

PG No. 4  $C_s$   $m$  (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	$x$
	$\mathbb{M}_1^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{2}}{2} \\ \frac{\sqrt{2}}{2} & 0 \end{bmatrix}$
4	symmetry	$z$
	$\mathbb{M}_1^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & -\frac{\sqrt{2}}{2} \end{bmatrix}$

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	$x$
	$\mathbb{Q}_1^{(a)}(A', 1)$	$\begin{bmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
6	symmetry	$z$
	$\mathbb{Q}_1^{(a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \end{bmatrix}$

*continued ...*

Table 2

No.	multipole	matrix
7	symmetry	$y$ $\mathbb{Q}_1^{(a)}(A'')$ $\begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$
8	symmetry	$x$ $\mathbb{Q}_1^{(1,0;a)}(A', 1)$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
9	symmetry	$z$ $\mathbb{Q}_1^{(1,0;a)}(A', 2)$ $\begin{bmatrix} 0 & -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
10	symmetry	$y$ $\mathbb{Q}_1^{(1,0;a)}(A'')$ $\begin{bmatrix} \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
11	symmetry	$\sqrt{3}yz$ $\mathbb{G}_2^{(1,-1;a)}(A', 1)$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
12	symmetry	$\sqrt{3}xy$ $\mathbb{G}_2^{(1,-1;a)}(A', 2)$ $\begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
13	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\mathbb{G}_2^{(1,-1;a)}(A'', 1)$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{6} & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} \end{bmatrix}$
14	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\mathbb{G}_2^{(1,-1;a)}(A'', 2)$ $\begin{bmatrix} 0 & \frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
15	symmetry	$\sqrt{3}xz$ $\mathbb{G}_2^{(1,-1;a)}(A'', 3)$ $\begin{bmatrix} \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
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	$x$
	$\mathbb{T}_1^{(a)}(A', 1)$	$\begin{bmatrix} \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
18	symmetry	$z$
	$\mathbb{T}_1^{(a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \end{bmatrix}$
19	symmetry	$y$
	$\mathbb{T}_1^{(a)}(A'')$	$\begin{bmatrix} 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$
20	symmetry	$x$
	$\mathbb{T}_1^{(1,0;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
21	symmetry	$z$
	$\mathbb{T}_1^{(1,0;a)}(A', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
22	symmetry	$y$
	$\mathbb{T}_1^{(1,0;a)}(A'')$	$\begin{bmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
23	symmetry	$\sqrt{3}yz$
	$\mathbb{M}_2^{(1,-1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \end{bmatrix}$
24	symmetry	$\sqrt{3}xy$
	$\mathbb{M}_2^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
25	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

*continued ...*

Table 2

No.	multipole	matrix
	$\mathbb{M}_2^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & \frac{\sqrt{6}}{6} & 0 \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{6} \end{bmatrix}$
26	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
	$\mathbb{M}_2^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
27	symmetry	$\sqrt{3}xz$
	$\mathbb{M}_2^{(1,-1;a)}(A'', 3)$	$\begin{bmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \end{bmatrix}$
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:  $= |d_u, \uparrow \rangle, |d_u, \downarrow \rangle, |d_v, \uparrow \rangle, |d_v, \downarrow \rangle, |d_{yz}, \uparrow \rangle, |d_{yz}, \downarrow \rangle, |d_{xz}, \uparrow \rangle, |d_{xz}, \downarrow \rangle, |d_{xy}, \uparrow \rangle, |d_{xy}, \downarrow \rangle$ 

Table 3: (s,d) block.

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

continued ...

Table 3

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

continued ...

Table 3

No.	multipole	matrix
	$\mathbb{G}_3^{(1,-1;a)}(A', 3)$	$\begin{bmatrix} 0 & \frac{1}{4} & 0 & -\frac{\sqrt{3}}{12} & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ -\frac{1}{4} & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$
42	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{G}_3^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{3\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{3\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{10} & 0 \end{bmatrix}$
43	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{G}_3^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} \frac{\sqrt{15}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{10} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 \end{bmatrix}$
44	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{G}_3^{(1,-1;a)}(A'', 3)$	$\begin{bmatrix} 0 & -\frac{i}{4} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ -\frac{i}{4} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \end{bmatrix}$
45	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{G}_3^{(1,-1;a)}(A'', 4)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$
46	symmetry	$y$
	$\mathbb{G}_1^{(1,1;a)}(A')$	$\begin{bmatrix} 0 & -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{30}}{20} & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} \\ \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 \end{bmatrix}$
47	symmetry	$x$
	$\mathbb{G}_1^{(1,1;a)}(A'', 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & \frac{\sqrt{30}}{20} \\ -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & -\frac{\sqrt{30}}{20} & 0 \end{bmatrix}$
48	symmetry	$z$
	$\mathbb{G}_1^{(1,1;a)}(A'', 2)$	$\begin{bmatrix} \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 \end{bmatrix}$
49	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{T}_2^{(a)}(A', 1)$	$\begin{bmatrix} \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
50	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 3

No.	multipole	matrix
	$\mathbb{T}_2^{(a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
51	symmetry	$\sqrt{3}xz$ $\mathbb{T}_2^{(a)}(A', 3)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$
52	symmetry	$\sqrt{3}yz$ $\mathbb{T}_2^{(a)}(A'', 1)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
53	symmetry	$\sqrt{3}xy$ $\mathbb{T}_2^{(a)}(A'', 2)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \end{bmatrix}$
54	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\mathbb{T}_2^{(1,0;a)}(A', 1)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
55	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\mathbb{T}_2^{(1,0;a)}(A', 2)$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & -\frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & \frac{\sqrt{6}}{6} \end{bmatrix}$
56	symmetry	$\sqrt{3}xz$ $\mathbb{T}_2^{(1,0;a)}(A', 3)$ $\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{6}i}{12} & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ \frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \end{bmatrix}$
57	symmetry	$\sqrt{3}yz$ $\mathbb{T}_2^{(1,0;a)}(A'', 1)$ $\begin{bmatrix} 0 & -\frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & \frac{\sqrt{6}i}{12} \\ -\frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & -\frac{\sqrt{6}i}{12} & 0 \end{bmatrix}$
58	symmetry	$\sqrt{3}xy$ $\mathbb{T}_2^{(1,0;a)}(A'', 2)$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 \end{bmatrix}$
59	symmetry	$\sqrt{15}xyz$

continued ...

Table 3

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

continued ...

Table 3

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

bra:  $= \langle s, \uparrow |, \langle s, \downarrow |$ ket:  $= |f_3, \uparrow \rangle, |f_3, \downarrow \rangle, |f_{ax}, \uparrow \rangle, |f_{ax}, \downarrow \rangle, |f_{ay}, \uparrow \rangle, |f_{ay}, \downarrow \rangle, |f_{az}, \uparrow \rangle, |f_{az}, \downarrow \rangle, |f_{bx}, \uparrow \rangle, |f_{bx}, \downarrow \rangle, |f_{by}, \uparrow \rangle, |f_{by}, \downarrow \rangle, |f_{bz}, \uparrow \rangle, |f_{bz}, \downarrow \rangle$ 

Table 4: (s,f) block.

No.	multipole	matrix
69	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{Q}_3^{(a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
70	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{Q}_3^{(a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
71	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{Q}_3^{(a)}(A', 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \end{bmatrix}$
72	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{Q}_3^{(a)}(A', 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \end{bmatrix}$
73	symmetry	$\sqrt{15}xyz$
	$\mathbb{Q}_3^{(a)}(A'', 1)$	$\begin{bmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
74	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{Q}_3^{(a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
75	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{Q}_3^{(a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$
76	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & \frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & -\frac{\sqrt{5}}{8} & 0 \end{bmatrix}$
77	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 \end{bmatrix}$
78	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A', 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & \frac{\sqrt{3}}{24} \\ -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & -\frac{\sqrt{3}}{24} & 0 \end{bmatrix}$
79	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A', 4)$	$\begin{bmatrix} -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{6} & \frac{\sqrt{5}}{8} & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 \end{bmatrix}$
80	symmetry	$\sqrt{15}xyz$
	$\mathbb{Q}_3^{(1,0;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} \end{bmatrix}$
81	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 \end{bmatrix}$
82	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A'', 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{3}}{6} & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} \\ \frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 \end{bmatrix}$
83	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} & \frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
84	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{G}_4^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 \end{bmatrix}$
85	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(A', 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & \frac{3\sqrt{21}}{56} \\ \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{56} & \frac{\sqrt{35}}{56} & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & -\frac{3\sqrt{21}}{56} & 0 & 0 \end{bmatrix}$
86	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(A', 4)$	$\begin{bmatrix} \frac{\sqrt{21}i}{14} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{14} & \frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & \frac{3\sqrt{21}}{56} & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 & 0 \end{bmatrix}$
87	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$
	$\mathbb{G}_4^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
88	symmetry	$-\frac{\sqrt{15}(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4)}{12}$
	$\mathbb{G}_4^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{105}i}{42} & \frac{3\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 \end{bmatrix}$
89	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
	$\mathbb{G}_4^{(1,-1;a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & -\frac{\sqrt{21}i}{14} & 0 \\ 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{21}i}{14} \end{bmatrix}$
90	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(A'', 4)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
91	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(A'', 5)$	$\begin{bmatrix} 0 & \frac{\sqrt{21}}{14} & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & \frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} \\ -\frac{\sqrt{21}}{14} & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 \end{bmatrix}$
92	symmetry	$\sqrt{3}yz$
	$\mathbb{G}_2^{(1,1;a)}(A', 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{105}}{42} \\ \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & \frac{\sqrt{105}}{42} & 0 & 0 \end{bmatrix}$
93	symmetry	$\sqrt{3}xy$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{G}_2^{(1,1;a)}(A', 2)$	$\begin{bmatrix} \frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{42} & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 \end{bmatrix}$
94	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{G}_2^{(1,1;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & \frac{\sqrt{21}i}{14} & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & \frac{\sqrt{35}}{28} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{21}i}{14} & -\frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 \end{bmatrix}$
95	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
	$\mathbb{G}_2^{(1,1;a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & \frac{\sqrt{105}i}{42} & 0 \\ 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{105}i}{42} \end{bmatrix}$
96	symmetry	$\sqrt{3}xz$
	$\mathbb{G}_2^{(1,1;a)}(A'', 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{105}}{42} & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} \\ -\frac{\sqrt{105}}{42} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 \end{bmatrix}$
97	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{T}_3^{(a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
98	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{T}_3^{(a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
99	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{T}_3^{(a)}(A', 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
100	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{T}_3^{(a)}(A', 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \end{bmatrix}$
101	symmetry	$\sqrt{15}xyz$
	$\mathbb{T}_3^{(a)}(A'', 1)$	$\begin{bmatrix} \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
102	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{T}_3^{(a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
103	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{T}_3^{(a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$
104	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & -\frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & \frac{\sqrt{5}i}{8} & 0 \end{bmatrix}$
105	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & \frac{\sqrt{5}}{8} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 \end{bmatrix}$
106	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A', 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & -\frac{\sqrt{3}i}{24} \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & \frac{\sqrt{3}i}{24} & 0 \end{bmatrix}$
107	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A', 4)$	$\begin{bmatrix} -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & \frac{\sqrt{3}}{24} & 0 & 0 \\ 0 & \frac{\sqrt{3}}{6} & -\frac{\sqrt{5}i}{8} & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 \end{bmatrix}$
108	symmetry	$\sqrt{15}xyz$
	$\mathbb{T}_3^{(1,0;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} \end{bmatrix}$
109	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & \frac{\sqrt{5}}{8} & 0 \end{bmatrix}$
110	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A'', 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} \\ -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 \end{bmatrix}$
111	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{M}_4^{(1,-1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & \frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & -\frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
112	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 \end{bmatrix}$
113	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(A', 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{21}}{14} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 & -\frac{3\sqrt{21}i}{56} \\ \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{56} & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}}{56} & \frac{3\sqrt{21}i}{56} & 0 \end{bmatrix}$
114	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(A', 4)$	$\begin{bmatrix} \frac{\sqrt{21}}{14} & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 & \frac{3\sqrt{21}}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{14} & -\frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & \frac{3\sqrt{21}}{56} & 0 & 0 & 0 \end{bmatrix}$
115	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$
	$\mathbb{M}_4^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
116	symmetry	$-\frac{\sqrt{15}(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4)}{12}$
	$\mathbb{M}_4^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{84} & \frac{\sqrt{105}}{42} & 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{28} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{105}}{42} & \frac{3\sqrt{7}}{28} & 0 & -\frac{3\sqrt{7}i}{28} & 0 & 0 & 0 \end{bmatrix}$
117	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
	$\mathbb{M}_4^{(1,-1;a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{28} & -\frac{\sqrt{21}}{14} & 0 \\ 0 & 0 & \frac{\sqrt{35}}{28} & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{21}}{14} \end{bmatrix}$
118	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(A'', 4)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
119	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(A'', 5)$	$\begin{bmatrix} 0 & -\frac{\sqrt{21}i}{14} & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & \frac{3\sqrt{21}}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} \\ \frac{\sqrt{21}i}{14} & 0 & 0 & \frac{\sqrt{35}}{56} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 \end{bmatrix}$
120	symmetry	$\sqrt{3}yz$

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{M}_2^{(1,1;a)}(A', 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{105}}{42} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & \frac{\sqrt{105}i}{42} \\ \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & -\frac{\sqrt{105}i}{42} & 0 \end{bmatrix}$
121	symmetry	$\sqrt{3}xy$
	$\mathbb{M}_2^{(1,1;a)}(A', 2)$	$\begin{bmatrix} \frac{\sqrt{105}}{42} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{42} & -\frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 \end{bmatrix}$
122	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{M}_2^{(1,1;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & \frac{\sqrt{21}}{14} & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{21}}{14} & -\frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 \end{bmatrix}$
123	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
	$\mathbb{M}_2^{(1,1;a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{84} & \frac{\sqrt{105}}{42} & 0 \\ 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & -\frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{105}}{42} \end{bmatrix}$
124	symmetry	$\sqrt{3}xz$
	$\mathbb{M}_2^{(1,1;a)}(A'', 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{105}i}{42} & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} \\ \frac{\sqrt{105}i}{42} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & \frac{\sqrt{105}}{42} & 0 \end{bmatrix}$

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
	$\mathbb{Q}_2^{(a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
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	$\begin{bmatrix} \sqrt{3}(x-y)(x+y) \\ \sqrt{3}xz \end{bmatrix}$

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
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{bmatrix}$
147	symmetry	$z$ $\begin{bmatrix} 0 & 0 & -\frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{2} & 0 & 0 \\ \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
148	symmetry	$y$ $\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 \end{bmatrix}$
149	symmetry	$x$ $\begin{bmatrix} 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \end{bmatrix}$
150	symmetry	$z$

continued ...

Table 5

No.	multipole	matrix
	$\mathbb{M}_1^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \end{bmatrix}$
151	symmetry	$\sqrt{15}xyz$
	$\mathbb{M}_3^{(1,-1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \end{bmatrix}$
152	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{5} & -\frac{\sqrt{5}}{10} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$
153	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(A', 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$
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	$x$
	$\mathbb{M}_1^{(1,1;a)}(A'', 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{30}}{15} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{15} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 \\ \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & 0 \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{30} \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}}{30} & 0 \end{bmatrix}$
160	symmetry	$z$
	$\mathbb{M}_1^{(1,1;a)}(A'', 2)$	$\begin{bmatrix} -\frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & \frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & -\frac{\sqrt{30}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{30} & \frac{\sqrt{30}i}{20} & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{15} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{15} \end{bmatrix}$

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

Table 6: (p,d) block.

No.	multipole	matrix
161	symmetry	$x$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{Q}_1^{(a)}(A', 1)$	$\begin{bmatrix} -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \end{bmatrix}$
162	symmetry	$\begin{bmatrix} z \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
163	symmetry	$\begin{bmatrix} y \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
164	symmetry	$\begin{bmatrix} \frac{x(2x^2-3y^2-3z^2)}{2} \\ -\frac{\sqrt{15}}{20} & 0 & \frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \end{bmatrix}$
165	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{Q}_3^{(a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ -\frac{\sqrt{15}}{20} & 0 & -\frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & -\frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 \end{bmatrix}$
170	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{Q}_3^{(a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ \frac{1}{4} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{4} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \end{bmatrix}$
171	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{Q}_3^{(1,-1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & \frac{\sqrt{30}i}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & -\frac{\sqrt{30}i}{60} \\ \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{30}}{60} & -\frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{30} & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} \\ 0 & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 \end{bmatrix}$
172	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{Q}_3^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{30}}{60} & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} \\ \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 \\ 0 & \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{60} \\ \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{30}}{60} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 \end{bmatrix}$
173	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{Q}_3^{(1,-1;a)}(A'', 3)$	$\begin{bmatrix} \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{12} & 0 & -\frac{\sqrt{2}i}{12} & \frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{6} & \frac{\sqrt{2}i}{12} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & -\frac{\sqrt{2}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}}{12} \\ 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{12} & \frac{\sqrt{2}}{12} & 0 \end{bmatrix}$
178	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} \\ \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
179	symmetry	$\begin{bmatrix} 0 & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} \\ -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 \\ 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
180	symmetry	$\begin{bmatrix} -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 \end{bmatrix}$
181	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & -\frac{\sqrt{15}i}{15} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & \frac{\sqrt{15}i}{15} \\ \frac{\sqrt{5}i}{40} & 0 & -\frac{7\sqrt{15}i}{120} & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{40} & 0 & \frac{7\sqrt{15}i}{120} & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{5}}{40} & 0 & \frac{\sqrt{15}}{24} & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{5}}{40} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 \end{bmatrix}$
182	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{60} \\ \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{60} & 0 \\ 0 & \frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} \\ \frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{15} & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{15} & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 \end{bmatrix}$
183	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & \frac{1}{6} & \frac{i}{6} & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & -\frac{i}{6} \\ \frac{\sqrt{3}i}{24} & 0 & \frac{5i}{24} & 0 & 0 & \frac{1}{12} & 0 & -\frac{i}{6} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{24} & 0 & -\frac{5i}{24} & -\frac{1}{12} & 0 & -\frac{i}{6} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{8} & 0 & \frac{1}{24} & \frac{i}{12} & 0 & 0 & 0 & 0 & -\frac{i}{6} \\ \frac{\sqrt{3}}{8} & 0 & -\frac{1}{24} & 0 & 0 & -\frac{i}{12} & 0 & 0 & -\frac{i}{6} & 0 \end{bmatrix}$
184	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & \frac{\sqrt{3}}{12} & 0 & -\frac{1}{6} & -\frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{12} \\ -\frac{\sqrt{3}}{12} & 0 & \frac{1}{6} & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{i}{12} & 0 \\ 0 & \frac{\sqrt{3}i}{12} & 0 & \frac{i}{6} & 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{1}{12} \\ \frac{\sqrt{3}i}{12} & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{6} & -\frac{1}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{6} & -\frac{i}{6} & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & \frac{i}{6} \end{bmatrix}$
185	symmetry	$\sqrt{15}xyz$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{Q}_3^{(1,0;a)}(A'', 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{3}i}{12} & 0 & -\frac{i}{12} & 0 & 0 & \frac{i}{6} & 0 & 0 & -\frac{1}{6} \\ -\frac{\sqrt{3}i}{12} & 0 & -\frac{i}{12} & 0 & 0 & 0 & 0 & -\frac{i}{6} & \frac{1}{6} & 0 \\ 0 & \frac{\sqrt{3}}{12} & 0 & -\frac{1}{12} & -\frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{6} \\ -\frac{\sqrt{3}}{12} & 0 & \frac{1}{12} & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{i}{6} & 0 \\ 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{6} & -\frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & 0 \end{bmatrix}$
186	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A'', 2)$	$\begin{bmatrix} -\frac{\sqrt{5}i}{40} & 0 & -\frac{7\sqrt{15}i}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{40} & 0 & \frac{7\sqrt{15}i}{120} & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 & \frac{\sqrt{15}i}{15} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{15} \\ 0 & \frac{3\sqrt{5}i}{40} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 \\ \frac{3\sqrt{5}i}{40} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 \end{bmatrix}$
187	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A'', 3)$	$\begin{bmatrix} \frac{\sqrt{3}i}{24} & 0 & -\frac{5i}{24} & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{12} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{24} & 0 & \frac{5i}{24} & \frac{1}{6} & 0 & \frac{i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{6} & \frac{i}{6} \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{8} & 0 & -\frac{i}{24} & 0 & 0 & \frac{i}{12} & 0 & 0 & -\frac{1}{6} \\ -\frac{\sqrt{3}i}{8} & 0 & -\frac{i}{24} & 0 & 0 & 0 & 0 & -\frac{i}{12} & \frac{1}{6} & 0 \end{bmatrix}$
188	symmetry	$x$
	$\mathbb{Q}_1^{(1,1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}i}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 \end{bmatrix}$
189	symmetry	$z$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{Q}_1^{(1,1;a)}(A', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{5}}{20} & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & -\frac{\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 \end{bmatrix}$
190	symmetry	$\begin{bmatrix} \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{5}i}{20} & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}i}{20} \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{10} & 0 \end{bmatrix}$
191	symmetry	$\begin{bmatrix} -\frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{4} & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \end{bmatrix}$
192	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
193	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_2^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} \\ \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 \\ 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 \end{bmatrix}$
198	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{G}_2^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{15}i}{60} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{20} \\ \frac{\sqrt{15}i}{60} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{20} & 0 \\ 0 & \frac{\sqrt{15}}{60} & 0 & \frac{\sqrt{5}}{20} & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ -\frac{\sqrt{15}}{60} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ \frac{\sqrt{15}i}{15} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 \end{bmatrix}$
199	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
	$\mathbb{G}_2^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & \frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} \\ -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \end{bmatrix}$
200	symmetry	$\sqrt{3}xz$
	$\mathbb{G}_2^{(1,-1;a)}(A'', 3)$	$\begin{bmatrix} -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 \end{bmatrix}$
201	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_4^{(1,-1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{8} & 0 & \frac{i}{8} & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{8} & 0 & -\frac{1}{8} & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}}{8} & 0 & \frac{1}{8} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
202	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 \\ 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
203	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & \frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ -\frac{\sqrt{21}i}{56} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{56} & 0 & -\frac{3\sqrt{7}i}{56} & \frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{56} & 0 & \frac{3\sqrt{7}}{56} & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} \\ \frac{\sqrt{21}}{56} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 \end{bmatrix}$
204	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} \\ -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 \\ 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}}{28} \\ \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & \frac{\sqrt{7}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & \frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} \end{bmatrix}$
205	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
	$\mathbb{G}_4^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & -\frac{\sqrt{15}}{30} \\ -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{30} & \frac{\sqrt{15}}{30} & 0 \\ 0 & -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & -\frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{30} \\ \frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{15}i}{30} & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 \\ \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & 0 \end{bmatrix}$
206	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
	$\mathbb{G}_4^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{21}}{21} \\ -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & -\frac{\sqrt{21}}{21} & 0 \\ 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{21}}{28} & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} \\ \frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{21}i}{21} & 0 \\ \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 \end{bmatrix}$
207	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
	$\mathbb{G}_4^{(1,-1;a)}(A'', 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 \\ -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{7}}{28} & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & -\frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 \end{bmatrix}$
208	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
	$\mathbb{G}_4^{(1,-1;a)}(A'', 4)$	$\begin{bmatrix} \frac{\sqrt{3}i}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{8} & 0 & \frac{i}{8} & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{8} & 0 & -\frac{i}{8} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 \end{bmatrix}$
209	symmetry	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_4^{(1,-1;a)}(A'', 5)$	$\begin{bmatrix} -\frac{\sqrt{21}i}{56} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{56} & 0 & \frac{3\sqrt{7}i}{56} & -\frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & \frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & -\frac{\sqrt{21}i}{56} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{7}}{14} \\ -\frac{\sqrt{21}i}{56} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & -\frac{\sqrt{7}i}{14} & 0 \end{bmatrix}$
210	symmetry	$\sqrt{3}yz$
	$\mathbb{G}_2^{(1,0;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{i}{3} & 0 & -\frac{1}{12} & -\frac{i}{12} & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{3} & 0 & \frac{1}{12} & 0 & 0 & \frac{i}{12} \\ -\frac{\sqrt{3}i}{12} & 0 & \frac{i}{12} & 0 & 0 & \frac{1}{12} & 0 & -\frac{i}{6} & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{12} & 0 & -\frac{i}{12} & -\frac{1}{12} & 0 & -\frac{i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{6} & \frac{i}{12} & 0 & 0 & 0 & 0 & -\frac{i}{6} \\ 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{i}{12} & 0 & 0 & -\frac{i}{6} & 0 \end{bmatrix}$
211	symmetry	$\sqrt{3}xy$
	$\mathbb{G}_2^{(1,0;a)}(A', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{3}}{12} & 0 & \frac{1}{12} & -\frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{12} \\ -\frac{\sqrt{3}}{12} & 0 & -\frac{1}{12} & 0 & 0 & \frac{i}{6} & 0 & 0 & 0 & \frac{i}{12} \\ 0 & \frac{\sqrt{3}i}{12} & 0 & -\frac{i}{12} & 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{1}{12} \\ \frac{\sqrt{3}i}{12} & 0 & -\frac{i}{12} & 0 & 0 & 0 & 0 & \frac{i}{6} & -\frac{1}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{12} & 0 & -\frac{1}{12} & \frac{i}{3} & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{12} & 0 & \frac{1}{12} & 0 & 0 & -\frac{i}{3} \end{bmatrix}$
212	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{G}_2^{(1,0;a)}(A'', 1)$	$\begin{bmatrix} 0 & \frac{i}{4} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} \\ \frac{i}{4} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 \\ 0 & \frac{1}{4} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} \\ -\frac{1}{4} & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 \end{bmatrix}$
213	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_2^{(1,0;a)}(A'', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{3}i}{12} & 0 & \frac{i}{12} & 0 & 0 & -\frac{i}{6} & 0 & 0 & -\frac{1}{12} \\ \frac{\sqrt{3}i}{12} & 0 & \frac{i}{12} & 0 & 0 & 0 & 0 & \frac{i}{6} & \frac{1}{12} & 0 \\ 0 & -\frac{\sqrt{3}}{12} & 0 & \frac{1}{12} & \frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{12} \\ \frac{\sqrt{3}}{12} & 0 & -\frac{1}{12} & 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{i}{12} & 0 \\ 0 & 0 & \frac{i}{3} & 0 & 0 & \frac{1}{12} & 0 & -\frac{i}{12} & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{3} & -\frac{1}{12} & 0 & -\frac{i}{12} & 0 & 0 & 0 \end{bmatrix}$
214	symmetry	$\sqrt{3}xz$
	$\mathbb{G}_2^{(1,0;a)}(A'', 3)$	$\begin{bmatrix} -\frac{\sqrt{3}i}{12} & 0 & -\frac{i}{12} & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{12} & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{12} & 0 & \frac{i}{12} & \frac{1}{6} & 0 & \frac{i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{12} & 0 & \frac{1}{3} & -\frac{i}{12} & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{12} & 0 & -\frac{1}{3} & 0 & 0 & \frac{i}{12} \\ 0 & 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{i}{12} & 0 & 0 & -\frac{1}{6} \\ 0 & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & -\frac{i}{12} & \frac{1}{6} & 0 \end{bmatrix}$
215	symmetry	1
	$\mathbb{G}_0^{(1,1;a)}(A'')$	$\begin{bmatrix} 0 & -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{10}}{20} \\ -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & -\frac{\sqrt{10}}{20} & 0 \\ 0 & -\frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{10}}{20} & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} \\ \frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 \\ \frac{\sqrt{30}i}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{30} & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 \end{bmatrix}$
216	symmetry	$\sqrt{3}yz$
	$\mathbb{G}_2^{(1,1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{105} & -\frac{\sqrt{35}i}{105} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{105} & 0 & 0 & \frac{\sqrt{35}i}{105} \\ \frac{2\sqrt{105}i}{105} & 0 & \frac{\sqrt{35}i}{105} & 0 & 0 & \frac{4\sqrt{35}}{105} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 \\ 0 & -\frac{2\sqrt{105}i}{105} & 0 & -\frac{\sqrt{35}i}{105} & -\frac{4\sqrt{35}}{105} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{70} & 0 & -\frac{\sqrt{35}}{42} & \frac{4\sqrt{35}i}{105} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} \\ \frac{\sqrt{105}}{70} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{4\sqrt{35}i}{105} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 \end{bmatrix}$
217	symmetry	$\sqrt{3}xy$

