858}}{2288}$	0	0	$\frac{17\sqrt{143}}{1716}$	0	$\frac{\sqrt{143}i}{156}$	0	0	$-\frac{35\sqrt{1430}}{6864}$	0	0	$-\frac{5\sqrt{2145}}{1716}$	0		
1024	symmetry	$-\frac{\sqrt{105z(x-y)(x+y)(x^2+y^2-2z^2)}}{4}$														

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,1;a)}(B, 6)$	0	0	0	0	0	$-\frac{\sqrt{1430}}{3432}$	0	$\frac{\sqrt{1430}i}{3432}$	$-\frac{2\sqrt{143}}{429}$	0	0	0	$\frac{\sqrt{858}}{286}$		
	0	0	0	0	$-\frac{\sqrt{1430}}{3432}$	0	$-\frac{\sqrt{1430}i}{3432}$	0	0	$\frac{2\sqrt{143}}{429}$	0	0	$\frac{\sqrt{858}}{286}$	0	
	0	0	0	0	0	$-\frac{\sqrt{1430}i}{3432}$	0	$-\frac{\sqrt{1430}}{3432}$	0	0	$-\frac{2\sqrt{143}}{429}$	0	0	$-\frac{\sqrt{858}i}{286}$	
	0	0	0	0	$\frac{\sqrt{1430}i}{3432}$	0	$-\frac{\sqrt{1430}}{3432}$	0	0	0	0	$\frac{2\sqrt{143}}{429}$	$\frac{\sqrt{858}i}{286}$	0	
	0	$-\frac{\sqrt{1430}}{3432}$	0	$-\frac{\sqrt{1430}i}{3432}$	0	0	0	0	0	$\frac{23\sqrt{858}}{3432}$	0	$-\frac{23\sqrt{858}i}{3432}$	$\frac{8\sqrt{143}}{429}$	0	
	$-\frac{\sqrt{1430}}{3432}$	0	$\frac{\sqrt{1430}i}{3432}$	0	0	0	0	0	$\frac{23\sqrt{858}}{3432}$	0	$\frac{23\sqrt{858}i}{3432}$	0	0	$-\frac{8\sqrt{143}}{429}$	
	0	$\frac{\sqrt{1430}i}{3432}$	0	$-\frac{\sqrt{1430}}{3432}$	0	0	0	0	0	$-\frac{\sqrt{858}i}{264}$	0	$-\frac{\sqrt{858}}{264}$	0	0	
	$-\frac{\sqrt{1430}i}{3432}$	0	$-\frac{\sqrt{1430}}{3432}$	0	0	0	0	$\frac{\sqrt{858}i}{264}$	0	$-\frac{\sqrt{858}}{264}$	0	0	0		
	$-\frac{2\sqrt{143}}{429}$	0	0	0	0	$\frac{23\sqrt{858}}{3432}$	0	$-\frac{\sqrt{858}i}{264}$	$\frac{2\sqrt{2145}}{429}$	0	0	0	0	$-\frac{5\sqrt{1430}}{1716}$	
	0	$\frac{2\sqrt{143}}{429}$	0	0	$\frac{23\sqrt{858}}{3432}$	0	$\frac{\sqrt{858}i}{264}$	0	0	$-\frac{2\sqrt{2145}}{429}$	0	0	$-\frac{5\sqrt{1430}}{1716}$	0	
	0	0	$-\frac{2\sqrt{143}}{429}$	0	0	$-\frac{23\sqrt{858}i}{3432}$	0	$-\frac{\sqrt{858}}{264}$	0	0	$-\frac{2\sqrt{2145}}{429}$	0	0	$-\frac{5\sqrt{1430}}{1716}$	
	0	0	0	$\frac{2\sqrt{143}}{429}$	$\frac{23\sqrt{858}i}{3432}$	0	$-\frac{\sqrt{858}}{264}$	0	0	0	0	$\frac{2\sqrt{2145}}{429}$	$\frac{5\sqrt{1430}i}{1716}$	0	
	0	$\frac{\sqrt{858}}{286}$	0	$-\frac{\sqrt{858}i}{286}$	$\frac{8\sqrt{143}}{429}$	0	0	0	0	$-\frac{5\sqrt{1430}}{1716}$	0	$-\frac{5\sqrt{1430}i}{1716}$	0	0	
	$\frac{\sqrt{858}}{286}$	0	$\frac{\sqrt{858}i}{286}$	0	0	$-\frac{8\sqrt{143}}{429}$	0	0	$-\frac{5\sqrt{1430}}{1716}$	0	$\frac{5\sqrt{1430}i}{1716}$	0	0	0	