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 \end{bmatrix}$
222	$\mathbb{T}_1^{(a)}(A', 1)$	$\begin{bmatrix} z \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
223	$\mathbb{T}_1^{(a)}(A', 2)$	$\begin{bmatrix} y \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} \\ -\frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
224	$\mathbb{T}_1^{(a)}(A'')$	$\begin{bmatrix} \frac{x(2x^2-3y^2-3z^2)}{2} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{3\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{3\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \end{bmatrix}$
225	$\mathbb{T}_3^{(a)}(A', 1)$	$\begin{bmatrix} -\frac{z(3x^2+3y^2-2z^2)}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

*continued ...*

Table 6

No.	multipole	matrix
	$\mathbb{T}_3^{(a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
226	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} -\frac{i}{4} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{4} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 \end{bmatrix}$
227	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
228	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} \end{bmatrix}$
229	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ -\frac{\sqrt{15}i}{20} & 0 & -\frac{3\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & -\frac{3\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \end{bmatrix}$
230	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ \frac{i}{4} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{4} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \end{bmatrix}$
231	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & -\frac{\sqrt{30}}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & \frac{\sqrt{30}}{60} \\ -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \\ 0 & \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{30}}{60} & -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{30} & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & \\ 0 & 0 & -\frac{\sqrt{30}i}{30} & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & \end{bmatrix}$
232	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & -\frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{30}i}{60} & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} \\ \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 \\ 0 & -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}i}{60} \\ -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & \frac{\sqrt{30}i}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 \end{bmatrix}$
233	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{2}}{12} & \frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{6} & -\frac{\sqrt{2}}{12} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{6} & 0 & 0 & \frac{\sqrt{2}}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} \\ 0 & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{2}i}{12} & 0 \end{bmatrix}$
238	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & -\frac{\sqrt{15}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}}{20} \\ \frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
239	symmetry	$\begin{bmatrix} 0 & -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} \\ -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 \end{bmatrix}$
240	symmetry	$\begin{bmatrix} -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 \end{bmatrix}$
241	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{15} & -\frac{\sqrt{15}}{15} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{15} & 0 & 0 & \frac{\sqrt{15}}{15} \\ \frac{\sqrt{5}}{40} & 0 & -\frac{7\sqrt{15}}{120} & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{40} & 0 & \frac{7\sqrt{15}}{120} & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{5}i}{40} & 0 & -\frac{\sqrt{15}i}{24} & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{5}i}{40} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 \end{bmatrix}$
242	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{60} \\ -\frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{15}i}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{60} \\ \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & \frac{\sqrt{15}i}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 & 0 \end{bmatrix}$
243	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{6} & \frac{1}{6} & 0 \\ 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & -\frac{1}{6} \\ \frac{\sqrt{3}}{24} & 0 & \frac{5}{24} & 0 & 0 & -\frac{i}{12} & 0 & -\frac{1}{6} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{24} & 0 & -\frac{5}{24} & \frac{i}{12} & 0 & -\frac{1}{6} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{8} & 0 & -\frac{i}{24} & \frac{1}{12} & 0 & 0 & 0 & 0 & -\frac{1}{6} \\ -\frac{\sqrt{3}i}{8} & 0 & \frac{i}{24} & 0 & 0 & -\frac{1}{12} & 0 & 0 & -\frac{1}{6} & 0 \end{bmatrix}$
244	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & -\frac{\sqrt{3}i}{12} & 0 & \frac{i}{6} & -\frac{1}{6} & 0 & 0 & 0 & 0 & \frac{1}{12} \\ \frac{\sqrt{3}i}{12} & 0 & -\frac{i}{6} & 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{1}{12} & 0 \\ 0 & \frac{\sqrt{3}}{12} & 0 & \frac{1}{6} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{i}{12} \\ \frac{\sqrt{3}}{12} & 0 & \frac{1}{6} & 0 & 0 & 0 & 0 & \frac{1}{6} & \frac{i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{6} & -\frac{1}{6} & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & \frac{1}{6} \end{bmatrix}$
245	symmetry	$\sqrt{15}xyz$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{T}_3^{(1,0;a)}(A'', 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{3}}{12} & 0 & -\frac{1}{12} & 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{i}{6} \\ -\frac{\sqrt{3}}{12} & 0 & -\frac{1}{12} & 0 & 0 & 0 & 0 & -\frac{1}{6} & -\frac{i}{6} & 0 \\ 0 & -\frac{\sqrt{3}i}{12} & 0 & \frac{i}{12} & -\frac{1}{6} & 0 & 0 & 0 & 0 & \frac{1}{6} \\ \frac{\sqrt{3}i}{12} & 0 & -\frac{i}{12} & 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{1}{6} & 0 \\ 0 & 0 & \frac{1}{6} & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{6} & \frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & 0 \end{bmatrix}$
246	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A'', 2)$	$\begin{bmatrix} -\frac{\sqrt{5}}{40} & 0 & -\frac{7\sqrt{15}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{40} & 0 & \frac{7\sqrt{15}}{120} & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & \frac{\sqrt{15}}{15} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} \\ 0 & \frac{3\sqrt{5}}{40} & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 \\ \frac{3\sqrt{5}}{40} & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 \end{bmatrix}$
247	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A'', 3)$	$\begin{bmatrix} \frac{\sqrt{3}}{24} & 0 & -\frac{5}{24} & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{12} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{24} & 0 & \frac{5}{24} & -\frac{i}{6} & 0 & \frac{1}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & \frac{i}{6} & \frac{1}{6} & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & -\frac{1}{6} \\ 0 & -\frac{\sqrt{3}}{8} & 0 & -\frac{1}{24} & 0 & 0 & \frac{1}{12} & 0 & 0 & \frac{i}{6} \\ -\frac{\sqrt{3}}{8} & 0 & -\frac{1}{24} & 0 & 0 & 0 & 0 & -\frac{1}{12} & -\frac{i}{6} & 0 \end{bmatrix}$
248	symmetry	$x$
	$\mathbb{T}_1^{(1,1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{20} \\ \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{5}}{20} & \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \end{bmatrix}$
249	symmetry	$z$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{T}_1^{(1,1;a)}(A', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 \\ 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} \\ \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
250	symmetry	$y$ $\begin{bmatrix} -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 \\ 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{5}}{20} & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & \frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$
251	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \end{bmatrix}$
252	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
253	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

*continued ...*

Table 6

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

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \end{bmatrix}$
258	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & \frac{\sqrt{15}}{60} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{20} \\ \frac{\sqrt{15}}{60} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{60} & 0 & -\frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ \frac{\sqrt{15}i}{60} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 \end{bmatrix}$
259	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} \\ -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 \end{bmatrix}$
260	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 \\ \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 \end{bmatrix}$
261	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{M}_4^{(1,-1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{8} & 0 & -\frac{1}{8} & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{8} & 0 & \frac{1}{8} & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{8} & 0 & \frac{i}{8} & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{8} & 0 & -\frac{i}{8} & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
262	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} \\ 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 \\ 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
263	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{14} & \frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}}{14} \\ -\frac{\sqrt{21}}{56} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & \frac{\sqrt{21}}{56} & 0 & -\frac{3\sqrt{7}}{56} & -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{56} & 0 & -\frac{3\sqrt{7}i}{56} & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ -\frac{\sqrt{21}i}{56} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 \end{bmatrix}$
264	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} \\ \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 \\ 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{7}i}{28} \\ \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & -\frac{\sqrt{7}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{14} & \frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}}{14} \end{bmatrix}$
265	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
	$\mathbb{M}_4^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & \frac{\sqrt{15}i}{30} \\ -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & -\frac{\sqrt{15}i}{30} & 0 \\ 0 & \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} \\ -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 \\ \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{30} & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 \end{bmatrix}$
266	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
	$\mathbb{M}_4^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{21} \\ -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & \frac{\sqrt{21}i}{21} & 0 \\ 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{21}i}{28} & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{21} \\ -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{21}}{21} & 0 \\ \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 \end{bmatrix}$
267	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
	$\mathbb{M}_4^{(1,-1;a)}(A'', 3)$	$\begin{bmatrix} 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{7}i}{28} & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}}{14} & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 \end{bmatrix}$
268	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
	$\mathbb{M}_4^{(1,-1;a)}(A'', 4)$	$\begin{bmatrix} \frac{\sqrt{3}}{8} & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{8} & 0 & \frac{1}{8} & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{8} & 0 & -\frac{1}{8} & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 \\ \frac{\sqrt{3}}{8} & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 \end{bmatrix}$
269	symmetry	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{M}_4^{(1,-1;a)}(A'', 5)$	$\begin{bmatrix} -\frac{\sqrt{21}}{56} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ 0 & \frac{\sqrt{21}}{56} & 0 & \frac{3\sqrt{7}}{56} & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{14} & \frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & -\frac{\sqrt{21}}{56} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ -\frac{\sqrt{21}}{56} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & \frac{\sqrt{7}i}{14} & 0 \end{bmatrix}$
270	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{1}{3} & 0 & -\frac{i}{12} & \frac{1}{12} & 0 \\ 0 & 0 & 0 & 0 & -\frac{1}{3} & 0 & \frac{i}{12} & 0 & 0 & -\frac{1}{12} \\ \frac{\sqrt{3}}{12} & 0 & -\frac{1}{12} & 0 & 0 & \frac{i}{12} & 0 & \frac{1}{6} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{12} & 0 & \frac{1}{12} & -\frac{i}{12} & 0 & \frac{1}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{6} & -\frac{1}{12} & 0 & 0 & 0 & 0 & \frac{1}{6} \\ 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{1}{12} & 0 & 0 & \frac{1}{6} & 0 \end{bmatrix}$
271	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & \frac{\sqrt{3}i}{12} & 0 & \frac{i}{12} & \frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{1}{12} \\ -\frac{\sqrt{3}i}{12} & 0 & -\frac{i}{12} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{1}{12} & 0 \\ 0 & -\frac{\sqrt{3}}{12} & 0 & \frac{1}{12} & 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{i}{12} \\ -\frac{\sqrt{3}}{12} & 0 & \frac{1}{12} & 0 & 0 & 0 & 0 & -\frac{1}{6} & -\frac{i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & -\frac{i}{12} & -\frac{1}{3} & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & \frac{i}{12} & 0 & 0 & \frac{1}{3} \end{bmatrix}$
272	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & -\frac{1}{4} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} \\ -\frac{1}{4} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & \frac{i}{4} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ -\frac{i}{4} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & \frac{\sqrt{3}}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 \end{bmatrix}$
273	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{\sqrt{3}}{12} & 0 & -\frac{1}{12} & 0 & 0 & \frac{1}{6} & 0 & 0 & -\frac{i}{12} \\ -\frac{\sqrt{3}}{12} & 0 & -\frac{1}{12} & 0 & 0 & 0 & 0 & -\frac{1}{6} & \frac{i}{12} & 0 \\ 0 & -\frac{\sqrt{3}i}{12} & 0 & \frac{i}{12} & -\frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{1}{12} \\ \frac{\sqrt{3}i}{12} & 0 & -\frac{i}{12} & 0 & 0 & \frac{1}{6} & 0 & 0 & -\frac{1}{12} & 0 \\ 0 & 0 & -\frac{1}{3} & 0 & 0 & \frac{i}{12} & 0 & \frac{1}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{3} & -\frac{i}{12} & 0 & \frac{1}{12} & 0 & 0 & 0 \end{bmatrix}$
274	symmetry	$\sqrt{3}xz$
		$\begin{bmatrix} \frac{\sqrt{3}}{12} & 0 & \frac{1}{12} & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{12} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{12} & 0 & -\frac{1}{12} & \frac{i}{6} & 0 & -\frac{1}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & \frac{i}{3} & \frac{1}{12} & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & -\frac{i}{3} & 0 & 0 & -\frac{1}{12} \\ 0 & 0 & 0 & \frac{1}{6} & 0 & 0 & -\frac{1}{12} & 0 & 0 & -\frac{i}{6} \\ 0 & 0 & \frac{1}{6} & 0 & 0 & 0 & 0 & \frac{1}{12} & \frac{i}{6} & 0 \end{bmatrix}$
275	symmetry	1
		$\begin{bmatrix} 0 & -\frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & -\frac{\sqrt{10}i}{20} \\ -\frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & \frac{\sqrt{10}i}{20} & 0 \\ 0 & \frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{10}i}{20} & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} \\ -\frac{\sqrt{30}i}{60} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{10}}{20} & 0 \\ \frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 \end{bmatrix}$
276	symmetry	$\sqrt{3}yz$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{105} & -\frac{\sqrt{35}}{105} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{105} & 0 & 0 & \frac{\sqrt{35}}{105} \\ \frac{2\sqrt{105}}{105} & 0 & \frac{\sqrt{35}}{105} & 0 & 0 & -\frac{4\sqrt{35}i}{105} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 \\ 0 & -\frac{2\sqrt{105}}{105} & 0 & -\frac{\sqrt{35}}{105} & \frac{4\sqrt{35}i}{105} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{70} & 0 & \frac{\sqrt{35}i}{42} & \frac{4\sqrt{35}}{105} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} \\ -\frac{\sqrt{105}i}{70} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{4\sqrt{35}}{105} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 \end{bmatrix}$
277	symmetry	$\sqrt{3}xy$

continued ...

Table 6

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

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: =  $|f_3, \uparrow \rangle, |f_3, \downarrow \rangle, |f_{ax}, \uparrow \rangle, |f_{ax}, \downarrow \rangle, |f_{ay}, \uparrow \rangle, |f_{ay}, \downarrow \rangle, |f_{az}, \uparrow \rangle, |f_{az}, \downarrow \rangle, |f_{bx}, \uparrow \rangle, |f_{bx}, \downarrow \rangle, |f_{by}, \uparrow \rangle, |f_{by}, \downarrow \rangle, |f_{bz}, \uparrow \rangle, |f_{bz}, \downarrow \rangle$

Table 7: (p,f) block.

No.	multipole	matrix
281	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{Q}_2^{(a)}(A', 1)$		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
282	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
$\mathbb{Q}_2^{(a)}(A', 2)$		$\begin{bmatrix} 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} \end{bmatrix}$
283	symmetry	$\sqrt{3}xz$
$\mathbb{Q}_2^{(a)}(A', 3)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} \\ \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 \end{bmatrix}$
284	symmetry	$\sqrt{3}yz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_2^{(a)}(A'', 1)$	$\begin{bmatrix} \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 \end{bmatrix}$
285	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
286	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
287	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
288	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2 + y^2 - 6z^2)}{4}$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_4^{(a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
293	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}}{56} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 \end{bmatrix}$
294	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}}{56} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 & 0 \\ \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
295	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & \frac{\sqrt{15}}{24} & 0 \\ 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & \frac{i}{8} & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & \frac{i}{8} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 \\ 0 & 0 & 0 & \frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 \\ 0 & 0 & -\frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 \end{bmatrix}$
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
	$\mathbb{Q}_4^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 & 0 & \frac{\sqrt{21}}{168} \\ \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & \frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} & -\frac{\sqrt{21}}{168} & 0 \\ 0 & -\frac{\sqrt{21}}{28} & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{56} & -\frac{5\sqrt{21}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{168} \\ \frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 & 0 & \frac{\sqrt{21}i}{168} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 \\ 0 & 0 & \frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 \end{bmatrix}$
297	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
	$\mathbb{Q}_4^{(1,-1;a)}(A', 3)$	$\begin{bmatrix} 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & \frac{\sqrt{7}i}{56} & 0 & 0 & \frac{3\sqrt{7}}{56} \\ \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{56} & -\frac{3\sqrt{7}}{56} & 0 \\ 0 & \frac{\sqrt{7}}{28} & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} & -\frac{\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} \\ -\frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 \\ -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 \\ 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 \end{bmatrix}$
298	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
	$\mathbb{Q}_4^{(1,-1;a)}(A', 4)$	$\begin{bmatrix} -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & 0 \\ 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 & 0 & -\frac{3i}{16} & 0 & 0 & \frac{3i}{16} & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{16} & -\frac{3i}{16} & 0 & 0 & 0 & 0 & -\frac{3i}{16} \\ 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 \\ -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & 0 \end{bmatrix}$
299	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
	$\mathbb{Q}_4^{(1,-1;a)}(A', 5)$	$\begin{bmatrix} \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 \\ 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{112} & 0 & 0 & \frac{\sqrt{105}i}{112} & 0 & 0 & \frac{\sqrt{7}i}{112} & 0 & -\frac{\sqrt{7}}{14} & \frac{\sqrt{7}i}{112} & 0 \\ 0 & 0 & -\frac{\sqrt{105}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{112} & \frac{\sqrt{7}i}{112} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{112} \\ 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{7}}{14} \\ -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & \frac{\sqrt{7}}{14} & 0 \end{bmatrix}$
300	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 7

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

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_2^{(1,0;a)}(A'', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{70}}{84} & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & -\frac{\sqrt{70}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} \\ -\frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 \\ 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{70}}{84} \\ -\frac{\sqrt{70}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & \frac{\sqrt{70}}{84} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & \frac{\sqrt{70}i}{42} & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{70}i}{42} \end{bmatrix}$
309	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & \frac{i}{8} & 0 & 0 & \frac{1}{8} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{i}{8} & -\frac{1}{8} & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & \frac{i}{8} & 0 & 0 & 0 & 0 & \frac{i}{8} \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{i}{8} & 0 & 0 & \frac{i}{8} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & \frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & -\frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 & 0 \end{bmatrix}$
310	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & -\frac{\sqrt{21}i}{24} & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 & 0 & -\frac{\sqrt{35}i}{40} & 0 & 0 & -\frac{\sqrt{35}}{280} \\ -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{24} & \frac{5\sqrt{21}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{40} & \frac{\sqrt{35}}{280} & 0 \\ 0 & \frac{3\sqrt{35}}{140} & \frac{\sqrt{21}i}{24} & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} & -\frac{\sqrt{35}i}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{280} \\ -\frac{3\sqrt{35}}{140} & 0 & 0 & -\frac{\sqrt{21}i}{24} & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 & 0 & \frac{\sqrt{35}i}{40} & 0 & 0 & -\frac{\sqrt{35}i}{280} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & 0 \end{bmatrix}$
311	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & -\frac{\sqrt{7}i}{56} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{105}i}{280} & 0 & 0 & \frac{\sqrt{105}}{56} \\ -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{56} & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}i}{280} & -\frac{\sqrt{105}}{56} & 0 \\ 0 & -\frac{\sqrt{105}}{140} & -\frac{\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & -\frac{3\sqrt{105}i}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} \\ \frac{\sqrt{105}}{140} & 0 & 0 & \frac{\sqrt{7}i}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{3\sqrt{105}i}{280} & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 \\ \frac{\sqrt{105}i}{70} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{70} & -\frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 \end{bmatrix}$
312	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_4^{(1,0;a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{112} & -\frac{\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & \frac{11\sqrt{105}}{560} & \frac{11\sqrt{105}i}{560} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{112} & 0 & 0 & \frac{\sqrt{7}i}{112} & \frac{\sqrt{105}i}{70} & 0 & -\frac{11\sqrt{105}}{560} & 0 & 0 & -\frac{11\sqrt{105}i}{560} \\ -\frac{\sqrt{105}i}{56} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{56} & \frac{3\sqrt{7}}{56} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{56} & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} \\ -\frac{\sqrt{105}}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 \end{bmatrix}$
317	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}}{56} & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} \\ \frac{\sqrt{105}}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 \\ 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} \\ \frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{140} & \frac{\sqrt{105}}{140} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{112} & 0 & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & \frac{11\sqrt{105}i}{560} & 0 & \frac{11\sqrt{105}}{560} & \frac{\sqrt{105}i}{70} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{7}i}{112} & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & 0 & \frac{11\sqrt{105}i}{560} & 0 & -\frac{11\sqrt{105}}{560} & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 \end{bmatrix}$
318	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & \frac{\sqrt{105}}{84} \\ -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} & -\frac{\sqrt{105}}{84} & 0 & 0 \\ 0 & \frac{\sqrt{105}}{84} & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} \\ -\frac{\sqrt{105}}{84} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}}{56} & 0 & -\frac{\sqrt{7}i}{56} & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{56} & 0 & -\frac{\sqrt{7}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 \end{bmatrix}$
319	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{168} & 0 & 0 & 0 & \frac{\sqrt{35}}{42} \\ -\frac{\sqrt{35}i}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}i}{168} & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{168} & -\frac{\sqrt{35}}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{84} & \frac{5\sqrt{21}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & \frac{\sqrt{35}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ \frac{\sqrt{35}}{84} & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & -\frac{\sqrt{35}i}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 \\ \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}}{24} & 0 & -\frac{\sqrt{21}i}{24} & 0 & 0 & 0 & \frac{5\sqrt{35}}{168} & 0 & -\frac{5\sqrt{35}i}{168} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{21}}{24} & 0 & -\frac{\sqrt{21}i}{24} & 0 & 0 & 0 & -\frac{5\sqrt{35}}{168} & 0 & -\frac{5\sqrt{35}i}{168} & 0 & 0 & 0 & 0 \end{bmatrix}$
320	symmetry	$\sqrt{3}xz$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{84} & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & \frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \\ \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & \frac{\sqrt{35}}{42} & 0 & 0 \end{bmatrix}$
321	symmetry	$\sqrt{3}yz$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & \frac{\sqrt{21}i}{21} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & -\frac{\sqrt{21}i}{21} & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{42} & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} \end{bmatrix}$
322	symmetry	$\sqrt{3}xy$
		$\begin{bmatrix} 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} \\ -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} \\ 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{35}}{84} \\ -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & -\frac{\sqrt{35}}{84} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & -\frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & -\frac{\sqrt{21}i}{21} & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{35}i}{42} \end{bmatrix}$
323	symmetry	$\sqrt{15}xyz$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \end{bmatrix}$
324	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(a)}(A'', 3)$	$\begin{bmatrix} -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 \end{bmatrix}$
329	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
330	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{35}}{42} \\ \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & -\frac{\sqrt{35}}{42} & 0 \\ 0 & \frac{\sqrt{35}}{42} & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 \\ \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 \end{bmatrix}$
331	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{3\sqrt{35}}{140} & 0 & \frac{\sqrt{35}i}{70} & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{42} & \frac{3\sqrt{35}}{140} & 0 & \frac{\sqrt{35}i}{70} & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & \frac{3\sqrt{35}}{70} & \frac{\sqrt{35}i}{70} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 \\ 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & -\frac{3\sqrt{35}}{70} & 0 & 0 & -\frac{\sqrt{35}i}{70} & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{21}}{28} \\ -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{70} & \frac{3\sqrt{35}}{140} & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & \frac{\sqrt{21}}{28} & 0 & 0 \end{bmatrix}$
332	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{84} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & -\frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{35}i}{42} \\ 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{35}}{84} \\ -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{35}}{84} & 0 & 0 \end{bmatrix}$
333	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & \frac{3\sqrt{35}i}{70} & 0 & \frac{\sqrt{35}}{70} & \frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & -\frac{\sqrt{21}i}{42} & 0 \\ 0 & 0 & \frac{3\sqrt{35}i}{70} & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{21}i}{42} \\ -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{42} & -\frac{\sqrt{35}}{70} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{42} & \frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{140} & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} \\ \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} \end{bmatrix}$
334	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & -\frac{\sqrt{21}}{42} & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{70} & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ \frac{\sqrt{21}}{42} & 0 & 0 & \frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 \\ 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{21}}{42} \\ -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}i}{140} & -\frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & -\frac{\sqrt{21}}{42} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & \frac{\sqrt{35}}{70} & \frac{3\sqrt{35}i}{70} & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & -\frac{3\sqrt{35}i}{70} & \frac{\sqrt{21}i}{42} & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 \end{bmatrix}$
335	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & \frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & -\frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{42} & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{35}i}{42} \\ -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 \\ 0 & \frac{\sqrt{35}i}{42} & \frac{\sqrt{21}}{42} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} \\ -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} \end{bmatrix}$
336	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,-1;a)}(A'', 4)$	$\begin{bmatrix} 0 & -\frac{\sqrt{35}}{42} & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & -\frac{\sqrt{35}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} \\ \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 \\ 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & \frac{\sqrt{35}}{42} \\ \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} & -\frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & \frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{35}i}{42} \end{bmatrix}$
337	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
	$\mathbb{G}_5^{(1,-1;a)}(A', 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{40} & -\frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{20} & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} \\ \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 \\ 0 & 0 & 0 & \frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 \\ 0 & 0 & -\frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & 0 \end{bmatrix}$
338	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
	$\mathbb{G}_5^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & -\frac{3\sqrt{5}i}{40} & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}i}{40} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{20} & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & \frac{3\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{3\sqrt{5}i}{40} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 & -\frac{3\sqrt{5}i}{40} & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{3}}{24} & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & -\frac{3\sqrt{5}i}{40} & 0 & 0 & 0 \end{bmatrix}$
339	symmetry	$\frac{y(15x^4-40x^2y^2+30x^2z^2+8y^4-40y^2z^2+15z^4)}{8}$
	$\mathbb{G}_5^{(1,-1;a)}(A', 3)$	$\begin{bmatrix} \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{84} & -\frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 & \frac{\sqrt{35}}{21} & \frac{\sqrt{35}i}{56} & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 \\ 0 & 0 & \frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{35}}{21} & 0 & 0 & -\frac{\sqrt{35}i}{56} & -\frac{5\sqrt{21}i}{168} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}i}{168} \\ 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{35}}{56} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{5\sqrt{21}}{168} \\ \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & -\frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & -\frac{5\sqrt{21}}{168} & 0 \end{bmatrix}$
340	symmetry	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$

continued ...

Table 7

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

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{i}{6} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{i}{24} & 0 & 0 & \frac{1}{24} \\ \frac{i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{i}{24} & -\frac{1}{24} & 0 \\ 0 & \frac{1}{6} & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & \frac{i}{24} & 0 & 0 & 0 & 0 & -\frac{i}{24} \\ -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{i}{24} & 0 & 0 & -\frac{i}{24} & 0 \\ \frac{i}{6} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & -\frac{1}{24} & 0 & \frac{i}{24} & 0 & 0 \\ 0 & -\frac{i}{6} & -\frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & \frac{1}{24} & 0 & \frac{i}{24} & 0 & 0 & 0 \end{bmatrix}$
349	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
		$\begin{bmatrix} \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{16} & 0 & 0 & \frac{i}{16} & 0 & 0 & -\frac{\sqrt{15}i}{48} & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 \\ 0 & 0 & \frac{i}{16} & 0 & 0 & 0 & 0 & -\frac{i}{16} & -\frac{\sqrt{15}i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{48} \\ 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 \end{bmatrix}$
350	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
		$\begin{bmatrix} \frac{i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & \frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 \\ 0 & -\frac{i}{24} & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & -\frac{\sqrt{15}i}{48} & 0 & 0 & \frac{7i}{48} & 0 & \frac{1}{6} & \frac{7i}{48} & 0 \\ 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{48} & \frac{7i}{48} & 0 & -\frac{1}{6} & 0 & 0 & -\frac{7i}{48} \\ 0 & -\frac{i}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{1}{6} & 0 \\ -\frac{i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{i}{6} & -\frac{1}{6} & 0 & 0 \end{bmatrix}$
351	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{1}{16} & \frac{i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{48} & -\frac{\sqrt{15}i}{48} & 0 \\ 0 & 0 & 0 & 0 & -\frac{1}{16} & 0 & 0 & -\frac{i}{16} & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & \frac{\sqrt{15}i}{48} \\ \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{24} & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{24} & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}}{24} & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
352	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,0;a)}(A'', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \\ 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \\ 0 & 0 & 0 & \frac{i}{16} & 0 & \frac{1}{16} & 0 & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 \\ 0 & 0 & \frac{i}{16} & 0 & -\frac{1}{16} & 0 & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & \frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
353	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{48} & \frac{\sqrt{15}i}{48} & 0 & 0 & \frac{i}{6} & 0 & \frac{7}{48} & \frac{7i}{48} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & 0 & -\frac{\sqrt{15}i}{48} & \frac{i}{6} & 0 & -\frac{7}{48} & 0 & 0 & -\frac{7i}{48} \\ -\frac{i}{24} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & 0 \\ 0 & \frac{i}{24} & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{24} & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{6} \\ -\frac{1}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{i}{6} & 0 \end{bmatrix}$
354	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & -\frac{1}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} \\ \frac{1}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{i}{6} & 0 & 0 & \frac{i}{6} & 0 \\ 0 & \frac{i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{1}{6} \\ \frac{i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{i}{6} & -\frac{1}{6} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{48} & 0 & \frac{\sqrt{15}}{48} & 0 & 0 & 0 & \frac{7i}{48} & 0 & \frac{7}{48} & \frac{i}{6} & 0 \\ 0 & 0 & -\frac{\sqrt{15}i}{48} & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & 0 & \frac{7i}{48} & 0 & -\frac{7}{48} & 0 & 0 & -\frac{i}{6} \end{bmatrix}$
355	symmetry	$y$ $\begin{bmatrix} \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{210}}{140} & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & \frac{\sqrt{210}}{70} & -\frac{\sqrt{210}i}{140} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & -\frac{\sqrt{210}}{70} & 0 & 0 & \frac{\sqrt{210}i}{140} & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} \\ 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{14}}{28} \\ \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{140} & \frac{\sqrt{210}}{140} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{14}}{28} & 0 & 0 \end{bmatrix}$
356	symmetry	$x$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,1;a)}(A', 3)$	$\begin{bmatrix} -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & \frac{3\sqrt{7}i}{56} & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{105}i}{336} & 0 & 0 & \frac{5\sqrt{105}i}{336} & 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & \frac{\sqrt{7}}{14} & -\frac{\sqrt{7}i}{112} & 0 \\ 0 & 0 & -\frac{5\sqrt{105}i}{336} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{105}i}{336} & -\frac{\sqrt{7}i}{112} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{7}i}{112} \\ 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{7}}{28} \\ \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & \frac{\sqrt{105}}{84} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & \frac{\sqrt{7}}{28} & 0 & 0 \end{bmatrix}$
361	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & \frac{2\sqrt{7}i}{21} & 0 & -\frac{5\sqrt{7}}{112} & -\frac{5\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{105}}{336} & \frac{5\sqrt{105}i}{336} & 0 \\ 0 & 0 & \frac{2\sqrt{7}i}{21} & 0 & \frac{5\sqrt{7}}{112} & 0 & 0 & \frac{5\sqrt{7}i}{112} & 0 & 0 & \frac{5\sqrt{105}}{336} & 0 & 0 & -\frac{5\sqrt{105}i}{336} \\ -\frac{\sqrt{105}i}{168} & 0 & 0 & \frac{5\sqrt{7}}{84} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{168} & -\frac{5\sqrt{7}}{84} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{168} & \frac{5\sqrt{7}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & \frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} \\ \frac{\sqrt{105}}{168} & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} \end{bmatrix}$
362	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}}{168} & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}i}{84} & \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} \\ \frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{5\sqrt{7}i}{84} & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 \\ 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{5\sqrt{7}}{84} & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & \frac{\sqrt{105}}{168} \\ -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & -\frac{5\sqrt{7}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & -\frac{\sqrt{105}}{168} & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{7}i}{112} & 0 & -\frac{5\sqrt{7}}{112} & \frac{2\sqrt{7}i}{21} & 0 & 0 & -\frac{5\sqrt{105}i}{336} & 0 & \frac{5\sqrt{105}}{336} & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{7}i}{112} & 0 & \frac{5\sqrt{7}}{112} & 0 & 0 & -\frac{2\sqrt{7}i}{21} & -\frac{5\sqrt{105}i}{336} & 0 & -\frac{5\sqrt{105}}{336} & 0 & 0 & 0 \end{bmatrix}$
363	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{105}}{336} & -\frac{5\sqrt{105}i}{336} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{112} & -\frac{\sqrt{7}i}{112} & 0 \\ 0 & 0 & 0 & 0 & -\frac{5\sqrt{105}}{336} & 0 & 0 & \frac{5\sqrt{105}i}{336} & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & \frac{\sqrt{7}i}{112} \\ \frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ 0 & -\frac{3\sqrt{7}i}{56} & \frac{\sqrt{105}}{168} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{7}}{56} & \frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} \\ \frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} \end{bmatrix}$
364	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,1;a)}(A'', 4)$	$\begin{bmatrix} 0 & \frac{3\sqrt{7}}{56} & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} \\ -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 \\ 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{7}}{14} \\ -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & -\frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{105}i}{336} & 0 & -\frac{5\sqrt{105}}{336} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & -\frac{\sqrt{7}}{112} & \frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & \frac{5\sqrt{105}i}{336} & 0 & \frac{5\sqrt{105}}{336} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & -\frac{\sqrt{7}i}{14} \end{bmatrix}$
365	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{T}_2^{(a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
366	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
	$\mathbb{T}_2^{(a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} \end{bmatrix}$
367	symmetry	$\sqrt{3}xz$
	$\mathbb{T}_2^{(a)}(A', 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} \\ \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
368	symmetry	$\sqrt{3}yz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_2^{(a)}(A'', 1)$	$\begin{bmatrix} \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 \end{bmatrix}$
369	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
370	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
371	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
372	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(a)}(A', 3)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{14} \end{bmatrix}$
373	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
374	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} \\ \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 \end{bmatrix}$
375	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 \end{bmatrix}$
376	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
377	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 \end{bmatrix}$
378	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
379	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{i}{8} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & \frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & \frac{\sqrt{15}i}{24} & 0 \\ 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{1}{8} & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 \\ 0 & 0 & 0 & \frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & \frac{\sqrt{15}}{24} & 0 & 0 \\ 0 & 0 & -\frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 \end{bmatrix}$
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
	$\mathbb{T}_4^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 & 0 & \frac{\sqrt{21}i}{168} \\ -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{56} & \frac{\sqrt{35}i}{56} & 0 & 0 & 0 & -\frac{5\sqrt{21}}{168} & -\frac{\sqrt{21}i}{168} & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & \frac{\sqrt{35}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & \frac{5\sqrt{21}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{168} \\ \frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 & 0 & -\frac{\sqrt{21}}{168} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 \end{bmatrix}$
381	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{7}i}{56} \\ -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{56} & -\frac{3\sqrt{7}i}{56} & 0 \\ 0 & \frac{\sqrt{7}i}{28} & \frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} & \frac{\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} \\ -\frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 \\ \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 \end{bmatrix}$
382	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$ $\begin{bmatrix} \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 \\ 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & -\frac{3}{16} \\ 0 & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{16} & \frac{3}{16} & 0 & 0 & 0 & 0 & \frac{3}{16} \\ 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 \\ \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 \end{bmatrix}$
383	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}}{112} & 0 & 0 & -\frac{\sqrt{105}}{112} & 0 & 0 & -\frac{\sqrt{7}}{112} & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{7}}{112} & 0 \\ 0 & 0 & \frac{\sqrt{105}}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{112} & -\frac{\sqrt{7}}{112} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{7}}{112} \\ 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & \frac{\sqrt{7}i}{14} & 0 \end{bmatrix}$
384	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{16} & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & \frac{3i}{16} & \frac{3}{16} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{16} & 0 & 0 & -\frac{\sqrt{15}}{16} & 0 & 0 & -\frac{3i}{16} & 0 & 0 & -\frac{3}{16} \\ \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 \\ 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 \\ \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
385	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} \\ \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} \\ 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} \\ \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{8} \\ 0 & 0 & 0 & \frac{\sqrt{15}}{16} & 0 & -\frac{\sqrt{15}i}{16} & 0 & 0 & 0 & -\frac{3}{16} & 0 & -\frac{3i}{16} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{15}}{16} & 0 & \frac{\sqrt{15}i}{16} & 0 & 0 & 0 & -\frac{3}{16} & 0 & \frac{3i}{16} & 0 & 0 & 0 \end{bmatrix}$
386	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{112} & \frac{\sqrt{105}}{112} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{112} & -\frac{\sqrt{7}}{112} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{112} & 0 & 0 & -\frac{\sqrt{105}}{112} & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{7}}{112} \\ \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & -\frac{3\sqrt{7}}{56} & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{7}i}{56} & \frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 \end{bmatrix}$
387	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} \\ \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 \\ 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{7}i}{28} \\ -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & -\frac{\sqrt{7}i}{28} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{112} & 0 & -\frac{\sqrt{105}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{7}}{112} & 0 & \frac{\sqrt{7}i}{112} & \frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{112} & 0 & \frac{\sqrt{105}i}{112} & 0 & 0 & 0 & -\frac{\sqrt{7}}{112} & 0 & -\frac{\sqrt{7}i}{112} & 0 & 0 & -\frac{\sqrt{7}}{14} \end{bmatrix}$
388	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_2^{(1,0;a)}(A', 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} \\ \frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 \\ 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} \\ -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{84} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & 0 \end{bmatrix}$
389	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{70}}{84} & 0 & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & \frac{\sqrt{70}}{42} & 0 & 0 & -\frac{\sqrt{70}i}{84} \\ \frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{42} & \frac{\sqrt{70}i}{84} & 0 \\ 0 & -\frac{\sqrt{70}i}{84} & \frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & -\frac{\sqrt{70}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} \\ \frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & \frac{\sqrt{70}}{42} & 0 & 0 & -\frac{\sqrt{70}}{84} \\ -\frac{\sqrt{70}}{42} & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & 0 & 0 \\ 0 & \frac{\sqrt{70}}{42} & -\frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & 0 \end{bmatrix}$
390	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} -\frac{\sqrt{70}}{84} & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 \\ 0 & \frac{\sqrt{70}}{84} & -\frac{\sqrt{42}i}{28} & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & -\frac{\sqrt{70}i}{42} & \frac{\sqrt{70}}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & \frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{42} & 0 & 0 & -\frac{\sqrt{70}}{84} \\ 0 & \frac{\sqrt{70}}{84} & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & \frac{\sqrt{70}i}{84} \\ \frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & -\frac{\sqrt{70}i}{84} & 0 & 0 \end{bmatrix}$
391	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & -\frac{\sqrt{42}}{84} & 0 & 0 & \frac{\sqrt{70}}{42} & 0 & -\frac{\sqrt{70}i}{84} & \frac{\sqrt{70}}{84} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & \frac{\sqrt{42}}{84} & \frac{\sqrt{70}}{42} & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{70}}{84} \\ \frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}}{84} & \frac{\sqrt{42}i}{84} & 0 & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{84} & -\frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & -\frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 \\ -\frac{\sqrt{70}i}{84} & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 \end{bmatrix}$
392	symmetry	$\sqrt{3}xy$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_2^{(1,0;a)}(A'', 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{70}i}{84} & \frac{\sqrt{42}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & -\frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} \\ \frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 \\ 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & 0 & \frac{\sqrt{70}i}{84} \\ -\frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & -\frac{\sqrt{70}i}{84} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & -\frac{\sqrt{70}i}{84} & \frac{\sqrt{70}}{42} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & 0 & -\frac{\sqrt{70}}{42} \end{bmatrix}$
393	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{i}{8} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{1}{8} & \frac{i}{8} & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{1}{8} \\ 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{1}{8} & 0 & 0 & \frac{1}{8} \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & -\frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 \end{bmatrix}$
394	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & -\frac{\sqrt{21}}{24} & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 & 0 & -\frac{\sqrt{35}}{40} & 0 & 0 & \frac{\sqrt{35}i}{280} \\ -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{24} & -\frac{5\sqrt{21}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{40} & -\frac{\sqrt{35}i}{280} & 0 \\ 0 & -\frac{3\sqrt{35}i}{140} & \frac{\sqrt{21}}{24} & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} & -\frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{280} \\ \frac{3\sqrt{35}i}{140} & 0 & 0 & -\frac{\sqrt{21}}{24} & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 & 0 & \frac{\sqrt{35}}{40} & 0 & 0 & -\frac{\sqrt{35}}{280} \\ 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & \frac{\sqrt{35}}{35} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & \frac{\sqrt{35}}{35} & 0 & 0 & 0 \end{bmatrix}$
395	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{3\sqrt{105}}{280} & 0 & 0 & -\frac{\sqrt{105}i}{56} \\ -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{56} & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}}{280} & \frac{\sqrt{105}i}{56} & 0 \\ 0 & \frac{\sqrt{105}i}{140} & -\frac{\sqrt{7}}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} & -\frac{3\sqrt{105}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} \\ -\frac{\sqrt{105}i}{140} & 0 & 0 & \frac{\sqrt{7}}{56} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{105}}{280} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 \\ \frac{\sqrt{105}}{70} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{70} & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 \end{bmatrix}$
396	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(1,0;a)}(A', 4)$	$\begin{bmatrix} \frac{\sqrt{15}}{40} & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{40} & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{16} & 0 & 0 & -\frac{1}{16} & 0 & 0 & -\frac{\sqrt{15}}{80} & 0 & 0 & \frac{\sqrt{15}}{80} & 0 \\ 0 & 0 & -\frac{1}{16} & 0 & 0 & 0 & 0 & \frac{1}{16} & -\frac{\sqrt{15}}{80} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{80} \\ 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} & -\frac{\sqrt{15}i}{20} & 0 \end{bmatrix}$
397	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} \frac{\sqrt{105}}{56} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{56} & \frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{112} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & \frac{11\sqrt{105}}{560} & 0 & -\frac{\sqrt{105}i}{70} & \frac{11\sqrt{105}}{560} & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{112} & \frac{11\sqrt{105}}{560} & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & -\frac{11\sqrt{105}}{560} \\ 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & \frac{\sqrt{105}i}{140} \\ -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{140} & -\frac{\sqrt{105}i}{140} & 0 \end{bmatrix}$
398	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{i}{16} & -\frac{1}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{80} & -\frac{\sqrt{15}}{80} & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{16} & 0 & 0 & \frac{1}{16} & 0 & 0 & \frac{\sqrt{15}i}{80} & 0 & 0 & \frac{\sqrt{15}}{80} \\ \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \end{bmatrix}$
399	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{15}i}{40} & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} \\ \frac{\sqrt{15}i}{40} & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 \\ 0 & \frac{\sqrt{15}}{40} & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} \\ \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & \frac{\sqrt{15}i}{40} & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{16} & 0 & \frac{i}{16} & 0 & 0 & 0 & \frac{\sqrt{15}}{80} & 0 & \frac{\sqrt{15}i}{80} & 0 & 0 \\ 0 & 0 & -\frac{1}{16} & 0 & -\frac{i}{16} & 0 & 0 & 0 & \frac{\sqrt{15}}{80} & 0 & -\frac{\sqrt{15}i}{80} & 0 & 0 & 0 \end{bmatrix}$
400	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{112} & -\frac{\sqrt{7}}{112} & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & -\frac{11\sqrt{105}i}{560} & \frac{11\sqrt{105}}{560} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{7}}{112} & \frac{\sqrt{105}}{70} & 0 & \frac{11\sqrt{105}i}{560} & 0 & 0 & -\frac{11\sqrt{105}}{560} \\ -\frac{\sqrt{105}}{56} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 \\ 0 & \frac{\sqrt{105}}{56} & -\frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{56} & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} \\ \frac{\sqrt{105}i}{56} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 \end{bmatrix}$
401	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
		$\begin{bmatrix} 0 & \frac{\sqrt{105}i}{56} & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} \\ -\frac{\sqrt{105}i}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 \\ 0 & \frac{\sqrt{105}}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & \frac{\sqrt{105}i}{140} \\ \frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{140} & -\frac{\sqrt{105}i}{140} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & 0 & \frac{11\sqrt{105}}{560} & 0 & -\frac{11\sqrt{105}i}{560} & \frac{\sqrt{105}}{70} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{7}}{112} & 0 & -\frac{\sqrt{7}i}{112} & 0 & 0 & 0 & \frac{11\sqrt{105}}{560} & 0 & \frac{11\sqrt{105}i}{560} & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 \end{bmatrix}$
402	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
		$\begin{bmatrix} 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{105}}{56} & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} \\ \frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} & -\frac{\sqrt{105}i}{84} & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{84} & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & \frac{\sqrt{105}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} \\ -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{56} & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 \end{bmatrix}$
403	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & \frac{\sqrt{35}}{84} & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{35}}{168} & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} \\ \frac{\sqrt{35}}{84} & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{168} & -\frac{\sqrt{35}i}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{84} & -\frac{5\sqrt{21}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & -\frac{\sqrt{35}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} \\ \frac{\sqrt{35}i}{84} & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & \frac{\sqrt{35}}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 \\ -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{24} & 0 & \frac{\sqrt{21}}{24} & 0 & 0 & 0 & \frac{5\sqrt{35}i}{168} & 0 & \frac{5\sqrt{35}}{168} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{21}i}{24} & 0 & \frac{\sqrt{21}}{24} & 0 & 0 & 0 & -\frac{5\sqrt{35}i}{168} & 0 & \frac{5\sqrt{35}}{168} & 0 & 0 & 0 & 0 \end{bmatrix}$
404	symmetry	$\sqrt{3}xz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_2^{(1,1;a)}(A', 3)$	$\begin{bmatrix} \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & \frac{\sqrt{21}}{21} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{42} & -\frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{35}}{42} \\ 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{84} & \frac{\sqrt{35}i}{42} & 0 & 0 \end{bmatrix}$
405	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{21} & -\frac{\sqrt{21}}{21} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & -\frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & \frac{\sqrt{21}}{21} & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{35}}{42} \\ -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{42} & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} \\ \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{84} & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 \end{bmatrix}$
406	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} \\ -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 \\ 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} \\ \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & -\frac{\sqrt{35}i}{84} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}}{21} & 0 & \frac{\sqrt{21}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & \frac{\sqrt{35}}{42} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{21}}{21} & 0 & -\frac{\sqrt{21}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \end{bmatrix}$
407	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$
408	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_3^{(a)}(A'', 3)$	$\begin{bmatrix} \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 \end{bmatrix}$
413	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
414	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{35}i}{42} & 0 \\ 0 & -\frac{\sqrt{35}i}{42} & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \\ \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 \\ \frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{42} & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 \end{bmatrix}$
415	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{3\sqrt{35}i}{140} & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{42} & 0 & 0 \\ 0 & \frac{\sqrt{21}}{42} & -\frac{3\sqrt{35}i}{140} & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & -\frac{3\sqrt{35}i}{70} & \frac{\sqrt{35}}{70} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 \\ 0 & 0 & \frac{\sqrt{35}}{70} & 0 & \frac{3\sqrt{35}i}{70} & 0 & 0 & -\frac{\sqrt{35}}{70} & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & \frac{3\sqrt{35}i}{140} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{21}i}{28} \\ -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & -\frac{\sqrt{21}i}{28} & 0 \end{bmatrix}$
416	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{35}i}{42} & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & -\frac{\sqrt{35}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} \\ -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{35}}{84} & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 \\ 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{84} & \frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & \frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{35}}{42} \end{bmatrix}$
421	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} & \frac{\sqrt{15}i}{20} & 0 \\ 0 & \frac{\sqrt{15}i}{20} & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & 0 & 0 & -\frac{i}{8} & 0 & -\frac{1}{8} & 0 & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 \\ 0 & 0 & \frac{i}{8} & 0 & -\frac{1}{8} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 \end{bmatrix}$
422	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 \\ \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 & 0 \\ 0 & -\frac{\sqrt{5}i}{20} & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & \frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & -\frac{3\sqrt{5}i}{40} & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & \frac{\sqrt{3}i}{24} & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & \frac{3\sqrt{5}i}{40} & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 \end{bmatrix}$
423	symmetry	$\frac{y(15x^4-40x^2y^2+30x^2z^2+8y^4-40y^2z^2+15z^4)}{8}$ $\begin{bmatrix} \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{84} & \frac{\sqrt{35}i}{56} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{56} & 0 & -\frac{\sqrt{35}i}{21} & \frac{\sqrt{35}}{56} & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 \\ 0 & 0 & \frac{\sqrt{35}}{56} & 0 & \frac{\sqrt{35}i}{21} & 0 & 0 & -\frac{\sqrt{35}}{56} & -\frac{5\sqrt{21}}{168} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{168} \\ 0 & \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{5\sqrt{21}i}{168} \\ \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{35}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & \frac{5\sqrt{21}i}{168} & 0 \end{bmatrix}$
424	symmetry	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{40} & \frac{\sqrt{15}}{40} & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & -\frac{\sqrt{15}}{40} \\ -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 \\ 0 & \frac{\sqrt{15}}{20} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} \\ -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 \end{bmatrix}$
429	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
		$\begin{bmatrix} 0 & \frac{\sqrt{15}i}{20} & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & 0 & 0 & \frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 \\ 0 & 0 & \frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 \end{bmatrix}$
430	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & \frac{\sqrt{3}}{12} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{20} & -\frac{\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{\sqrt{3}}{12} & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}}{20} \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \end{bmatrix}$
431	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}i}{20} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} \end{bmatrix}$
432	symmetry	$\sqrt{15}xyz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_3^{(1,0;a)}(A', 1)$	$\begin{bmatrix} 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & \frac{1}{24} & 0 & 0 & \frac{i}{24} \\ -\frac{1}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{1}{24} & -\frac{i}{24} & 0 \\ 0 & \frac{i}{6} & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & -\frac{1}{24} & 0 & 0 & 0 & 0 & \frac{1}{24} \\ -\frac{i}{6} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & \frac{1}{24} & 0 & 0 & \frac{1}{24} & 0 \\ -\frac{1}{6} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & -\frac{i}{24} & 0 & -\frac{1}{24} & 0 & 0 \\ 0 & \frac{1}{6} & -\frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{i}{24} & 0 & -\frac{1}{24} & 0 & 0 & 0 \end{bmatrix}$
433	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{M}_3^{(1,0;a)}(A', 2)$	$\begin{bmatrix} -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{16} & 0 & 0 & -\frac{1}{16} & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 \\ 0 & 0 & -\frac{1}{16} & 0 & 0 & 0 & 0 & \frac{1}{16} & \frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{48} \\ 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 \\ -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 \end{bmatrix}$
434	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{M}_3^{(1,0;a)}(A', 3)$	$\begin{bmatrix} -\frac{1}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 \\ 0 & \frac{1}{24} & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & 0 & -\frac{7}{48} & 0 & \frac{i}{6} & -\frac{7}{48} & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{48} & -\frac{7}{48} & 0 & -\frac{i}{6} & 0 & 0 & \frac{7}{48} \\ 0 & \frac{1}{24} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & 0 & \frac{i}{6} \\ \frac{1}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{1}{6} & -\frac{i}{6} & 0 & 0 \end{bmatrix}$
435	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{M}_3^{(1,0;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{i}{16} & -\frac{1}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{48} & \frac{\sqrt{15}}{48} & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{16} & 0 & 0 & \frac{1}{16} & 0 & 0 & -\frac{\sqrt{15}i}{48} & 0 & 0 & -\frac{\sqrt{15}}{48} \\ -\frac{\sqrt{15}}{24} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{24} & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{24} & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{24} & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 \end{bmatrix}$
436	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_3^{(1,0;a)}(A'', 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 \\ 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} \\ -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \\ 0 & 0 & 0 & -\frac{1}{16} & 0 & \frac{i}{16} & 0 & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & -\frac{\sqrt{15}i}{48} & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{16} & 0 & -\frac{i}{16} & 0 & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
437	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{48} & -\frac{\sqrt{15}}{48} & 0 & 0 & -\frac{1}{6} & 0 & \frac{7i}{48} & -\frac{7}{48} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & \frac{\sqrt{15}}{48} & -\frac{1}{6} & 0 & -\frac{7i}{48} & 0 & 0 & \frac{7}{48} \\ \frac{1}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & 0 \\ 0 & -\frac{1}{24} & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{24} & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{1}{6} \\ -\frac{i}{24} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & 0 & 0 & -\frac{1}{6} & 0 \end{bmatrix}$
438	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & -\frac{i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & -\frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{1}{6} \\ \frac{i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & \frac{1}{6} & 0 & 0 & -\frac{1}{6} & 0 \\ 0 & -\frac{1}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{1}{6} & 0 & 0 & \frac{i}{6} \\ -\frac{1}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{1}{6} & -\frac{i}{6} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & 0 & -\frac{7}{48} & 0 & \frac{7i}{48} & -\frac{1}{6} & 0 \\ 0 & 0 & \frac{\sqrt{15}}{48} & 0 & -\frac{\sqrt{15}i}{48} & 0 & 0 & 0 & -\frac{7}{48} & 0 & -\frac{7i}{48} & 0 & 0 & \frac{1}{6} \end{bmatrix}$
439	symmetry	$y$ $\begin{bmatrix} \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{14}}{28} & -\frac{\sqrt{210}i}{140} & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & -\frac{\sqrt{210}i}{70} & -\frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & \frac{\sqrt{210}i}{70} & 0 & 0 & \frac{\sqrt{210}}{140} & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} \\ 0 & \frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} \\ \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{140} & -\frac{\sqrt{210}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & -\frac{\sqrt{14}i}{28} & 0 \end{bmatrix}$
440	symmetry	$x$

continued ...

Table 7

No.	multipole	matrix
$\mathbb{M}_1^{(1,1;a)}(A'', 1)$	$z$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{210}}{70} & 0 & \frac{\sqrt{210}i}{140} & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & \frac{\sqrt{14}}{28} & 0 \\ 0 & 0 & \frac{\sqrt{210}}{70} & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{14}}{28} \\ \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{14}}{28} & -\frac{\sqrt{210}i}{140} & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}i}{28} & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} \\ \frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 \end{bmatrix}$
	$z$	
$\mathbb{M}_1^{(1,1;a)}(A'', 2)$	$z$	$\begin{bmatrix} 0 & -\frac{\sqrt{14}i}{28} & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} \\ \frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & \frac{\sqrt{14}}{28} \\ 0 & \frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} \\ \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{140} & -\frac{\sqrt{210}i}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & -\frac{\sqrt{14}i}{28} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & \frac{\sqrt{210}i}{140} & \frac{\sqrt{210}}{70} & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & -\frac{\sqrt{210}i}{140} & 0 & 0 & -\frac{\sqrt{210}}{70} & -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 \end{bmatrix}$
	$z$	
$\mathbb{M}_3^{(1,1;a)}(A', 1)$	$\sqrt{15}xyz$	$\begin{bmatrix} 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{7}i}{56} \\ \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} & -\frac{3\sqrt{7}i}{56} & 0 \\ 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} \\ \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} \\ \frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{14} & -\frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 \end{bmatrix}$
	$\sqrt{15}xyz$	
$\mathbb{M}_3^{(1,1;a)}(A', 2)$	$-\frac{y(3x^2-2y^2+3z^2)}{2}$	$\begin{bmatrix} -\frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{5\sqrt{7}}{84} & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 \\ 0 & \frac{\sqrt{105}}{168} & \frac{\sqrt{7}i}{28} & 0 & \frac{5\sqrt{7}}{84} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{7}}{112} & 0 & -\frac{2\sqrt{7}i}{21} & -\frac{5\sqrt{7}}{112} & 0 & 0 & \frac{5\sqrt{105}}{336} & 0 & 0 & -\frac{5\sqrt{105}}{336} & 0 \\ 0 & 0 & -\frac{5\sqrt{7}}{112} & 0 & \frac{2\sqrt{7}i}{21} & 0 & 0 & \frac{5\sqrt{7}}{112} & \frac{5\sqrt{105}}{336} & 0 & 0 & 0 & 0 & \frac{5\sqrt{105}}{336} \\ 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & \frac{5\sqrt{7}}{84} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{105}i}{84} \\ -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}}{84} & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & \frac{\sqrt{105}i}{84} & 0 \end{bmatrix}$
	$-\frac{y(3x^2-2y^2+3z^2)}{2}$	
444	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} -\frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & \frac{3\sqrt{7}}{56} & \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{105}}{336} & 0 & 0 & \frac{5\sqrt{105}}{336} & 0 & 0 & -\frac{\sqrt{7}}{112} & 0 & -\frac{\sqrt{7}i}{14} & -\frac{\sqrt{7}}{112} & 0 \\ 0 & 0 & -\frac{5\sqrt{105}}{336} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{105}}{336} & -\frac{\sqrt{7}}{112} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{7}}{112} \\ 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{7}i}{28} \\ \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & -\frac{\sqrt{7}i}{28} & 0 \end{bmatrix}$
445	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & \frac{2\sqrt{7}}{21} & 0 & \frac{5\sqrt{7}i}{112} & -\frac{5\sqrt{7}}{112} & 0 & 0 & 0 & 0 & \frac{5\sqrt{105}i}{336} & \frac{5\sqrt{105}}{336} & 0 \\ 0 & 0 & \frac{2\sqrt{7}}{21} & 0 & -\frac{5\sqrt{7}i}{112} & 0 & 0 & \frac{5\sqrt{7}}{112} & 0 & 0 & -\frac{5\sqrt{105}i}{336} & 0 & 0 & -\frac{5\sqrt{105}}{336} \\ -\frac{\sqrt{105}}{168} & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 \\ 0 & \frac{\sqrt{105}}{168} & \frac{5\sqrt{7}i}{84} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{168} & \frac{5\sqrt{7}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} \\ -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{5\sqrt{7}}{84} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} \end{bmatrix}$
446	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{105}i}{168} & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{84} & \frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} \\ -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & \frac{5\sqrt{7}}{84} & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} \\ 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} \\ -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & \frac{5\sqrt{7}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{84} & \frac{\sqrt{105}i}{168} & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{7}}{112} & 0 & \frac{5\sqrt{7}i}{112} & \frac{2\sqrt{7}}{21} & 0 & 0 & -\frac{5\sqrt{105}}{336} & 0 & -\frac{5\sqrt{105}i}{336} & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{7}}{112} & 0 & -\frac{5\sqrt{7}i}{112} & 0 & 0 & -\frac{2\sqrt{7}}{21} & -\frac{5\sqrt{105}}{336} & 0 & \frac{5\sqrt{105}i}{336} & 0 & 0 & 0 \end{bmatrix}$
447	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{105}i}{336} & -\frac{5\sqrt{105}}{336} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{112} & -\frac{\sqrt{7}}{112} & 0 \\ 0 & 0 & 0 & 0 & \frac{5\sqrt{105}i}{336} & 0 & 0 & \frac{5\sqrt{105}}{336} & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{7}}{112} \\ \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ 0 & -\frac{3\sqrt{7}}{56} & -\frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{7}i}{56} & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{84} & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} \\ -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} \end{bmatrix}$
448	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_3^{(1,1;a)}(A'', 4)$	$\begin{bmatrix} 0 & -\frac{3\sqrt{7}i}{56} & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 \\ 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & \frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & \frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{105}}{336} & 0 & \frac{5\sqrt{105}i}{336} & 0 & 0 & 0 & -\frac{\sqrt{7}}{112} & 0 & \frac{\sqrt{7}i}{112} & \frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & \frac{5\sqrt{105}}{336} & 0 & -\frac{5\sqrt{105}i}{336} & 0 & 0 & 0 & -\frac{\sqrt{7}}{112} & 0 & -\frac{\sqrt{7}i}{112} & 0 & 0 & -\frac{\sqrt{7}}{14} \end{bmatrix}$

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

Table 8: (d,d) block.

No.	multipole	matrix
449	symmetry	$1$ $\begin{bmatrix} \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{10} \end{bmatrix}$
450	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

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	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
452	symmetry	$\sqrt{3}xz$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
	$\mathbb{Q}_2^{(a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
455	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
	$\mathbb{Q}_4^{(a)}(A', 1)$	$\begin{bmatrix} \frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} \end{bmatrix}$
456	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
		$\begin{bmatrix} \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{21}}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{21}}{21} \end{bmatrix}$
457	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
458	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

*continued ...*

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A'', 3)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{21}}{28} & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 \end{bmatrix}$
		$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{Q}_4^{(a)}(A'', 4)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(A'', 2)$	0 0 0 0 0 $\frac{\sqrt{30}}{20}$ 0 $-\frac{\sqrt{30}i}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{30}}{20}$ 0 $-\frac{\sqrt{30}i}{20}$ 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 $-\frac{\sqrt{30}}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $-\frac{\sqrt{10}i}{20}$	
	$\frac{\sqrt{30}}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0	
	0 $\frac{\sqrt{30}i}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $\frac{\sqrt{10}}{20}$	
	$\frac{\sqrt{30}i}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 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 $\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 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 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	
	0 0 0 0 0 $-\frac{\sqrt{15}i}{60}$ 0 $-\frac{\sqrt{15}}{60}$ $\frac{\sqrt{15}i}{30}$ 0	
	0 0 0 0 $-\frac{\sqrt{15}i}{60}$ 0 $\frac{\sqrt{15}}{60}$ 0 0 $-\frac{\sqrt{15}i}{30}$	
	0 $\frac{\sqrt{5}i}{20}$ 0 $\frac{\sqrt{15}i}{60}$ 0 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{15}}{15}$	
	$\frac{\sqrt{5}i}{20}$ 0 $\frac{\sqrt{15}i}{60}$ 0 0 0 0 $-\frac{\sqrt{15}i}{15}$ $\frac{\sqrt{15}}{15}$ 0	
	0 $-\frac{\sqrt{5}}{20}$ 0 $\frac{\sqrt{15}}{60}$ $-\frac{\sqrt{15}i}{15}$ 0 0 0 0 $\frac{\sqrt{15}i}{15}$	
	$\frac{\sqrt{5}}{20}$ 0 $-\frac{\sqrt{15}}{60}$ 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{15}i}{15}$ 0	
	0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 $\frac{\sqrt{15}}{15}$ 0 $-\frac{\sqrt{15}i}{15}$ 0 0	
	0 0 0 $\frac{\sqrt{15}i}{30}$ $-\frac{\sqrt{15}}{15}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 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 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 $\frac{\sqrt{7}}{28}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0	
	0 0 0 0 0 $\frac{5\sqrt{21}i}{84}$ 0 $\frac{5\sqrt{21}}{84}$ $\frac{\sqrt{21}i}{42}$ 0	
	0 0 0 0 $\frac{5\sqrt{21}i}{84}$ 0 $-\frac{5\sqrt{21}}{84}$ 0 0 $-\frac{\sqrt{21}i}{42}$	
	0 $\frac{\sqrt{7}i}{28}$ 0 $-\frac{5\sqrt{21}i}{84}$ 0 0 $\frac{\sqrt{21}i}{21}$ 0 0 $\frac{\sqrt{21}}{42}$	
	$\frac{\sqrt{7}i}{28}$ 0 $-\frac{5\sqrt{21}i}{84}$ 0 0 0 $-\frac{\sqrt{21}i}{21}$ $-\frac{\sqrt{21}}{42}$ 0	
	0 $-\frac{\sqrt{7}}{28}$ 0 $-\frac{5\sqrt{21}}{84}$ $-\frac{\sqrt{21}i}{21}$ 0 0 0 0 $-\frac{\sqrt{21}i}{42}$	
	$\frac{\sqrt{7}}{28}$ 0 $\frac{5\sqrt{21}}{84}$ 0 0 $\frac{\sqrt{21}i}{21}$ 0 0 $-\frac{\sqrt{21}i}{42}$ 0	
	0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0 $\frac{\sqrt{21}i}{42}$ 0 0	
	0 0 0 $\frac{\sqrt{21}i}{42}$ $\frac{\sqrt{21}}{42}$ 0 $\frac{\sqrt{21}i}{42}$ 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 $-\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{21}}{28}$ $-\frac{\sqrt{21}i}{14}$ 0	
	0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{21}}{28}$ 0 0 $\frac{\sqrt{21}i}{14}$	
	0 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0	
	0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 $\frac{\sqrt{7}}{28}$ 0 0 0	
	0 $\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{7}}{14}$	
	$\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0	
	0 $\frac{\sqrt{21}}{28}$ 0 $\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$	
	$-\frac{\sqrt{21}}{28}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0	
	$\frac{\sqrt{21}i}{14}$ 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{\sqrt{7}i}{14}$ 0 0	
472	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & \frac{\sqrt{3}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & -\frac{1}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & \frac{1}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & -\frac{i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & \frac{i}{4} \\ -\frac{\sqrt{3}i}{8} & 0 & -\frac{i}{8} & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{8} & 0 & \frac{i}{8} & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{8} & 0 & \frac{1}{8} & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{8} & 0 & -\frac{1}{8} & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
475	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 \\ 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} \\ 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & -\frac{1}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$
476	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{G}_1^{(1,0;a)}(A'', 2)$	0 0 0 0 0 $-\frac{\sqrt{30}}{20}$ 0 $-\frac{\sqrt{30}i}{20}$ 0 0	
	0 0 0 0 $\frac{\sqrt{30}}{20}$ 0 $-\frac{\sqrt{30}i}{20}$ 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 $\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 $\frac{\sqrt{30}}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $-\frac{\sqrt{10}i}{20}$	
	$-\frac{\sqrt{30}}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0	
	0 $\frac{\sqrt{30}i}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $-\frac{\sqrt{10}}{20}$	
	$\frac{\sqrt{30}i}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0 $\frac{\sqrt{10}}{20}$	
	0 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0	
487	symmetry	$\sqrt{15}xyz$
$\mathbb{G}_3^{(1,0;a)}(A', 1)$	0 0 0 0 0 $-\frac{\sqrt{3}i}{12}$ 0 $-\frac{\sqrt{3}}{12}$ $\frac{\sqrt{3}i}{6}$ 0	
	0 0 0 0 $-\frac{\sqrt{3}i}{12}$ 0 $\frac{\sqrt{3}}{12}$ 0 0 $-\frac{\sqrt{3}i}{6}$	
	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 $\frac{\sqrt{3}i}{12}$ 0 $-\frac{i}{4}$ 0 0 0 0 0 0	
	$\frac{\sqrt{3}i}{12}$ 0 $-\frac{i}{4}$ 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{3}}{12}$ 0 $\frac{1}{4}$ 0 0 0 0 0 0	
	$-\frac{\sqrt{3}}{12}$ 0 $-\frac{1}{4}$ 0 0 0 0 0 0 0	
	$-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 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 0 $-\frac{\sqrt{5}i}{40}$ 0 0 0 0 $\frac{\sqrt{5}i}{8}$	
	0 0 0 0 0 $\frac{\sqrt{5}i}{40}$ 0 0 0 $\frac{\sqrt{5}i}{8}$ 0	
	0 0 0 0 $\frac{3\sqrt{15}i}{40}$ 0 0 0 0 $\frac{\sqrt{15}i}{40}$	
	0 0 0 0 0 $-\frac{3\sqrt{15}i}{40}$ 0 0 0 $\frac{\sqrt{15}i}{40}$ 0	
	$\frac{\sqrt{5}i}{40}$ 0 $-\frac{3\sqrt{15}i}{40}$ 0 0 0 0 $\frac{\sqrt{15}i}{20}$ 0 0	
	0 $-\frac{\sqrt{5}i}{40}$ 0 $\frac{3\sqrt{15}i}{40}$ 0 0 $\frac{\sqrt{15}i}{20}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0	
	0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 0 0 $\frac{\sqrt{15}i}{20}$	
	0 $-\frac{\sqrt{5}i}{8}$ 0 $-\frac{\sqrt{15}i}{40}$ 0 0 $\frac{\sqrt{15}i}{20}$ 0 0 0	
	$-\frac{\sqrt{5}i}{8}$ 0 $-\frac{\sqrt{15}i}{40}$ 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0	
489	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{G}_3^{(1,0;a)}(A', 3)$	0 0 0 $\frac{\sqrt{3}}{6}$ $\frac{\sqrt{3}i}{24}$ 0 0 0 0 $-\frac{\sqrt{3}i}{24}$	
	0 0 $-\frac{\sqrt{3}}{6}$ 0 0 $-\frac{\sqrt{3}i}{24}$ 0 0 $-\frac{\sqrt{3}i}{24}$ 0	
	0 $-\frac{\sqrt{3}}{6}$ 0 0 $\frac{i}{8}$ 0 0 0 0 $-\frac{i}{8}$	
	$\frac{\sqrt{3}}{6}$ 0 0 0 0 $-\frac{i}{8}$ 0 0 $-\frac{i}{8}$ 0	
	$-\frac{\sqrt{3}i}{24}$ 0 $-\frac{i}{8}$ 0 0 0 0 $-\frac{i}{4}$ 0 0	
	0 $\frac{\sqrt{3}i}{24}$ 0 $\frac{i}{8}$ 0 0 $-\frac{i}{4}$ 0 0 0	
	0 0 0 0 0 $\frac{i}{4}$ 0 0 $-\frac{i}{4}$ 0	
	0 0 0 0 $\frac{i}{4}$ 0 0 0 0 $\frac{i}{4}$	
	0 $\frac{\sqrt{3}i}{24}$ 0 $\frac{i}{8}$ 0 0 $\frac{i}{4}$ 0 0 0	
	$\frac{\sqrt{3}i}{24}$ 0 $\frac{i}{8}$ 0 0 0 0 $-\frac{i}{4}$ 0 0	
490	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
	$\mathbb{G}_3^{(1,0;a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & \frac{\sqrt{3}}{24} \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & -\frac{\sqrt{3}}{24} & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & -\frac{1}{8} \\ -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & \frac{1}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & \frac{i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & -\frac{i}{4} \\ \frac{\sqrt{3}i}{24} & 0 & -\frac{i}{8} & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{24} & 0 & \frac{i}{8} & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{24} & 0 & \frac{1}{8} & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}}{24} & 0 & -\frac{1}{8} & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$
493	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{G}_3^{(1,0;a)}(A'', 4)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 \\ 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & -\frac{1}{4} & 0 & 0 \end{bmatrix}$
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 $\frac{\sqrt{14}}{28}$ 0 $\frac{\sqrt{14}i}{28}$ 0 0	
	0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ 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 $\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{42}}{28}$ 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$	
	$\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{42}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0	
	0 $\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{42}}{28}$	
	$-\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{42}i}{28}$ 0 0 0 0 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 $-\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{28}$ 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 $\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{84}$ $\frac{\sqrt{42}}{21}$ 0	
	0 0 0 0 $\frac{\sqrt{42}}{84}$ 0 $\frac{\sqrt{42}i}{84}$ 0 0 $-\frac{\sqrt{42}}{21}$	
	0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $\frac{\sqrt{14}i}{28}$ 0 0 0	
	0 $\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 0 $-\frac{\sqrt{14}}{14}$ 0 0 $-\frac{\sqrt{14}i}{28}$	
	$\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 0 0 $\frac{\sqrt{14}}{14}$ $\frac{\sqrt{14}i}{28}$ 0	
	0 $-\frac{\sqrt{42}i}{84}$ 0 $-\frac{\sqrt{14}i}{28}$ $-\frac{\sqrt{14}}{14}$ 0 0 0 0 $\frac{\sqrt{14}}{28}$	
	$\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{14}i}{28}$ 0 0 $\frac{\sqrt{14}}{14}$ 0 0 0 $\frac{\sqrt{14}}{28}$ 0	
	$\frac{\sqrt{42}}{21}$ 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{14}}{28}$ 0 0	
	0 $-\frac{\sqrt{42}}{21}$ 0 0 $\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{14}}{28}$ 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	$\frac{\sqrt{42}i}{42}$
	$\frac{\sqrt{42}i}{42}$	0
	$-\frac{\sqrt{42}}{84}$	0
	0	$\frac{\sqrt{42}}{84}$
	0	0
	0	$\frac{\sqrt{14}}{28}$
	$-\frac{\sqrt{14}}{28}$	0
	$-\frac{\sqrt{42}}{42}$	0
497	symmetry	$\sqrt{3}yz$
$\mathbb{T}_2^{(1,0;a)}(A'', 1)$	0	$-\frac{\sqrt{14}}{14}$
	$-\frac{\sqrt{14}}{14}$	0
	0	$\frac{\sqrt{42}}{42}$
	$\frac{\sqrt{42}}{42}$	0
	0	$\frac{\sqrt{14}}{14}$
	$\frac{\sqrt{42}}{42}$	0
	0	0
	0	$\frac{\sqrt{14}}{28}$
	$\frac{\sqrt{42}}{84}$	0
	$-\frac{\sqrt{42}}{84}$	0
498	symmetry	$\sqrt{3}xy$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(A'', 2)$	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	
	$-\frac{\sqrt{42}}{21}$ 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0	
	0 $\frac{\sqrt{42}}{21}$ 0 0 $-\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 0	
	0 $-\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{14}i}{28}$ $-\frac{\sqrt{14}}{14}$ 0 0 0 0 $-\frac{\sqrt{14}}{28}$	
	$\frac{\sqrt{42}i}{84}$ 0 $-\frac{\sqrt{14}i}{28}$ 0 0 $\frac{\sqrt{14}}{14}$ 0 0 $-\frac{\sqrt{14}}{28}$ 0	
	0 $-\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 $\frac{\sqrt{14}}{14}$ 0 0 $-\frac{\sqrt{14}i}{28}$	
	$-\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 0 0 $-\frac{\sqrt{14}}{14}$ $\frac{\sqrt{14}i}{28}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $\frac{\sqrt{14}i}{28}$ 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 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 $\frac{\sqrt{3}}{12}$ 0 $-\frac{\sqrt{3}i}{12}$ $-\frac{\sqrt{3}}{6}$ 0	
	0 0 0 0 $\frac{\sqrt{3}}{12}$ 0 $\frac{\sqrt{3}i}{12}$ 0 0 $\frac{\sqrt{3}}{6}$	
	0 $\frac{1}{4}$ 0 $\frac{\sqrt{3}}{12}$ 0 0 0 0 0 0	
	$\frac{1}{4}$ 0 $\frac{\sqrt{3}}{12}$ 0 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 $\frac{\sqrt{3}i}{12}$ 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	
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 0 0 0 $\frac{\sqrt{35}}{28}$ 0 $\frac{\sqrt{35}i}{28}$ 0 0	
	0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{105}}{420}$ 0 $\frac{\sqrt{105}i}{420}$ $\frac{\sqrt{105}}{30}$ 0 0	
	0 0 0 0 0 $-\frac{\sqrt{105}}{420}$ 0 $-\frac{\sqrt{105}i}{420}$ 0 0 $-\frac{\sqrt{105}}{30}$	
	0 $\frac{\sqrt{35}}{28}$ 0 $-\frac{\sqrt{105}}{420}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{70}$	
	$\frac{\sqrt{35}}{28}$ 0 $-\frac{\sqrt{105}}{420}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{70}$ 0	
	0 $\frac{\sqrt{35}i}{28}$ 0 $\frac{\sqrt{105}i}{420}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$	
	$-\frac{\sqrt{35}i}{28}$ 0 $-\frac{\sqrt{105}i}{420}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0	
	0 0 $\frac{\sqrt{105}}{30}$ 0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 $-\frac{\sqrt{105}}{70}$ 0 0	
	0 0 0 $-\frac{\sqrt{105}}{30}$ $\frac{\sqrt{105}i}{70}$ 0 0 $-\frac{\sqrt{105}}{70}$ 0 0 0	
501 symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$	
	0 0 0 0 0 $-\frac{3\sqrt{105}}{140}$ 0 $\frac{3\sqrt{105}i}{140}$ $\frac{\sqrt{105}}{70}$ 0	
	0 0 0 0 $-\frac{3\sqrt{105}}{140}$ 0 $-\frac{3\sqrt{105}i}{140}$ 0 0 $-\frac{\sqrt{105}}{70}$	
	0 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 $\frac{\sqrt{35}i}{28}$ 0 0 0	
	0 $-\frac{3\sqrt{105}}{140}$ 0 $-\frac{\sqrt{35}}{28}$ 0 0 $\frac{\sqrt{35}}{35}$ 0 0 $\frac{\sqrt{35}i}{70}$	
	$-\frac{3\sqrt{105}}{140}$ 0 $-\frac{\sqrt{35}}{28}$ 0 0 0 0 $-\frac{\sqrt{35}}{35}$ $-\frac{\sqrt{35}i}{70}$ 0	
	0 $\frac{3\sqrt{105}i}{140}$ 0 $-\frac{\sqrt{35}i}{28}$ $\frac{\sqrt{35}}{35}$ 0 0 0 0 $-\frac{\sqrt{35}}{70}$	
	$-\frac{3\sqrt{105}i}{140}$ 0 $\frac{\sqrt{35}i}{28}$ 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 $-\frac{\sqrt{35}}{70}$ 0	
	$\frac{\sqrt{105}}{70}$ 0 0 0 0 $\frac{\sqrt{35}i}{70}$ 0 $-\frac{\sqrt{35}}{70}$ 0 0 0	
502 symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$	

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A', 4)$		$\begin{bmatrix} 0 & -\frac{3\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} \\ \frac{3\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 \\ 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{40} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 \\ -\frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 \\ 0 & \frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{5} & \frac{\sqrt{5}}{20} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & -\frac{\sqrt{5}}{20} \\ 0 & \frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 \\ \frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 \end{bmatrix}$
		$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
$\mathbb{T}_4^{(1,0;a)}(A', 5)$		$\begin{bmatrix} 0 & \frac{3\sqrt{35}i}{140} & 0 & \frac{\sqrt{105}i}{140} & \frac{\sqrt{105}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{56} \\ -\frac{3\sqrt{35}i}{140} & 0 & -\frac{\sqrt{105}i}{140} & 0 & 0 & -\frac{\sqrt{105}}{280} & 0 & 0 & -\frac{\sqrt{105}}{56} & 0 \\ 0 & \frac{\sqrt{105}i}{140} & 0 & -\frac{3\sqrt{35}i}{140} & \frac{11\sqrt{35}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{40} \\ -\frac{\sqrt{105}i}{140} & 0 & \frac{3\sqrt{35}i}{140} & 0 & 0 & -\frac{11\sqrt{35}}{280} & 0 & 0 & -\frac{\sqrt{35}}{40} & 0 \\ \frac{\sqrt{105}}{280} & 0 & \frac{11\sqrt{35}}{280} & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{280} & 0 & -\frac{11\sqrt{35}}{280} & \frac{\sqrt{35}i}{35} & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & \frac{\sqrt{35}}{28} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} \\ 0 & -\frac{\sqrt{105}}{56} & 0 & -\frac{\sqrt{35}}{40} & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & \frac{\sqrt{35}i}{35} \\ -\frac{\sqrt{105}}{56} & 0 & -\frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & -\frac{\sqrt{35}i}{35} & 0 \end{bmatrix}$
		$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A'', 1)$	0	$\frac{3\sqrt{5}}{20} \quad 0 \quad \frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{40}$
	$\frac{3\sqrt{5}}{20}$	$0 \quad \frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{40} \quad \frac{\sqrt{15}i}{40} \quad 0$
	0	$\frac{\sqrt{15}}{20} \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{40}$
	$\frac{\sqrt{15}}{20}$	$0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{40} \quad \frac{\sqrt{5}i}{40} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{5} \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad \frac{\sqrt{5}}{20} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{5} \quad 0 \quad \frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20}$
	$-\frac{\sqrt{15}}{40}$	$0 \quad -\frac{\sqrt{5}}{40} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{15}}{40} \quad 0 \quad \frac{\sqrt{5}}{40} \quad \frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{15}i}{40} \quad 0 \quad -\frac{\sqrt{5}i}{40} \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{15}i}{40}$	$0 \quad \frac{\sqrt{5}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
505	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{T}_4^{(1,0;a)}(A'', 2)$	0	$0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0$
	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	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20}$
	0	$0 \quad 0 \quad \frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20}$
	0	$0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad -\frac{\sqrt{5}}{5} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad \frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{5}$
506	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A'', 3)$	0	$\begin{bmatrix} 0 & \frac{3\sqrt{35}}{140} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & -\frac{\sqrt{105}}{280} & 0 & 0 & -\frac{\sqrt{105}i}{56} \\ \frac{3\sqrt{35}}{140} & 0 & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{280} & \frac{\sqrt{105}i}{56} & 0 \\ 0 & -\frac{\sqrt{105}}{140} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & \frac{11\sqrt{35}}{280} & 0 & 0 & \frac{\sqrt{35}i}{40} \\ -\frac{\sqrt{105}}{140} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{35}}{280} & -\frac{\sqrt{35}i}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & -\frac{\sqrt{35}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & \frac{\sqrt{35}}{28} \\ -\frac{\sqrt{105}}{280} & 0 & \frac{11\sqrt{35}}{280} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 \\ 0 & \frac{\sqrt{105}}{280} & 0 & -\frac{11\sqrt{35}}{280} & \frac{\sqrt{35}i}{28} & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}i}{56} & 0 & \frac{\sqrt{35}i}{40} & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{35} \\ \frac{\sqrt{105}i}{56} & 0 & -\frac{\sqrt{35}i}{40} & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & 0 \end{bmatrix}$
	507	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
	$\mathbb{T}_4^{(1,0;a)}(A'', 4)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & -\frac{3\sqrt{105}i}{140} & 0 & -\frac{3\sqrt{105}}{140} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & \frac{3\sqrt{105}i}{140} & 0 & -\frac{3\sqrt{105}}{140} & 0 & 0 & 0 \\ \frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{105}i}{140} & 0 & \frac{\sqrt{35}i}{70} & -\frac{\sqrt{35}}{35} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} \\ \frac{3\sqrt{105}i}{140} & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & 0 & \frac{\sqrt{35}}{28} & 0 \\ 0 & -\frac{3\sqrt{105}}{140} & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & 0 & \frac{\sqrt{35}i}{28} \\ -\frac{3\sqrt{105}}{140} & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{35} & -\frac{\sqrt{35}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 \end{bmatrix}$
	508	symmetry
	$y$	

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_1^{(a)}(A')$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ \frac{\sqrt{15}i}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \end{bmatrix}$
509	symmetry	$\begin{bmatrix} & & & & & & x & & & \\ & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} & 0 & 0 & 0 & 0 \\ & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} & 0 & 0 & 0 \\ & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \\ & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 \\ & -\frac{\sqrt{15}i}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ & 0 & -\frac{\sqrt{15}i}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} \\ & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} \\ & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \\ & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \end{bmatrix}$
510	symmetry	$\begin{bmatrix} & & & & & & z & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \end{bmatrix}$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(A', 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 \end{bmatrix}$
		$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{M}_3^{(a)}(A', 3)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{i}{4} & 0 & \frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{4} & 0 & \frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
514	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 8

No.	multipole	matrix
$M_3^{(a)}(A'', 1)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 \end{bmatrix}$
		$-\frac{z(3x^2+3y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
515	symmetry	
516	symmetry	

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(A'', 3)$	0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{i}{4}$ 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 $\frac{\sqrt{3}i}{4}$ 0 0 0 0	
	$\frac{i}{4}$ 0 $-\frac{\sqrt{3}i}{4}$ 0 0 0 0 0 0 0 0	
	0 $\frac{i}{4}$ 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	
517	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
$\mathbb{M}_3^{(a)}(A'', 4)$	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	
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	$x$
$\mathbb{M}_1^{(1,-1;a)}(A'', 1)$	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	0
	0	$\frac{\sqrt{10}}{10}$
	0	0
520	symmetry	$z$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_1^{(1,-1;a)}(A'', 2)$	$\frac{\sqrt{10}}{10} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{10}}{10} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{10}}{10} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{10} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{10} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{10}}{10} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{10}}{10}$	
521	symmetry	$\sqrt{15}xyz$
$\mathbb{M}_3^{(1,-1;a)}(A', 1)$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad -\frac{\sqrt{21}}{21} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{21}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14}$	
	$\frac{\sqrt{21}}{42} \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad \frac{\sqrt{7}i}{14} \quad 0$	
	$0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14}$	
	$\frac{\sqrt{21}i}{42} \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0$	
	$-\frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0$	
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	$\frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{3\sqrt{35}i}{70} \quad -\frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35}$
	$-\frac{\sqrt{105}i}{70}$	$0 \quad \frac{3\sqrt{35}i}{70} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35} \quad 0$
	0	$-\frac{3\sqrt{35}i}{70} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{3\sqrt{35}i}{70}$	$0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{35}}{70}$	$0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0$
	0	$\frac{\sqrt{35}}{70} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad \frac{\sqrt{105}i}{70} \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad \frac{\sqrt{105}i}{35} \quad -\frac{\sqrt{105}}{70} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad -\frac{\sqrt{105}i}{35} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70}$
	$\frac{\sqrt{35}}{35}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70}$
$\frac{\sqrt{15}y(x-z)(x+z)}{2}$		
523	symmetry	$\mathbb{M}_3^{(1,-1;a)}(A', 3)$
$\frac{x(2x^2-3y^2-3z^2)}{2}$		

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{5}}{10} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 \end{bmatrix}$
529	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & -\frac{\sqrt{15}i}{30} \\ -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & \frac{\sqrt{15}i}{30} & 0 \\ 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} \\ -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & \frac{\sqrt{15}}{30} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & \frac{\sqrt{15}}{30} & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}i}{30} & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & 0 \end{bmatrix}$
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
$\mathbb{M}_5^{(1,-1;a)}(A', 3)$		$\begin{bmatrix} 0 & -\frac{3\sqrt{7}i}{56} & 0 & -\frac{5\sqrt{21}i}{168} & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} \\ \frac{3\sqrt{7}i}{56} & 0 & \frac{5\sqrt{21}i}{168} & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{21}}{84} & 0 \\ 0 & -\frac{5\sqrt{21}i}{168} & 0 & -\frac{19\sqrt{7}i}{168} & \frac{5\sqrt{7}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{12} \\ \frac{5\sqrt{21}i}{168} & 0 & \frac{19\sqrt{7}i}{168} & 0 & 0 & -\frac{5\sqrt{7}}{84} & 0 & 0 & \frac{\sqrt{7}}{12} & 0 \\ \frac{\sqrt{21}}{28} & 0 & \frac{5\sqrt{7}}{84} & 0 & 0 & \frac{2\sqrt{7}i}{21} & 0 & \frac{\sqrt{7}}{42} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & -\frac{5\sqrt{7}}{84} & -\frac{2\sqrt{7}i}{21} & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & -\frac{\sqrt{7}i}{42} & \frac{\sqrt{7}}{42} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & \frac{\sqrt{7}i}{42} & 0 & 0 & -\frac{\sqrt{7}}{42} \\ 0 & \frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{7}}{12} & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & \frac{2\sqrt{7}i}{21} \\ \frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{7}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{42} & -\frac{2\sqrt{7}i}{21} & 0 \end{bmatrix}$
		$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$
$\mathbb{M}_5^{(1,-1;a)}(A', 4)$		$\begin{bmatrix} 0 & -\frac{3\sqrt{5}i}{40} & 0 & \frac{\sqrt{15}i}{40} & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ \frac{3\sqrt{5}i}{40} & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ 0 & \frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{5}i}{40} & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ -\frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{5}i}{40} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 \end{bmatrix}$
		$\frac{\sqrt{105}y(x-z)(x+z)(x^2 - 2y^2 + z^2)}{4}$

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{5}i}{20} & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{15}i}{20} & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} \\ -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & \frac{\sqrt{15}}{15} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{15}}{30} & \frac{\sqrt{15}i}{15} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{15} \\ 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{15} & 0 \end{bmatrix}$
533	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
		$\begin{bmatrix} 0 & \frac{3\sqrt{7}}{56} & 0 & -\frac{5\sqrt{21}}{168} & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{21}i}{84} \\ \frac{3\sqrt{7}}{56} & 0 & -\frac{5\sqrt{21}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & \frac{\sqrt{21}i}{84} & 0 \\ 0 & -\frac{5\sqrt{21}}{168} & 0 & \frac{19\sqrt{7}}{168} & 0 & 0 & -\frac{5\sqrt{7}}{84} & 0 & 0 & \frac{\sqrt{7}i}{12} \\ -\frac{5\sqrt{21}}{168} & 0 & \frac{19\sqrt{7}}{168} & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}}{84} & -\frac{\sqrt{7}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & -\frac{\sqrt{7}i}{42} & \frac{\sqrt{7}}{42} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & \frac{\sqrt{7}i}{42} & 0 & 0 & -\frac{\sqrt{7}}{42} \\ \frac{\sqrt{21}}{28} & 0 & -\frac{5\sqrt{7}}{84} & 0 & 0 & -\frac{\sqrt{7}i}{42} & 0 & -\frac{2\sqrt{7}}{21} & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{5\sqrt{7}}{84} & \frac{\sqrt{7}i}{42} & 0 & -\frac{2\sqrt{7}}{21} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{7}i}{12} & \frac{\sqrt{7}}{42} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{7}}{21} \\ \frac{\sqrt{21}i}{84} & 0 & -\frac{\sqrt{7}i}{12} & 0 & 0 & -\frac{\sqrt{7}}{42} & 0 & 0 & -\frac{2\sqrt{7}}{21} & 0 \end{bmatrix}$
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
$\mathbb{M}_5^{(1,-1;a)}(A'', 2)$	$\frac{\sqrt{7}}{7} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{21} \quad 0 \quad -\frac{\sqrt{21}}{21} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{7}}{7} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{21} \quad 0 \quad -\frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{42} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{42} \quad -\frac{\sqrt{7}i}{42} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{21}i}{21} \quad 0 \quad \frac{\sqrt{7}i}{42} \quad -\frac{2\sqrt{7}}{21} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{42}$	
	$-\frac{\sqrt{21}i}{21} \quad 0 \quad -\frac{\sqrt{7}i}{42} \quad 0 \quad 0 \quad \frac{2\sqrt{7}}{21} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0$	
	$0 \quad -\frac{\sqrt{21}}{21} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad -\frac{2\sqrt{7}}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{42}$	
	$-\frac{\sqrt{21}}{21} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{2\sqrt{7}}{21} \quad \frac{\sqrt{7}i}{42} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad -\frac{\sqrt{7}i}{42} \quad \frac{\sqrt{7}}{42} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad \frac{\sqrt{7}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{42}$	
535	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$
$\mathbb{M}_5^{(1,-1;a)}(A'', 3)$	$0 \quad \frac{3\sqrt{5}}{40} \quad 0 \quad \frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{20}$	
	$\frac{3\sqrt{5}}{40} \quad 0 \quad \frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{20} \quad -\frac{\sqrt{15}i}{20} \quad 0$	
	$0 \quad \frac{\sqrt{15}}{40} \quad 0 \quad \frac{\sqrt{5}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20}$	
	$\frac{\sqrt{15}}{40} \quad 0 \quad \frac{\sqrt{5}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad -\frac{\sqrt{5}i}{20} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad \frac{\sqrt{5}i}{10} \quad -\frac{\sqrt{5}}{10} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad -\frac{\sqrt{5}i}{10} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10}$	
	$\frac{\sqrt{15}}{20} \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{10} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{15}}{20} \quad 0 \quad -\frac{\sqrt{5}}{20} \quad -\frac{\sqrt{5}i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{15}i}{20} \quad 0 \quad \frac{\sqrt{5}i}{20} \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{15}i}{20} \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad 0 \quad 0$	
536	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(A', 3)$	0	$\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{7}i}{28}$ $\frac{5\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{3\sqrt{7}}{56}$
	$-\frac{\sqrt{21}i}{28}$	0 $-\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{5\sqrt{7}}{56}$ 0 0 0 $\frac{3\sqrt{7}}{56}$ 0
	0	$\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{21}i}{28}$ $-\frac{\sqrt{21}}{168}$ 0 0 0 0 $-\frac{\sqrt{21}}{24}$ 0
	$-\frac{\sqrt{7}i}{28}$	0 $\frac{\sqrt{21}i}{28}$ 0 0 $\frac{\sqrt{21}}{168}$ 0 0 0 $-\frac{\sqrt{21}}{24}$ 0
	$\frac{5\sqrt{7}}{56}$	0 $-\frac{\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}i}{21}$ 0 $\frac{\sqrt{21}}{28}$ 0 0 0
	0	$-\frac{5\sqrt{7}}{56}$ 0 $\frac{\sqrt{21}}{168}$ $\frac{\sqrt{21}i}{21}$ 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{21}}{28}$ 0 0 $-\frac{\sqrt{21}}{28}$ 0
	0	0 0 0 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0 $\frac{\sqrt{21}}{28}$
	0	$\frac{3\sqrt{7}}{56}$ 0 $-\frac{\sqrt{21}}{24}$ 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0 $\frac{\sqrt{21}i}{21}$
	$\frac{3\sqrt{7}}{56}$	0 $-\frac{\sqrt{21}}{24}$ 0 0 0 0 $\frac{\sqrt{21}}{28}$ $-\frac{\sqrt{21}i}{21}$ 0 0
$\mathbb{M}_3^{(1,1;a)}(A'', 1)$	$\frac{x(2x^2-3y^2-3z^2)}{2}$	
	0	$\frac{3\sqrt{35}}{140}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 $\frac{\sqrt{105}i}{168}$
	$\frac{3\sqrt{35}}{140}$	0 $-\frac{\sqrt{105}}{84}$ 0 0 0 0 0 $\frac{\sqrt{105}}{56}$ $-\frac{\sqrt{105}i}{168}$ 0
	0	$-\frac{\sqrt{105}}{84}$ 0 $\frac{19\sqrt{35}}{420}$ 0 0 0 $\frac{5\sqrt{35}}{168}$ 0 0 $-\frac{\sqrt{35}i}{24}$
	$-\frac{\sqrt{105}}{84}$	0 $\frac{19\sqrt{35}}{420}$ 0 0 0 0 0 $-\frac{5\sqrt{35}}{168}$ $\frac{\sqrt{35}i}{24}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{35}}{105}$ 0 $\frac{\sqrt{35}i}{84}$ $-\frac{\sqrt{35}}{84}$ 0
	0	0 0 0 0 $\frac{\sqrt{35}}{105}$ 0 $-\frac{\sqrt{35}i}{84}$ 0 0 $\frac{\sqrt{35}}{84}$
	$-\frac{\sqrt{105}}{56}$	0 $\frac{5\sqrt{35}}{168}$ 0 0 0 $\frac{\sqrt{35}i}{84}$ 0 $-\frac{4\sqrt{35}}{105}$ 0 0
	0	$\frac{\sqrt{105}}{56}$ 0 $-\frac{5\sqrt{35}}{168}$ $-\frac{\sqrt{35}i}{84}$ 0 $-\frac{4\sqrt{35}}{105}$ 0 0 0 0
	0	$\frac{\sqrt{105}i}{168}$ 0 $-\frac{\sqrt{35}i}{24}$ $-\frac{\sqrt{35}}{84}$ 0 0 0 0 $-\frac{4\sqrt{35}}{105}$
	$-\frac{\sqrt{105}i}{168}$	0 $\frac{\sqrt{35}i}{24}$ 0 0 0 $\frac{\sqrt{35}}{84}$ 0 0 $-\frac{4\sqrt{35}}{105}$ 0
546	$-\frac{z(3x^2+3y^2-2z^2)}{2}$	
	continued ...	

Table 8

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

continued ...

Table 8

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

bra: =  $\langle d_u, \uparrow |, \langle d_u, \downarrow |, \langle d_v, \uparrow |, \langle d_v, \downarrow |, \langle d_{yz}, \uparrow |, \langle d_{yz}, \downarrow |, \langle d_{xz}, \uparrow |, \langle d_{xz}, \downarrow |, \langle d_{xy}, \uparrow |, \langle d_{xy}, \downarrow |$ ket: =  $|f_3, \uparrow\rangle, |f_3, \downarrow\rangle, |f_{ax}, \uparrow\rangle, |f_{ax}, \downarrow\rangle, |f_{ay}, \uparrow\rangle, |f_{ay}, \downarrow\rangle, |f_{az}, \uparrow\rangle, |f_{az}, \downarrow\rangle, |f_{bx}, \uparrow\rangle, |f_{bx}, \downarrow\rangle, |f_{by}, \uparrow\rangle, |f_{by}, \downarrow\rangle, |f_{bz}, \uparrow\rangle, |f_{bz}, \downarrow\rangle$ 

Table 9: (d,f) block.

No.	multipole	matrix
549	symmetry	$x$
$\mathbb{Q}_1^{(a)}(A', 1)$	0	0 $-\frac{3\sqrt{35}}{140}$ 0 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0 0 0 0
	0	0 0 $-\frac{3\sqrt{35}}{140}$ 0 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0 0 0 0
	0	0 0 $\frac{3\sqrt{105}}{140}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 0 0
	0	0 0 0 $\frac{3\sqrt{105}}{140}$ 0 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 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 0 0 0
	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 $-\frac{\sqrt{105}}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{7}}{14}$
	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 $-\frac{\sqrt{105}}{70}$ 0 0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0

continued ...

Table 9

No.	multipole	matrix
550	symmetry	$z$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
551	symmetry	$y$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} \\ \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \end{bmatrix}$
552	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

*continued ...*

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(a)}(A', 1)$	0 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 0 0 $\frac{1}{4}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 0 0 $\frac{1}{4}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 $\frac{\sqrt{3}}{12}$ 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 $\frac{\sqrt{3}}{12}$ 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 $-\frac{\sqrt{5}}{40}$ 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 $\frac{\sqrt{3}}{24}$	
	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 $-\frac{\sqrt{5}}{40}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{3}}{24}$ 0 0	
553	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{Q}_3^{(a)}(A', 2)$	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 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 $-\frac{\sqrt{5}}{40}$ 0 0 0 0 0 $\frac{\sqrt{3}}{24}$ 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 $-\frac{\sqrt{5}}{40}$ 0 0 0 0 0 $-\frac{\sqrt{3}}{24}$ 0 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	
	$-\frac{\sqrt{3}}{6}$ 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	
554	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{Q}_3^{(a)}(A', 3)$	$\begin{bmatrix} 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 \end{bmatrix}$
555	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
556	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{Q}_3^{(a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
557	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 \end{bmatrix}$
558	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{Q}_3^{(a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
559	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{168} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{168} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{168} & 0 & 0 \end{bmatrix}$
560	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
$\mathbb{Q}_5^{(a)}(A', 2)$	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 0 0 0 0 $\frac{\sqrt{42}}{84}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}}{84}$	
	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 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $-\frac{5\sqrt{42}}{168}$ 0 0 0	
	0 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $\frac{5\sqrt{42}}{168}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $\frac{5\sqrt{42}}{168}$ 0 0 0 0	
	$\frac{\sqrt{42}}{84}$ 0 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 0 0 0	
561	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$
$\mathbb{Q}_5^{(a)}(A', 3)$	0 0 0 0 0 0 0 0 $-\frac{3\sqrt{10}}{40}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{10}}{40}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}}{40}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}}{40}$ 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 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{2}}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{30}}{40}$ 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{2}}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{30}}{40}$	
	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 0 0 0 0 $-\frac{\sqrt{30}}{40}$ 0 0	
562	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(a)}(A', 4)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{40} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
563	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$
$\mathbb{Q}_5^{(a)}(A', 5)$		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
564	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{Q}_5^{(a)}(A', 6)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
565	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \end{bmatrix}$
566	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{Q}_5^{(a)}(A'', 2)$	$\begin{bmatrix} -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
567	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{168} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{168} \\ \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{168} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{168} & 0 & 0 & 0 & 0 \end{bmatrix}$
568	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(a)}(A'', 4)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{40} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} \\ -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{40} & 0 & 0 & 0 \end{bmatrix}$
569	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
$\mathbb{Q}_5^{(a)}(A'', 5)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
570	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,-1;a)}(A', 1)$	0	$\begin{bmatrix} 0 & \frac{3\sqrt{14}i}{56} & 0 & 0 & \frac{\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & \frac{\sqrt{14}}{28} \\ \frac{3\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & -\frac{\sqrt{14}}{28} & 0 \\ 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 & \frac{\sqrt{70}}{140} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 \\ \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{280} & -\frac{\sqrt{70}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & \frac{\sqrt{70}i}{70} & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & -\frac{\sqrt{70}i}{70} & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{70}}{70} & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{70}i}{70} & 0 & 0 & 0 & \frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{70} & 0 & 0 & \frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 \end{bmatrix}$
	571	$\text{symmetry } -\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{Q}_3^{(1,-1;a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{210}i}{280} & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{210}i}{280} & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{28} & 0 & 0 & -\frac{\sqrt{70}}{280} & 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{28} & \frac{\sqrt{70}}{280} & 0 & -\frac{\sqrt{70}i}{280} & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{70}i}{280} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{70} & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{70}i}{280} & 0 & 0 & \frac{\sqrt{70}i}{70} & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{280} & 0 & 0 & -\frac{\sqrt{70}}{70} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{280} & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{70} & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & 0 \\ 0 & 0 & -\frac{\sqrt{70}i}{70} & 0 & -\frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} \end{bmatrix}$
	572	$\text{symmetry } \frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,-1;a)}(A', 3)$	0	$-\frac{\sqrt{210}i}{168}$ 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{210}i}{168}$ 0 0 $-\frac{\sqrt{210}}{84}$
	$-\frac{\sqrt{210}i}{168}$	0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{168}$ $\frac{\sqrt{210}}{84}$ 0
	0	$\frac{\sqrt{70}i}{56}$ 0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 0 $-\frac{\sqrt{42}}{84}$ 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0
	$\frac{\sqrt{70}i}{56}$	0 0 0 0 0 $\frac{\sqrt{42}i}{168}$ $\frac{\sqrt{42}}{84}$ 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{42}$ $\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{42}i}{84}$ 0 $-\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{42}}{42}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0
	0	0 0 $\frac{\sqrt{42}}{42}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0
	0	0 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$
	0	0 0 0 $\frac{\sqrt{42}i}{42}$ 0 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0
573	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
$\mathbb{Q}_3^{(1,-1;a)}(A', 4)$	$\frac{\sqrt{210}i}{84}$	0 0 $-\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0
	0	$-\frac{\sqrt{210}i}{84}$ $\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 $\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ 0 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 $-\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0
	0	0 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 $-\frac{\sqrt{42}i}{42}$ $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{42}i}{168}$ 0 0 $-\frac{\sqrt{42}i}{42}$ 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{42}i}{168}$ $\frac{\sqrt{42}}{42}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0
	0	0 0 0 $\frac{\sqrt{42}i}{42}$ 0 $\frac{\sqrt{42}}{42}$ $\frac{\sqrt{42}i}{84}$ 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{42}i}{42}$ 0 $-\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}i}{84}$ 0 0 0 0 0 0 0
574	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,-1;a)}(A'', 1)$	0 0 0 $\frac{\sqrt{14}i}{56}$ 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ $-\frac{\sqrt{210}i}{84}$ 0	
	0 0 $\frac{\sqrt{14}i}{56}$ 0 $\frac{\sqrt{14}}{56}$ 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 $-\frac{\sqrt{210}}{168}$ 0 0 $\frac{\sqrt{210}i}{84}$	
	0 0 0 $\frac{\sqrt{42}i}{168}$ 0 $\frac{\sqrt{42}}{168}$ $-\frac{\sqrt{42}i}{84}$ 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0	
	0 0 $\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ 0 0 $\frac{\sqrt{42}i}{84}$ $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{42}i}{42}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{42}i}{42}$ $\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 $\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{42}i}{42}$ 0 0 $\frac{\sqrt{42}i}{42}$ 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 $-\frac{\sqrt{42}}{42}$ 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 0 0 0 0 0	
575	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
$\mathbb{Q}_3^{(1,-1;a)}(A'', 2)$	0 $-\frac{3\sqrt{14}}{56}$ $-\frac{\sqrt{210}i}{280}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 $\frac{\sqrt{14}i}{28}$	
	$\frac{3\sqrt{14}}{56}$ 0 0 $\frac{\sqrt{210}i}{280}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 $\frac{\sqrt{14}i}{28}$ 0	
	0 $\frac{\sqrt{42}}{56}$ $-\frac{\sqrt{70}i}{280}$ 0 0 0 0 $\frac{\sqrt{70}i}{140}$ $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0	
	$-\frac{\sqrt{42}}{56}$ 0 0 $\frac{\sqrt{70}i}{280}$ 0 0 $\frac{\sqrt{70}i}{140}$ 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0	
	0 0 0 $\frac{3\sqrt{70}}{280}$ 0 $-\frac{\sqrt{70}i}{70}$ 0 0 0 0 $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0	
	0 0 $-\frac{3\sqrt{70}}{280}$ 0 $-\frac{\sqrt{70}i}{70}$ 0 0 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{70}i}{70}$ 0 0 $-\frac{\sqrt{70}i}{70}$ 0 0 0 0 0 $\frac{\sqrt{42}}{28}$ 0 0	
	0 0 $\frac{\sqrt{70}i}{70}$ 0 0 0 0 $\frac{\sqrt{70}i}{70}$ 0 0 0 $-\frac{\sqrt{42}}{28}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{70}i}{70}$ 0 0 $-\frac{3\sqrt{70}}{280}$ 0 0 0 0 0 0 $-\frac{\sqrt{42}}{56}$	
	0 0 0 0 0 $-\frac{\sqrt{70}i}{70}$ $\frac{3\sqrt{70}}{280}$ 0 0 0 0 0 0 $\frac{\sqrt{42}}{56}$ 0	
576	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,-1;a)}(A'',3)$	0	$-\frac{\sqrt{210}}{168}$ $\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{210}i}{168}$ 0 0 0 0 $\frac{\sqrt{210}i}{84}$
	$\frac{\sqrt{210}}{168}$	0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{168}$ 0 0 $\frac{\sqrt{210}i}{84}$ 0
	0	$-\frac{\sqrt{70}}{56}$ $\frac{\sqrt{42}i}{168}$ 0 0 0 0 $\frac{\sqrt{42}i}{84}$ $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0
	$\frac{\sqrt{70}}{56}$	0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 0 $\frac{\sqrt{42}i}{84}$ 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 0 0 0
	0	0 0 $\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0
	0	0 0 0 $\frac{\sqrt{42}i}{42}$ 0 $\frac{\sqrt{42}}{84}$ $\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{42}i}{42}$ 0 $-\frac{\sqrt{42}}{84}$ 0 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{42}i}{42}$ 0 0 $-\frac{\sqrt{42}}{168}$ 0 0 0 0 $\frac{\sqrt{70}}{56}$
	0	0 0 0 0 0 $\frac{\sqrt{42}i}{42}$ $\frac{\sqrt{42}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0
577	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
$\mathbb{Q}_5^{(1,-1;a)}(A',1)$	0	$-\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0 $\frac{3\sqrt{105}i}{280}$ 0 0 $-\frac{\sqrt{105}}{210}$
	$-\frac{\sqrt{105}i}{84}$	0 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{3\sqrt{105}i}{280}$ $\frac{\sqrt{105}}{210}$ 0
	0	$-\frac{\sqrt{35}i}{84}$ 0 0 $-\frac{\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{21}}{84}$ 0 0 $-\frac{\sqrt{35}i}{840}$ 0 0 $-\frac{\sqrt{35}}{60}$
	$-\frac{\sqrt{35}i}{84}$	0 0 0 0 $\frac{\sqrt{21}i}{168}$ $-\frac{\sqrt{21}}{84}$ 0 0 0 0 $\frac{\sqrt{35}i}{840}$ $\frac{\sqrt{35}}{60}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{21}}{56}$ $-\frac{\sqrt{21}i}{56}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0 $\frac{\sqrt{35}}{120}$ $\frac{\sqrt{35}i}{120}$ 0
	0	0 0 0 0 $-\frac{\sqrt{21}}{56}$ 0 0 $\frac{\sqrt{21}i}{56}$ $-\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{120}$ 0 0 $-\frac{\sqrt{35}i}{120}$
	$-\frac{\sqrt{35}i}{60}$	0 0 0 $\frac{\sqrt{21}}{42}$ 0 $-\frac{5\sqrt{21}i}{168}$ 0 0 0 $-\frac{\sqrt{35}}{60}$ 0 $-\frac{5\sqrt{35}i}{168}$ 0 0
	0	$\frac{\sqrt{35}i}{60}$ $-\frac{\sqrt{21}}{42}$ 0 $-\frac{5\sqrt{21}i}{168}$ 0 0 0 $\frac{\sqrt{35}}{60}$ 0 $-\frac{5\sqrt{35}i}{168}$ 0 0 0
	0	$\frac{\sqrt{35}}{60}$ $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 $\frac{5\sqrt{21}i}{168}$ $-\frac{\sqrt{35}i}{60}$ 0 0 0 0 $-\frac{5\sqrt{35}i}{168}$
	$-\frac{\sqrt{35}}{60}$	0 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{5\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{35}i}{60}$ 0 0 0 $-\frac{5\sqrt{35}i}{168}$ 0
578	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
$\mathbb{Q}_5^{(1,-1;a)}(A', 2)$	0 0 0 $-\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0	
	0 0 $\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 $\frac{\sqrt{105}}{168}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0	
	$\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0 0 $-\frac{13\sqrt{35}}{840}$ 0 $\frac{13\sqrt{35}i}{840}$ 0 0 0	
	0 $-\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0 0 $\frac{13\sqrt{35}}{840}$ 0 $\frac{13\sqrt{35}i}{840}$ 0 0 0	
	0 $-\frac{\sqrt{35}}{60}$ $-\frac{5\sqrt{21}i}{168}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$ $-\frac{5\sqrt{35}i}{168}$ 0 0 0 0 $-\frac{\sqrt{35}i}{60}$	
	$\frac{\sqrt{35}}{60}$ 0 0 $\frac{5\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{5\sqrt{35}i}{168}$ 0 0 $-\frac{\sqrt{35}i}{60}$ 0	
	0 $\frac{\sqrt{35}i}{60}$ 0 0 $\frac{5\sqrt{21}i}{168}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 $-\frac{5\sqrt{35}i}{168}$ 0 0 $-\frac{\sqrt{35}}{60}$	
	$\frac{\sqrt{35}i}{60}$ 0 0 0 $-\frac{5\sqrt{21}i}{168}$ $\frac{\sqrt{21}}{42}$ 0 0 0 0 $\frac{5\sqrt{35}i}{168}$ $\frac{\sqrt{35}}{60}$ 0	
	0 0 0 $\frac{\sqrt{21}i}{56}$ 0 $-\frac{\sqrt{21}}{56}$ 0 0 0 $\frac{\sqrt{35}i}{120}$ 0 $\frac{\sqrt{35}}{120}$ $-\frac{\sqrt{35}i}{42}$ 0	
	0 0 $\frac{\sqrt{21}i}{56}$ 0 $\frac{\sqrt{21}}{56}$ 0 0 0 $\frac{\sqrt{35}i}{120}$ 0 $-\frac{\sqrt{35}}{120}$ 0 0 $\frac{\sqrt{35}i}{42}$	
579	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$
$\mathbb{Q}_5^{(1,-1;a)}(A', 3)$	0 $\frac{\sqrt{3}i}{20}$ 0 0 $-\frac{3\sqrt{5}i}{40}$ 0 0 0 0 0 $-\frac{\sqrt{3}i}{40}$ 0 0 $\frac{\sqrt{3}}{10}$	
	$\frac{\sqrt{3}i}{20}$ 0 0 0 0 $\frac{3\sqrt{5}i}{40}$ 0 0 0 0 0 $\frac{\sqrt{3}i}{40}$ $-\frac{\sqrt{3}}{10}$ 0	
	0 $\frac{i}{20}$ 0 0 $\frac{\sqrt{15}i}{40}$ 0 0 $-\frac{\sqrt{15}}{20}$ 0 0 $-\frac{7i}{40}$ 0 0 $-\frac{1}{20}$	
	$\frac{i}{20}$ 0 0 0 0 $-\frac{\sqrt{15}i}{40}$ $\frac{\sqrt{15}}{20}$ 0 0 0 0 $\frac{7i}{40}$ $\frac{1}{20}$ 0	
	0 0 0 0 0 $\frac{\sqrt{15}}{40}$ $-\frac{\sqrt{15}i}{40}$ 0 0 $-\frac{i}{10}$ 0 $\frac{1}{8}$ $\frac{i}{8}$ 0	
	0 0 0 0 $-\frac{\sqrt{15}}{40}$ 0 0 $\frac{\sqrt{15}i}{40}$ $-\frac{i}{10}$ 0 $-\frac{1}{8}$ 0 0 $-\frac{i}{8}$	
	$-\frac{i}{20}$ 0 0 0 0 $\frac{\sqrt{15}i}{40}$ 0 0 0 $\frac{1}{20}$ 0 $-\frac{3i}{40}$ 0 0	
	0 $\frac{i}{20}$ 0 0 $\frac{\sqrt{15}i}{40}$ 0 0 0 $-\frac{1}{20}$ 0 $-\frac{3i}{40}$ 0 0 0	
	0 $\frac{1}{20}$ 0 0 0 0 0 $-\frac{\sqrt{15}i}{40}$ $\frac{i}{20}$ 0 0 0 0 $-\frac{3i}{40}$	
	$-\frac{1}{20}$ 0 0 0 0 0 $-\frac{\sqrt{15}i}{40}$ 0 0 $-\frac{i}{20}$ 0 0 0 $-\frac{3i}{40}$ 0	
580	symmetry	$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,-1;a)}(A', 6)$	$\frac{i}{5} 0 0 0 0 0 0 0 0 -\frac{1}{10} 0 \frac{i}{10} 0 0$	
	$0 -\frac{i}{5} 0 0 0 0 0 0 \frac{1}{10} 0 \frac{i}{10} 0 0 0 0$	
	$0 0 0 0 0 0 0 0 0 -\frac{\sqrt{3}}{30} 0 -\frac{\sqrt{3}i}{30} 0 0 0$	
	$0 0 0 0 0 0 0 0 \frac{\sqrt{3}}{30} 0 -\frac{\sqrt{3}i}{30} 0 0 0 0$	
	$0 -\frac{\sqrt{3}}{15} \frac{\sqrt{5}i}{20} 0 0 0 0 -\frac{\sqrt{5}i}{20} -\frac{\sqrt{3}i}{60} 0 0 0 0 0 \frac{\sqrt{3}i}{20}$	
	$\frac{\sqrt{3}}{15} 0 0 -\frac{\sqrt{5}i}{20} 0 0 -\frac{\sqrt{5}i}{20} 0 0 \frac{\sqrt{3}i}{60} 0 0 \frac{\sqrt{3}i}{20} 0$	
	$0 -\frac{\sqrt{3}i}{15} 0 0 \frac{\sqrt{5}i}{20} 0 0 -\frac{\sqrt{5}}{20} 0 0 \frac{\sqrt{3}i}{60} 0 0 0 -\frac{\sqrt{3}i}{20}$	
	$-\frac{\sqrt{3}i}{15} 0 0 0 0 -\frac{\sqrt{5}i}{20} \frac{\sqrt{5}}{20} 0 0 0 0 0 -\frac{\sqrt{3}i}{60} \frac{\sqrt{3}}{20} 0$	
	$0 0 0 -\frac{\sqrt{5}i}{20} 0 -\frac{\sqrt{5}}{20} -\frac{\sqrt{5}i}{10} 0 0 -\frac{\sqrt{3}i}{20} 0 \frac{\sqrt{3}}{20} 0 0 0$	
	$0 0 -\frac{\sqrt{5}i}{20} 0 \frac{\sqrt{5}}{20} 0 0 \frac{\sqrt{5}i}{10} -\frac{\sqrt{3}i}{20} 0 -\frac{\sqrt{3}}{20} 0 0 0 0$	
583	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
$\mathbb{Q}_5^{(1,-1;a)}(A'', 1)$	$0 0 0 -\frac{3\sqrt{5}i}{40} 0 -\frac{3\sqrt{5}}{40} 0 0 0 \frac{3\sqrt{3}i}{40} 0 -\frac{3\sqrt{3}}{40} 0 0 0$	
	$0 0 -\frac{3\sqrt{5}i}{40} 0 \frac{3\sqrt{5}}{40} 0 0 0 \frac{3\sqrt{3}i}{40} 0 \frac{3\sqrt{3}}{40} 0 0 0 0$	
	$0 0 0 -\frac{\sqrt{15}i}{40} 0 \frac{\sqrt{15}}{40} 0 0 0 -\frac{i}{8} 0 -\frac{1}{8} \frac{i}{10} 0$	
	$0 0 -\frac{\sqrt{15}i}{40} 0 -\frac{\sqrt{15}}{40} 0 0 0 -\frac{i}{8} 0 \frac{1}{8} 0 0 -\frac{i}{10}$	
	$0 \frac{i}{20} 0 0 -\frac{\sqrt{15}i}{40} 0 0 0 0 0 -\frac{3i}{40} 0 0 0 \frac{1}{20}$	
	$\frac{i}{20} 0 0 0 0 \frac{\sqrt{15}i}{40} 0 0 0 0 0 \frac{3i}{40} -\frac{1}{20} 0$	
	$0 \frac{1}{20} -\frac{\sqrt{15}i}{40} 0 0 0 0 0 0 \frac{3i}{40} 0 0 0 0 -\frac{i}{20}$	
	$-\frac{1}{20} 0 0 \frac{\sqrt{15}i}{40} 0 0 0 0 -\frac{3i}{40} 0 0 0 -\frac{i}{20} 0$	
	$-\frac{i}{10} 0 0 \frac{\sqrt{15}}{40} 0 \frac{\sqrt{15}i}{40} 0 0 0 \frac{1}{8} 0 -\frac{i}{8} 0 0 0$	
	$0 \frac{i}{10} -\frac{\sqrt{15}}{40} 0 \frac{\sqrt{15}i}{40} 0 0 0 -\frac{1}{8} 0 -\frac{i}{8} 0 0 0 0$	
584	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 0 0 $-\frac{\sqrt{15}i}{40}$ 0 $\frac{\sqrt{15}}{40}$ 0 0 0 $-\frac{i}{40}$ 0 $-\frac{1}{40}$ $\frac{i}{5}$ 0	
	0 0 $-\frac{\sqrt{15}i}{40}$ 0 $-\frac{\sqrt{15}}{40}$ 0 0 0 $-\frac{i}{40}$ 0 $\frac{1}{40}$ 0 0 $-\frac{i}{5}$	
	0 0 0 $-\frac{\sqrt{5}i}{40}$ 0 $-\frac{\sqrt{5}}{40}$ $-\frac{\sqrt{5}i}{10}$ 0 0 $-\frac{3\sqrt{3}i}{40}$ 0 $\frac{3\sqrt{3}}{40}$ 0 0	
	0 0 $-\frac{\sqrt{5}i}{40}$ 0 $\frac{\sqrt{5}}{40}$ 0 0 $\frac{\sqrt{5}i}{10}$ $-\frac{3\sqrt{3}i}{40}$ 0 $-\frac{3\sqrt{3}}{40}$ 0 0 0	
	0 $-\frac{\sqrt{3}i}{20}$ 0 0 $\frac{\sqrt{5}i}{40}$ 0 0 $\frac{\sqrt{5}}{20}$ 0 0 $\frac{7\sqrt{3}i}{120}$ 0 0 $-\frac{\sqrt{3}}{15}$	
	$-\frac{\sqrt{3}i}{20}$ 0 0 0 0 $-\frac{\sqrt{5}i}{40}$ $-\frac{\sqrt{5}}{20}$ 0 0 0 0 $-\frac{7\sqrt{3}i}{120}$ $\frac{\sqrt{3}}{15}$ 0	
	0 $\frac{\sqrt{3}}{20}$ $-\frac{\sqrt{5}i}{40}$ 0 0 0 0 $-\frac{\sqrt{5}i}{20}$ $\frac{7\sqrt{3}i}{120}$ 0 0 0 0 $-\frac{\sqrt{3}i}{15}$	
	$-\frac{\sqrt{3}}{20}$ 0 0 $\frac{\sqrt{5}i}{40}$ 0 0 $-\frac{\sqrt{5}i}{20}$ 0 0 $-\frac{7\sqrt{3}i}{120}$ 0 0 $-\frac{\sqrt{3}i}{15}$ 0	
	0 0 0 $\frac{\sqrt{5}}{40}$ 0 $-\frac{\sqrt{5}i}{40}$ 0 0 0 $\frac{\sqrt{3}}{120}$ 0 $\frac{\sqrt{3}i}{120}$ 0 0 0	
	0 0 $-\frac{\sqrt{5}}{40}$ 0 $-\frac{\sqrt{5}i}{40}$ 0 0 0 $-\frac{\sqrt{3}}{120}$ 0 $\frac{\sqrt{3}i}{120}$ 0 0 0	
585	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$
$\mathbb{Q}_5^{(1,-1;a)}(A'', 3)$	0 $\frac{\sqrt{105}}{84}$ $-\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{3\sqrt{105}i}{280}$ 0 0 0 0 $-\frac{\sqrt{105}i}{210}$	
	$-\frac{\sqrt{105}}{84}$ 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{3\sqrt{105}i}{280}$ 0 0 0 $-\frac{\sqrt{105}i}{210}$ 0	
	0 $-\frac{\sqrt{35}}{84}$ $-\frac{\sqrt{21}i}{168}$ 0 0 0 0 $\frac{\sqrt{21}i}{84}$ $\frac{\sqrt{35}i}{840}$ 0 0 0 0 $\frac{\sqrt{35}i}{60}$	
	$\frac{\sqrt{35}}{84}$ 0 0 $\frac{\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{21}i}{84}$ 0 0 $-\frac{\sqrt{35}i}{840}$ 0 0 $\frac{\sqrt{35}i}{60}$ 0	
	$\frac{\sqrt{35}i}{60}$ 0 0 $\frac{5\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0 $-\frac{5\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{60}$ 0 0 0	
	0 $-\frac{\sqrt{35}i}{60}$ $-\frac{5\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0 $\frac{5\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{60}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{21}i}{56}$ 0 0 $\frac{\sqrt{21}i}{56}$ 0 0 $\frac{\sqrt{35}i}{120}$ 0 $-\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{35}i}{120}$ 0	
	0 0 $-\frac{\sqrt{21}i}{56}$ 0 0 0 $-\frac{\sqrt{21}i}{56}$ $\frac{\sqrt{35}i}{120}$ 0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{35}i}{120}$	
	0 $-\frac{\sqrt{35}i}{60}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{5\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{35}i}{60}$ 0 0 $-\frac{5\sqrt{35}}{168}$	
	$-\frac{\sqrt{35}i}{60}$ 0 0 0 0 $-\frac{\sqrt{21}i}{42}$ $\frac{5\sqrt{21}}{168}$ 0 0 0 0 $\frac{\sqrt{35}i}{60}$ $\frac{5\sqrt{35}}{168}$ 0	
586	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,-1;a)}(A'', 4)$	0	$-\frac{\sqrt{3}}{20} \quad \frac{3\sqrt{5}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10}$
	$\frac{\sqrt{3}}{20}$	$0 \quad 0 \quad -\frac{3\sqrt{5}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{40} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0$
	$0 \quad \frac{1}{20} \quad \frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{20} \quad \frac{7i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{20}$	
	$-\frac{1}{20}$	$0 \quad 0 \quad -\frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{20} \quad 0 \quad 0 \quad -\frac{7i}{40} \quad 0 \quad 0 \quad \frac{i}{20} \quad 0$
	$\frac{i}{20}$	$0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3}{40} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad 0$
	$0 \quad -\frac{i}{20} \quad \frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3}{40} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad \frac{i}{8} \quad 0 \quad -\frac{1}{10} \quad \frac{i}{8} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{40} \quad \frac{i}{8} \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad -\frac{i}{8}$	
	$0 \quad -\frac{i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad -\frac{3}{40}$	
	$-\frac{i}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{20} \quad \frac{3}{40} \quad 0$
587	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
$\mathbb{Q}_5^{(1,-1;a)}(A'', 5)$	0	$-\frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{1}{10}$	$0 \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{3}}{10}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{15}$
	$\frac{\sqrt{3}}{10}$	$0 \quad 0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{15} \quad 0$
	$-\frac{\sqrt{3}i}{15}$	$0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{60} \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0$
	$0 \quad \frac{\sqrt{3}i}{15} \quad -\frac{\sqrt{5}}{20} \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{60} \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad -\frac{\sqrt{5}}{10} \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad \frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20} \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{20}$	
	$0 \quad -\frac{\sqrt{3}i}{15} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{60}$	
	$-\frac{\sqrt{3}i}{15}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20} \quad -\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad \frac{\sqrt{3}}{60} \quad 0$
588	symmetry	$x$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_1^{(1,0;a)}(A', 1)$	0 0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 0 $\frac{3\sqrt{70}}{140}$ 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0	
	0 0 0 0 0 $-\frac{3\sqrt{70}i}{280}$ $-\frac{3\sqrt{70}}{140}$ 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0	
	0 0 0 0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 $\frac{\sqrt{14}}{28}$	
	0 0 0 0 0 $-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ $-\frac{\sqrt{14}}{28}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{210}}{140}$ $\frac{\sqrt{210}i}{140}$ 0 0 0 0 $\frac{\sqrt{14}}{28}$ $\frac{\sqrt{14}i}{28}$ 0	
	0 0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 $-\frac{\sqrt{14}}{28}$ 0 0 $-\frac{\sqrt{14}i}{28}$	
	$-\frac{\sqrt{14}i}{28}$ 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 0 0 0	
	0 $\frac{\sqrt{14}i}{28}$ $\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 0 0 0	
	0 $\frac{\sqrt{14}}{28}$ $\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0 0	
	$-\frac{\sqrt{14}}{28}$ 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0	
589	symmetry	$z$
$\mathbb{Q}_1^{(1,0;a)}(A', 2)$	0 0 0 $\frac{3\sqrt{70}}{280}$ 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 $\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0	
	0 0 $-\frac{3\sqrt{70}}{280}$ 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 $-\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0	
	0 0 0 $-\frac{3\sqrt{210}}{280}$ 0 $-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0	
	0 0 $\frac{3\sqrt{210}}{280}$ 0 $-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0	
	0 $-\frac{\sqrt{14}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$	
	$\frac{\sqrt{14}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0	
	0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$	
	$\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0	
	0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 $\frac{\sqrt{210}}{140}$ 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{14}}{28}$ 0 0 0	
	0 0 $-\frac{\sqrt{210}i}{140}$ 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 0	
590	symmetry	$y$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_1^{(1,0;a)}(A'')$	0 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 0 $-\frac{3\sqrt{70}i}{140}$ $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0	
	0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 0 $-\frac{3\sqrt{70}i}{140}$ 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0	
	0 0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$	
	0 0 0 $-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0	
	$\frac{\sqrt{14}i}{28}$ 0 0 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0	
	0 $-\frac{\sqrt{14}i}{28}$ 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 $\frac{\sqrt{14}i}{28}$ 0	
	0 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0 $\frac{\sqrt{210}i}{140}$ $\frac{\sqrt{14}i}{28}$ 0 0 0 0 $-\frac{\sqrt{14}i}{28}$	
	0 $-\frac{\sqrt{14}i}{28}$ 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0	
	$-\frac{\sqrt{14}i}{28}$ 0 0 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 0	
591	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
$\mathbb{Q}_3^{(1,0;a)}(A', 1)$	0 0 0 0 $-\frac{7\sqrt{5}i}{80}$ 0 0 $-\frac{\sqrt{5}}{20}$ 0 0 $-\frac{\sqrt{3}i}{16}$ 0 0 0	
	0 0 0 0 0 $\frac{7\sqrt{5}i}{80}$ $\frac{\sqrt{5}}{20}$ 0 0 0 0 0 $\frac{\sqrt{3}i}{16}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{15}i}{240}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{i}{16}$ 0 0 $\frac{1}{8}$	
	0 0 0 0 0 $\frac{\sqrt{15}i}{240}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $-\frac{i}{16}$ $-\frac{1}{8}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{15}}{240}$ $\frac{\sqrt{15}i}{240}$ 0 0 0 0 0 $-\frac{3}{16}$ $-\frac{3i}{16}$ 0	
	0 0 0 0 $\frac{\sqrt{15}}{240}$ 0 0 $-\frac{\sqrt{15}i}{240}$ 0 0 $\frac{3}{16}$ 0 0 $\frac{3i}{16}$	
	$-\frac{i}{8}$ 0 0 $\frac{\sqrt{15}}{60}$ 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 0	
	0 $\frac{i}{8}$ $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 $\frac{1}{8}$ 0 0 0 0 0 0	
	0 $\frac{1}{8}$ $-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0	
	$-\frac{1}{8}$ 0 0 $\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0	
592	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,0;a)}(A', 2)$	0 0 0 $\frac{3\sqrt{5}}{80}$ 0 $-\frac{3\sqrt{5}i}{80}$ 0 0 0 0 $\frac{\sqrt{3}}{16}$ 0 $\frac{\sqrt{3}i}{16}$ 0 0	
	0 0 $-\frac{3\sqrt{5}}{80}$ 0 $-\frac{3\sqrt{5}i}{80}$ 0 0 0 $-\frac{\sqrt{3}}{16}$ 0 $\frac{\sqrt{3}i}{16}$ 0 0 0	
	0 0 0 $\frac{11\sqrt{15}}{240}$ 0 $\frac{11\sqrt{15}i}{240}$ 0 0 0 0 $\frac{1}{16}$ 0 $-\frac{i}{16}$ 0 0 0	
	0 0 $-\frac{11\sqrt{15}}{240}$ 0 $\frac{11\sqrt{15}i}{240}$ 0 0 0 $-\frac{1}{16}$ 0 $-\frac{i}{16}$ 0 0 0	
	0 $-\frac{1}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 $-\frac{i}{8}$	
	$\frac{1}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 $-\frac{i}{8}$ 0	
	0 $\frac{i}{8}$ 0 0 0 0 0 $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 $-\frac{1}{8}$	
	$\frac{i}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 $\frac{1}{8}$ 0	
	0 0 0 $-\frac{\sqrt{15}i}{240}$ 0 $\frac{\sqrt{15}}{240}$ 0 0 0 $-\frac{3i}{16}$ 0 $-\frac{3}{16}$ 0 0	
	0 0 $-\frac{\sqrt{15}i}{240}$ 0 $-\frac{\sqrt{15}}{240}$ 0 0 0 $-\frac{3i}{16}$ 0 $\frac{3}{16}$ 0 0 0	
593	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
$\mathbb{Q}_3^{(1,0;a)}(A', 3)$	0 0 0 0 $\frac{\sqrt{3}i}{16}$ 0 0 $-\frac{\sqrt{3}}{12}$ 0 0 $\frac{\sqrt{5}i}{16}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{3}i}{16}$ $\frac{\sqrt{3}}{12}$ 0 0 0 0 $-\frac{\sqrt{5}i}{16}$ 0 0	
	0 0 0 0 $\frac{5i}{48}$ 0 0 $-\frac{1}{24}$ 0 0 $-\frac{\sqrt{15}i}{48}$ 0 0 $\frac{\sqrt{15}}{24}$	
	0 0 0 0 0 $-\frac{5i}{48}$ $\frac{1}{24}$ 0 0 0 0 $\frac{\sqrt{15}i}{48}$ $-\frac{\sqrt{15}}{24}$ 0	
	0 0 0 $\frac{i}{6}$ 0 $\frac{1}{48}$ $\frac{i}{48}$ 0 0 0 0 $-\frac{\sqrt{15}}{48}$ $\frac{\sqrt{15}i}{48}$ 0	
	0 0 $\frac{i}{6}$ 0 $-\frac{1}{48}$ 0 0 $-\frac{i}{48}$ 0 0 $\frac{\sqrt{15}}{48}$ 0 0 $-\frac{\sqrt{15}i}{48}$	
	$\frac{\sqrt{15}i}{24}$ 0 0 $\frac{1}{24}$ 0 $\frac{i}{6}$ 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}i}{24}$ $-\frac{1}{24}$ 0 $\frac{i}{6}$ 0 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{15}}{24}$ $\frac{i}{24}$ 0 0 0 0 $\frac{i}{6}$ 0 0 0 0 0 0	
	$-\frac{\sqrt{15}}{24}$ 0 0 $-\frac{i}{24}$ 0 0 $\frac{i}{6}$ 0 0 0 0 0 0 0	
594	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,0;a)}(A', 4)$	0 0 0 $\frac{\sqrt{3}}{48}$ 0 $\frac{\sqrt{3}i}{48}$ 0 0 0 0 $-\frac{\sqrt{5}}{16}$ 0 $\frac{\sqrt{5}i}{16}$ 0 0	
	0 0 $-\frac{\sqrt{3}}{48}$ 0 $\frac{\sqrt{3}i}{48}$ 0 0 0 0 $\frac{\sqrt{5}}{16}$ 0 $\frac{\sqrt{5}i}{16}$ 0 0 0	
	0 0 0 $-\frac{7}{48}$ 0 $\frac{7i}{48}$ 0 0 0 0 $-\frac{\sqrt{15}}{48}$ 0 $-\frac{\sqrt{15}i}{48}$ 0 0 0	
	0 0 $\frac{7}{48}$ 0 $\frac{7i}{48}$ 0 0 0 0 $\frac{\sqrt{15}}{48}$ 0 $-\frac{\sqrt{15}i}{48}$ 0 0 0	
	0 $\frac{\sqrt{15}}{24}$ $\frac{i}{6}$ 0 0 0 0 0 $\frac{i}{24}$ 0 0 0 0 0 0 0	
	$-\frac{\sqrt{15}}{24}$ 0 0 $-\frac{i}{6}$ 0 0 0 $\frac{i}{24}$ 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{15}i}{24}$ 0 0 $\frac{i}{6}$ 0 0 0 $\frac{1}{24}$ 0 0 0 0 0 0 0	
	$\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{i}{6}$ $-\frac{1}{24}$ 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{i}{48}$ 0 $\frac{1}{48}$ $\frac{i}{6}$ 0 0 0 $-\frac{\sqrt{15}i}{48}$ 0 $\frac{\sqrt{15}}{48}$ 0 0	
	0 0 $\frac{i}{48}$ 0 $-\frac{1}{48}$ 0 0 0 $-\frac{i}{6}$ $-\frac{\sqrt{15}i}{48}$ 0 $-\frac{\sqrt{15}}{48}$ 0 0 0	
595	symmetry	$\sqrt{15}xyz$
$\mathbb{Q}_3^{(1,0;a)}(A'', 1)$	0 0 0 $\frac{\sqrt{3}i}{12}$ 0 $-\frac{\sqrt{3}}{12}$ 0 0 0 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{3}i}{12}$ 0 $\frac{\sqrt{3}}{12}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{i}{12}$ 0 $\frac{1}{12}$ $-\frac{i}{6}$ 0 0 0 0 0 0 0 0 0	
	0 0 $\frac{i}{12}$ 0 $-\frac{1}{12}$ 0 0 0 $\frac{i}{6}$ 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{i}{24}$ 0 0 0 $\frac{1}{24}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{15}}{24}$	
	0 0 0 0 0 $\frac{i}{24}$ $-\frac{1}{24}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ $\frac{\sqrt{15}}{24}$ 0	
	0 0 $\frac{i}{24}$ 0 0 0 0 $-\frac{i}{24}$ $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{\sqrt{15}i}{24}$	
	0 0 0 $-\frac{i}{24}$ 0 0 $-\frac{i}{24}$ 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0	
	0 0 0 $-\frac{1}{24}$ 0 $\frac{i}{24}$ 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0	
	0 0 $\frac{1}{24}$ 0 $\frac{i}{24}$ 0 0 0 $\frac{\sqrt{15}}{24}$ 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0	
596	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,0;a)}(A'', 2)$	0 0 $\frac{7\sqrt{5}i}{80}$ 0 0 0 0 $\frac{\sqrt{5}i}{20}$ $-\frac{\sqrt{3}i}{16}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{7\sqrt{5}i}{80}$ 0 0 $\frac{\sqrt{5}i}{20}$ 0 0 $\frac{\sqrt{3}i}{16}$ 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{15}i}{240}$ 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ $-\frac{i}{16}$ 0 0 0 0 0 $-\frac{i}{8}$	
	0 0 0 $\frac{\sqrt{15}i}{240}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $\frac{i}{16}$ 0 0 $-\frac{i}{8}$ 0 0	
	$\frac{i}{8}$ 0 0 0 0 $-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0	
	0 $-\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}i}{60}$ 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{15}i}{240}$ 0 0 $-\frac{\sqrt{15}i}{240}$ 0 0 $-\frac{3i}{16}$ 0 0 $-\frac{3i}{16}$ 0	
	0 0 $\frac{\sqrt{15}i}{240}$ 0 0 0 0 $\frac{\sqrt{15}i}{240}$ $-\frac{3i}{16}$ 0 0 0 0 $\frac{3i}{16}$	
	0 $-\frac{i}{8}$ 0 0 $\frac{\sqrt{15}i}{60}$ 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0	
	$-\frac{i}{8}$ 0 0 0 0 $-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 $\frac{i}{8}$ 0 0 0	
597	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{Q}_3^{(1,0;a)}(A'', 3)$	0 0 $\frac{\sqrt{3}i}{16}$ 0 0 0 0 $-\frac{\sqrt{3}i}{12}$ $-\frac{\sqrt{5}i}{16}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{3}i}{16}$ 0 0 $-\frac{\sqrt{3}i}{12}$ 0 0 $\frac{\sqrt{5}i}{16}$ 0 0 0 0 0 0	
	0 0 $-\frac{5i}{48}$ 0 0 0 0 $\frac{i}{24}$ $-\frac{\sqrt{15}i}{48}$ 0 0 0 0 $\frac{\sqrt{15}i}{24}$	
	0 0 0 $\frac{5i}{48}$ 0 0 $\frac{i}{24}$ 0 0 $\frac{\sqrt{15}i}{48}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0	
	$\frac{\sqrt{15}i}{24}$ 0 0 $\frac{1}{6}$ 0 $\frac{i}{24}$ 0 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}i}{24}$ $-\frac{1}{6}$ 0 $\frac{i}{24}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{i}{48}$ 0 $\frac{1}{6}$ $\frac{i}{48}$ 0 0 $\frac{\sqrt{15}i}{48}$ 0 0 $-\frac{\sqrt{15}i}{48}$ 0	
	0 0 $\frac{i}{48}$ 0 $-\frac{1}{6}$ 0 0 $-\frac{i}{48}$ $\frac{\sqrt{15}i}{48}$ 0 0 0 0 $\frac{\sqrt{15}i}{48}$	
	0 $\frac{\sqrt{15}i}{24}$ 0 0 $\frac{i}{24}$ 0 0 $\frac{1}{6}$ 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{i}{24}$ $-\frac{1}{6}$ 0 0 0 0 0 0 0 0	
598	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
$\mathbb{Q}_5^{(1,0;a)}(A', 1)$	0 0 0 0 $-\frac{\sqrt{7}i}{112}$ 0 0 $\frac{5\sqrt{7}}{112}$ 0 0 $-\frac{3\sqrt{105}i}{560}$ 0 0 $-\frac{\sqrt{105}}{80}$	
	0 0 0 0 0 $\frac{\sqrt{7}i}{112}$ $-\frac{5\sqrt{7}}{112}$ 0 0 0 0 $\frac{3\sqrt{105}i}{560}$ $\frac{\sqrt{105}}{80}$ 0	
	0 0 0 0 0 $\frac{11\sqrt{21}i}{336}$ 0 0 $-\frac{\sqrt{21}}{48}$ 0 0 $\frac{17\sqrt{35}i}{560}$ 0 0 $\frac{13\sqrt{35}}{560}$	
	0 0 0 0 0 $-\frac{11\sqrt{21}i}{336}$ $\frac{\sqrt{21}}{48}$ 0 0 0 0 $-\frac{17\sqrt{35}i}{560}$ $-\frac{13\sqrt{35}}{560}$ 0	
	0 0 0 0 0 $\frac{\sqrt{21}}{168}$ $-\frac{\sqrt{21}i}{168}$ 0 0 0 0 $\frac{3\sqrt{35}}{280}$ $\frac{3\sqrt{35}i}{280}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{21}}{168}$ 0 0 $\frac{\sqrt{21}i}{168}$ 0 0 $-\frac{3\sqrt{35}}{280}$ 0 0 $-\frac{3\sqrt{35}i}{280}$	
	$\frac{\sqrt{35}i}{70}$ 0 0 $\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}}{70}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{35}i}{70}$ $-\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{35}}{70}$ $-\frac{\sqrt{21}i}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{70}$ 0 0 0 0 0	
	$\frac{\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{21}i}{21}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{70}$ 0 0 0 0	
599	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$
$\mathbb{Q}_5^{(1,0;a)}(A', 2)$	0 0 0 $\frac{3\sqrt{7}}{56}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 $\frac{\sqrt{105}}{56}$ 0 $\frac{\sqrt{105}i}{56}$ 0 0	
	0 0 $-\frac{3\sqrt{7}}{56}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 $\frac{\sqrt{105}i}{56}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 0 $-\frac{\sqrt{35}}{140}$ 0 $\frac{\sqrt{35}i}{140}$ 0 0	
	0 0 $\frac{\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 $\frac{\sqrt{35}}{140}$ 0 $\frac{\sqrt{35}i}{140}$ 0 0 0	
	0 $\frac{\sqrt{35}}{70}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{70}$	
	$-\frac{\sqrt{35}}{70}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{70}$ 0	
	0 $-\frac{\sqrt{35}i}{70}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}}{70}$	
	$-\frac{\sqrt{35}i}{70}$ 0 0 0 0 0 $\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0	
	0 0 0 $\frac{\sqrt{21}i}{168}$ 0 $-\frac{\sqrt{21}}{168}$ 0 0 0 $\frac{3\sqrt{35}i}{280}$ 0 $\frac{3\sqrt{35}}{280}$ 0 0	
600	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,0;a)}(A', 3)$	0	$\frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad \frac{3\sqrt{5}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{16} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{80}$
	$\frac{\sqrt{3}i}{10}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{5}i}{80} \quad -\frac{\sqrt{5}}{16} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{80} \quad -\frac{\sqrt{3}}{80} \quad 0$
	0	$\frac{i}{10} \quad 0 \quad 0 \quad \frac{7\sqrt{15}i}{240} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{240} \quad 0 \quad 0 \quad -\frac{3i}{80} \quad 0 \quad 0 \quad -\frac{3}{80}$
	$\frac{i}{10}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{15}i}{240} \quad -\frac{\sqrt{15}}{240} \quad 0 \quad 0 \quad 0 \quad \frac{3i}{80} \quad \frac{3}{80} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{120} \quad -\frac{\sqrt{15}i}{120} \quad 0 \quad 0 \quad -\frac{i}{5} \quad 0 \quad -\frac{1}{8} \quad -\frac{i}{8} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{120} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{120} \quad -\frac{i}{5} \quad 0 \quad \frac{1}{8} \quad 0 \quad 0 \quad \frac{i}{8}$
	$-\frac{i}{10}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0$
	0	$\frac{i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad -\frac{1}{10} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30} \quad \frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10}$
	$-\frac{1}{10}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad \frac{i}{10} \quad 0$
601	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
$\mathbb{Q}_5^{(1,0;a)}(A', 4)$	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{40} \quad 0 \quad -\frac{\sqrt{5}i}{40} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{40} \quad 0 \quad -\frac{\sqrt{3}i}{40} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{5}}{40} \quad 0 \quad -\frac{\sqrt{5}i}{40} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{40} \quad 0 \quad -\frac{\sqrt{3}i}{40} \quad 0 \quad 0 \quad 0$
	$-\frac{i}{5}$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0$
	0	$\frac{i}{5} \quad \frac{\sqrt{15}}{30} \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0$
	0	$0 \quad -\frac{1}{10} \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10}$
	$\frac{1}{10}$	$0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad 0 \quad \frac{i}{10}$
	0	$\frac{i}{10} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad \frac{1}{10}$
	$\frac{i}{10}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{10} \quad -\frac{1}{10} \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{120} \quad 0 \quad -\frac{\sqrt{15}}{120} \quad 0 \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad -\frac{1}{8} \quad -\frac{i}{5} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{15}i}{120} \quad 0 \quad \frac{\sqrt{15}}{120} \quad 0 \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad \frac{1}{8} \quad 0 \quad 0 \quad \frac{i}{5}$
602	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,0;a)}(A', 5)$	0	$\frac{i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad -\frac{i}{20} \quad 0 \quad 0 \quad -\frac{1}{8}$
	$\frac{i}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{20} \quad \frac{1}{8} \quad 0$
	$0 \quad -\frac{\sqrt{3}i}{20}$	$0 \quad 0 \quad -\frac{\sqrt{5}i}{12} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{24} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{15} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{120}$
	$-\frac{\sqrt{3}i}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{12} \quad \frac{\sqrt{5}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{15} \quad -\frac{\sqrt{3}}{120} \quad 0$
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{30}$	$0 \quad -\frac{\sqrt{5}}{60} \quad -\frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{60} \quad \frac{\sqrt{3}i}{60} \quad 0 \quad 0 \quad 0$
	$0 \quad 0 \quad -\frac{\sqrt{5}i}{30}$	$0 \quad \frac{\sqrt{5}}{60} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{60}$
	$\frac{\sqrt{3}i}{30}$	$0 \quad 0 \quad \frac{\sqrt{5}}{15} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{3}i}{30} \quad -\frac{\sqrt{5}}{15}$	$0 \quad \frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{10} \quad 0 \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad \frac{\sqrt{3}}{30} \quad \frac{\sqrt{5}i}{15}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60} \quad -\frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20}$
	$-\frac{\sqrt{3}}{30}$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{15} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20}$
603	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
$\mathbb{Q}_5^{(1,0;a)}(A', 6)$	$-\frac{i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad -\frac{3}{40} \quad 0 \quad \frac{3i}{40} \quad 0 \quad 0$	
	$0 \quad \frac{i}{10} \quad \frac{\sqrt{15}}{24} \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad \frac{3}{40} \quad 0 \quad \frac{3i}{40} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{24} \quad 0 \quad -\frac{\sqrt{5}i}{24} \quad 0 \quad 0 \quad 0 \quad \frac{7\sqrt{3}}{120} \quad 0 \quad \frac{7\sqrt{3}i}{120} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{5}}{24} \quad 0 \quad -\frac{\sqrt{5}i}{24} \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{3}}{120} \quad 0 \quad \frac{7\sqrt{3}i}{120} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{3}}{30} \quad \frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{15} \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10}$	
	$-\frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{15} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0$	
	$0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{15} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{10}$	
	$\frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{60} \quad -\frac{\sqrt{5}}{15} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{20} \quad \frac{\sqrt{3}}{10} \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{60} \quad 0 \quad -\frac{\sqrt{5}}{60} \quad -\frac{\sqrt{5}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{60} \quad 0 \quad \frac{\sqrt{3}}{60} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{5}i}{60} \quad 0 \quad \frac{\sqrt{5}}{60} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{30} \quad -\frac{\sqrt{3}i}{60} \quad 0 \quad -\frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad 0$	
604	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 0 0 $-\frac{\sqrt{5}i}{40}$ 0 $-\frac{\sqrt{5}}{40}$ 0 0 0 $\frac{\sqrt{3}i}{40}$ 0 $-\frac{\sqrt{3}}{40}$ 0 0	
	0 0 $-\frac{\sqrt{5}i}{40}$ 0 $\frac{\sqrt{5}}{40}$ 0 0 0 $\frac{\sqrt{3}i}{40}$ 0 $\frac{\sqrt{3}}{40}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{120}$ 0 $\frac{\sqrt{15}}{120}$ 0 0 0 $\frac{i}{8}$ 0 $\frac{1}{8}$ $\frac{i}{5}$ 0	
	0 0 $-\frac{\sqrt{15}i}{120}$ 0 $-\frac{\sqrt{15}}{120}$ 0 0 0 $\frac{i}{8}$ 0 $-\frac{1}{8}$ 0 0 $-\frac{i}{5}$	
	0 $\frac{i}{10}$ 0 0 $\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 $\frac{i}{10}$ 0 0 $\frac{1}{10}$	
	$\frac{i}{10}$ 0 0 0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 $-\frac{i}{10}$ $-\frac{1}{10}$ 0	
	0 $\frac{1}{10}$ $\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 $-\frac{i}{10}$ 0 0 0 0 $-\frac{i}{10}$	
	$-\frac{1}{10}$ 0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 $\frac{i}{10}$ 0 0 $-\frac{i}{10}$ 0	
	$-\frac{i}{5}$ 0 0 $-\frac{\sqrt{15}}{30}$ 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 0 0 0	
	0 $\frac{i}{5}$ $\frac{\sqrt{15}}{30}$ 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 0 0 0 0	
605	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
$\mathbb{Q}_5^{(1,0;a)}(A'', 2)$	0 0 0 $-\frac{\sqrt{15}i}{120}$ 0 $\frac{\sqrt{15}}{120}$ 0 0 0 $-\frac{7i}{40}$ 0 $-\frac{7}{40}$ $-\frac{i}{10}$ 0	
	0 0 $-\frac{\sqrt{15}i}{120}$ 0 $-\frac{\sqrt{15}}{120}$ 0 0 0 $-\frac{7i}{40}$ 0 $\frac{7}{40}$ 0 0 $\frac{i}{10}$	
	0 0 0 $-\frac{\sqrt{5}i}{120}$ 0 $-\frac{\sqrt{5}}{120}$ $-\frac{\sqrt{5}i}{30}$ 0 0 $-\frac{\sqrt{3}i}{40}$ 0 $\frac{\sqrt{3}}{40}$ 0 0	
	0 0 $-\frac{\sqrt{5}i}{120}$ 0 $\frac{\sqrt{5}}{120}$ 0 0 $\frac{\sqrt{5}i}{30}$ $-\frac{\sqrt{3}i}{40}$ 0 $-\frac{\sqrt{3}}{40}$ 0 0 0	
	0 $-\frac{\sqrt{3}i}{10}$ 0 0 $-\frac{\sqrt{5}i}{30}$ 0 0 $-\frac{\sqrt{5}}{15}$ 0 0 $\frac{\sqrt{3}i}{30}$ 0 0 $\frac{\sqrt{3}}{30}$	
	$-\frac{\sqrt{3}i}{10}$ 0 0 0 0 $\frac{\sqrt{5}i}{30}$ $\frac{\sqrt{5}}{15}$ 0 0 0 0 $-\frac{\sqrt{3}i}{30}$ $-\frac{\sqrt{3}}{30}$ 0	
	0 $\frac{\sqrt{3}}{10}$ $\frac{\sqrt{5}i}{30}$ 0 0 0 0 $\frac{\sqrt{5}i}{15}$ $\frac{\sqrt{3}i}{30}$ 0 0 0 0 $\frac{\sqrt{3}i}{30}$	
	$-\frac{\sqrt{3}}{10}$ 0 0 $-\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{5}i}{15}$ 0 0 $-\frac{\sqrt{3}i}{30}$ 0 0 $\frac{\sqrt{3}i}{30}$ 0	
	0 0 0 $-\frac{\sqrt{5}}{30}$ 0 $\frac{\sqrt{5}i}{30}$ 0 0 0 $-\frac{\sqrt{3}}{15}$ 0 $-\frac{\sqrt{3}i}{15}$ 0 0 0	
	0 0 $\frac{\sqrt{5}}{30}$ 0 $\frac{\sqrt{5}i}{30}$ 0 0 0 $\frac{\sqrt{3}}{15}$ 0 $-\frac{\sqrt{3}i}{15}$ 0 0 0	
606	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
$\mathbb{Q}_5^{(1,0;a)}(A'', 3)$	$0 \ 0 \ \frac{\sqrt{7}i}{112} \ 0 \ 0 \ 0 \ 0 \ -\frac{5\sqrt{7}i}{112} \ -\frac{3\sqrt{105}i}{560} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}i}{80}$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{112} \ 0 \ 0 \ -\frac{5\sqrt{7}i}{112} \ 0 \ 0 \ \frac{3\sqrt{105}i}{560} \ 0 \ 0 \ -\frac{\sqrt{105}i}{80} \ 0$	
	$0 \ 0 \ \frac{11\sqrt{21}i}{336} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{48} \ -\frac{17\sqrt{35}i}{560} \ 0 \ 0 \ 0 \ 0 \ -\frac{13\sqrt{35}i}{560}$	
	$0 \ 0 \ 0 \ -\frac{11\sqrt{21}i}{336} \ 0 \ 0 \ -\frac{\sqrt{21}i}{48} \ 0 \ 0 \ \frac{17\sqrt{35}i}{560} \ 0 \ 0 \ -\frac{13\sqrt{35}i}{560} \ 0$	
	$-\frac{\sqrt{35}i}{70} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{35}i}{70} \ 0 \ 0 \ 0$	
	$0 \ \frac{\sqrt{35}i}{70} \ 0 \ 0 \ -\frac{\sqrt{21}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{35}i}{70} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{168} \ 0 \ 0 \ \frac{\sqrt{21}i}{168} \ 0 \ 0 \ \frac{3\sqrt{35}i}{280} \ 0 \ 0 \ \frac{3\sqrt{35}i}{280} \ 0$	
	$0 \ 0 \ -\frac{\sqrt{21}i}{168} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{168} \ \frac{3\sqrt{35}i}{280} \ 0 \ 0 \ 0 \ 0 \ -\frac{3\sqrt{35}i}{280}$	
	$0 \ \frac{\sqrt{35}i}{70} \ 0 \ 0 \ \frac{\sqrt{21}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{35}i}{70} \ 0 \ 0 \ 0$	
	$\frac{\sqrt{35}i}{70} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{70} \ 0 \ 0 \ 0$	
607	symmetry	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
$\mathbb{Q}_5^{(1,0;a)}(A'', 4)$	$0 \ -\frac{\sqrt{3}}{10} \ -\frac{3\sqrt{5}i}{80} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{5}i}{16} \ \frac{\sqrt{3}i}{80} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{3}i}{80}$	
	$\frac{\sqrt{3}}{10} \ 0 \ 0 \ \frac{3\sqrt{5}i}{80} \ 0 \ 0 \ -\frac{\sqrt{5}i}{16} \ 0 \ 0 \ -\frac{\sqrt{3}i}{80} \ 0 \ 0 \ \frac{\sqrt{3}i}{80} \ 0$	
	$0 \ \frac{1}{10} \ \frac{7\sqrt{15}i}{240} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{15}i}{240} \ \frac{3i}{80} \ 0 \ 0 \ 0 \ 0 \ \frac{3i}{80}$	
	$-\frac{1}{10} \ 0 \ 0 \ -\frac{7\sqrt{15}i}{240} \ 0 \ 0 \ \frac{\sqrt{15}i}{240} \ 0 \ 0 \ -\frac{3i}{80} \ 0 \ 0 \ \frac{3i}{80} \ 0$	
	$\frac{i}{10} \ 0 \ 0 \ \frac{\sqrt{15}}{30} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{1}{10} \ 0 \ \frac{i}{10} \ 0 \ 0 \ 0$	
	$0 \ -\frac{i}{10} \ -\frac{\sqrt{15}}{30} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{1}{10} \ 0 \ \frac{i}{10} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{15}i}{120} \ 0 \ 0 \ \frac{\sqrt{15}i}{120} \ 0 \ 0 \ -\frac{i}{8} \ 0 \ -\frac{1}{5} \ -\frac{i}{8} \ 0$	
	$0 \ 0 \ -\frac{\sqrt{15}i}{120} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}i}{120} \ -\frac{i}{8} \ 0 \ \frac{1}{5} \ 0 \ 0 \ \frac{i}{8}$	
	$0 \ -\frac{i}{10} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}}{30} \ 0 \ 0 \ \frac{i}{10} \ 0 \ 0 \ \frac{1}{10}$	
	$-\frac{i}{10} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{15}}{30} \ 0 \ 0 \ 0 \ 0 \ -\frac{i}{10} \ -\frac{1}{10} \ 0$	
608	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,0;a)}(A'', 5)$	0	$\frac{1}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad \frac{i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{8}$
	$-\frac{1}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad -\frac{i}{20} \quad 0 \quad 0 \quad 0 \quad \frac{i}{8} \quad 0$
	0	$\frac{\sqrt{3}}{20} \quad \frac{\sqrt{5}i}{12} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{24} \quad -\frac{\sqrt{3}i}{15} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{120} \quad 0$
	$-\frac{\sqrt{3}}{20}$	$0 \quad 0 \quad -\frac{\sqrt{5}i}{12} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{24} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{15} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{120} \quad 0 \quad 0$
	$\frac{\sqrt{3}i}{30}$	$0 \quad 0 \quad \frac{\sqrt{5}}{60} \quad 0 \quad \frac{\sqrt{5}i}{15} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad -\frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{3}i}{30} \quad -\frac{\sqrt{5}}{60} \quad 0 \quad \frac{\sqrt{5}i}{15} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0 \quad -\frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{60} \quad 0 \quad -\frac{\sqrt{5}}{30} \quad -\frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{60} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{60} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{5}i}{60} \quad 0 \quad \frac{\sqrt{5}}{30} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60} \quad \frac{\sqrt{3}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{60} \quad 0$
	$\frac{\sqrt{3}i}{30}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{15} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{60} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0$
	$\frac{\sqrt{3}i}{30}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{15} \quad -\frac{\sqrt{5}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{10} \quad -\frac{\sqrt{3}}{20} \quad 0 \quad 0$
609	symmetry	$x$
$\mathbb{Q}_1^{(1,1;a)}(A', 1)$	0	$\frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad -\frac{3\sqrt{35}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad 0$
	$\frac{\sqrt{21}i}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{35}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{56} \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0$
	0	$\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad \frac{3\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{7}i}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{280} \quad \frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0$
610	symmetry	$z$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_1^{(1,1;a)}(A', 2)$	0 0 0 $\frac{3\sqrt{35}}{280}$ 0 $-\frac{3\sqrt{35}i}{280}$ 0 0 0 0 $\frac{\sqrt{21}}{56}$ 0 $\frac{\sqrt{21}i}{56}$ 0 0	
	0 0 $-\frac{3\sqrt{35}}{280}$ 0 $-\frac{3\sqrt{35}i}{280}$ 0 0 0 $-\frac{\sqrt{21}}{56}$ 0 $\frac{\sqrt{21}i}{56}$ 0 0 0	
	$-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{105}}{280}$ 0 $\frac{\sqrt{105}i}{280}$ 0 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 $\frac{3\sqrt{7}i}{56}$ 0 0	
	0 $\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{105}}{280}$ 0 $\frac{\sqrt{105}i}{280}$ 0 0 0 $\frac{3\sqrt{7}}{56}$ 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0	
	0 0 $-\frac{\sqrt{105}i}{140}$ 0 0 0 0 $-\frac{\sqrt{105}i}{70}$ $-\frac{\sqrt{7}i}{28}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{105}i}{140}$ 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{105}i}{140}$ 0 0 0 $\frac{\sqrt{105}}{70}$ 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{105}i}{140}$ $-\frac{\sqrt{105}}{70}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 0 $\frac{\sqrt{105}i}{70}$ 0 $-\frac{\sqrt{105}}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0	
	0 0 $\frac{\sqrt{105}i}{70}$ 0 $\frac{\sqrt{105}}{70}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$	
611	symmetry	$y$
$\mathbb{Q}_1^{(1,1;a)}(A'')$	0 $-\frac{\sqrt{21}}{28}$ $\frac{3\sqrt{35}i}{280}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{56}$ 0 0 0 0 $-\frac{\sqrt{21}i}{28}$	
	$\frac{\sqrt{21}}{28}$ 0 0 $-\frac{3\sqrt{35}i}{280}$ 0 0 0 0 0 $-\frac{\sqrt{21}i}{56}$ 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0	
	0 $\frac{\sqrt{7}}{28}$ $\frac{\sqrt{105}i}{280}$ 0 0 0 0 $-\frac{\sqrt{105}i}{140}$ $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0	
	$-\frac{\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{105}i}{280}$ 0 0 $-\frac{\sqrt{105}i}{140}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0	
	0 0 0 $\frac{\sqrt{105}}{140}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0	
	0 0 $-\frac{\sqrt{105}}{140}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 0 $\frac{\sqrt{7}}{28}$ 0 0 0 0	
	0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 $\frac{\sqrt{105}i}{70}$ 0 0 0 0 $\frac{\sqrt{7}}{14}$ 0 0	
	0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 $-\frac{\sqrt{105}}{140}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$	
	0 0 0 0 0 $\frac{\sqrt{105}i}{70}$ $\frac{\sqrt{105}}{140}$ 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0	
612	symmetry	$x \left( 2x^2 - 3y^2 - 3z^2 \right) / 2$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,1;a)}(A', 1)$	0	$-\frac{\sqrt{21}i}{42}$ 0 0 0 $-\frac{\sqrt{35}i}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{21}i}{112}$ 0 0 $\frac{\sqrt{21}}{84}$
	$-\frac{\sqrt{21}i}{42}$	0 0 0 0 0 $\frac{\sqrt{35}i}{112}$ 0 0 0 0 0 $\frac{3\sqrt{21}i}{112}$ $-\frac{\sqrt{21}}{84}$ 0
	0	$-\frac{\sqrt{7}i}{42}$ 0 0 0 $\frac{\sqrt{105}i}{336}$ 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 $\frac{\sqrt{7}i}{336}$ 0 0 $\frac{\sqrt{7}}{24}$
	$-\frac{\sqrt{7}i}{42}$	0 0 0 0 0 $-\frac{\sqrt{105}i}{336}$ $\frac{\sqrt{105}}{168}$ 0 0 0 0 $-\frac{\sqrt{7}i}{336}$ $-\frac{\sqrt{7}}{24}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{105}}{112}$ $\frac{\sqrt{105}i}{112}$ 0 0 $-\frac{\sqrt{7}i}{21}$ 0 $-\frac{\sqrt{7}}{48}$ $-\frac{\sqrt{7}i}{48}$ 0
	0	0 0 0 0 $\frac{\sqrt{105}}{112}$ 0 0 $-\frac{\sqrt{105}i}{112}$ $-\frac{\sqrt{7}i}{21}$ 0 $\frac{\sqrt{7}}{48}$ 0 0 $\frac{\sqrt{7}i}{48}$
	$\frac{\sqrt{7}i}{24}$	0 0 0 $-\frac{\sqrt{105}}{84}$ 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{7}}{24}$ 0 $-\frac{5\sqrt{7}i}{84}$ 0 0 0
	0	$-\frac{\sqrt{7}i}{24}$ $\frac{\sqrt{105}}{84}$ 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 0 $-\frac{\sqrt{7}}{24}$ 0 $-\frac{5\sqrt{7}i}{84}$ 0 0 0
	0	$-\frac{\sqrt{7}}{24}$ $\frac{\sqrt{105}i}{84}$ 0 0 0 0 $\frac{\sqrt{105}i}{84}$ $\frac{\sqrt{7}i}{24}$ 0 0 0 0 $-\frac{5\sqrt{7}i}{84}$
	$\frac{\sqrt{7}}{24}$	0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{105}i}{84}$ 0 0 $-\frac{\sqrt{7}i}{24}$ 0 0 0 $-\frac{5\sqrt{7}i}{84}$ 0
613	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{Q}_3^{(1,1;a)}(A', 2)$	0	0 0 0 $\frac{\sqrt{35}}{112}$ 0 $-\frac{\sqrt{35}i}{112}$ 0 0 0 $\frac{5\sqrt{21}}{336}$ 0 $\frac{5\sqrt{21}i}{336}$ 0 0
	0	0 0 $-\frac{\sqrt{35}}{112}$ 0 $-\frac{\sqrt{35}i}{112}$ 0 0 0 $-\frac{5\sqrt{21}}{336}$ 0 $\frac{5\sqrt{21}i}{336}$ 0 0 0
	$\frac{\sqrt{7}i}{21}$	0 0 0 $\frac{\sqrt{105}}{336}$ 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 $\frac{13\sqrt{7}}{336}$ 0 $-\frac{13\sqrt{7}i}{336}$ 0 0 0
	0	$-\frac{\sqrt{7}i}{21}$ $-\frac{\sqrt{105}}{336}$ 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 $-\frac{13\sqrt{7}}{336}$ 0 $-\frac{13\sqrt{7}i}{336}$ 0 0 0
	0	$\frac{\sqrt{7}}{24}$ $-\frac{\sqrt{105}i}{84}$ 0 0 0 0 $-\frac{\sqrt{105}i}{84}$ $-\frac{5\sqrt{7}i}{84}$ 0 0 0 0 $\frac{\sqrt{7}i}{24}$
	$-\frac{\sqrt{7}}{24}$	0 0 0 $\frac{\sqrt{105}i}{84}$ 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 $\frac{5\sqrt{7}i}{84}$ 0 0 0 $\frac{\sqrt{7}i}{24}$ 0
	0	$-\frac{\sqrt{7}i}{24}$ 0 0 $\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{105}}{84}$ 0 0 $-\frac{5\sqrt{7}i}{84}$ 0 0 0 $\frac{\sqrt{7}}{24}$
	$-\frac{\sqrt{7}i}{24}$	0 0 0 0 0 $-\frac{\sqrt{105}}{84}$ $-\frac{\sqrt{105}}{84}$ 0 0 0 0 $\frac{5\sqrt{7}i}{84}$ $-\frac{\sqrt{7}}{24}$ 0
	0	0 0 0 $-\frac{\sqrt{105}i}{112}$ 0 $\frac{\sqrt{105}}{112}$ 0 0 0 $-\frac{\sqrt{7}i}{48}$ 0 $-\frac{\sqrt{7}}{48}$ $-\frac{\sqrt{7}i}{21}$ 0
	0	0 0 $-\frac{\sqrt{105}i}{112}$ 0 $-\frac{\sqrt{105}}{112}$ 0 0 0 $-\frac{\sqrt{7}i}{48}$ 0 $\frac{\sqrt{7}}{48}$ 0 0 $\frac{\sqrt{7}i}{21}$
614	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,1;a)}(A', 3)$	$0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad \frac{3\sqrt{21}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{560} \quad 0 \quad 0 \quad \frac{3\sqrt{35}}{140}$	
	$-\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{21}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{560} \quad -\frac{3\sqrt{35}}{140} \quad 0$	
	$0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad -\frac{3\sqrt{7}i}{112} \quad 0 \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad \frac{5\sqrt{105}i}{336} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{120}$	
	$\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}i}{112} \quad \frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{105}i}{336} \quad \frac{\sqrt{105}}{120} \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad \frac{5\sqrt{7}}{112} \quad \frac{5\sqrt{7}i}{112} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{80} \quad -\frac{\sqrt{105}i}{80} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad -\frac{5\sqrt{7}}{112} \quad 0 \quad 0 \quad -\frac{5\sqrt{7}i}{112} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{80}$	
	$\frac{\sqrt{105}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{420} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{105}i}{120} \quad -\frac{\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{420} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{105}}{120} \quad \frac{\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{420}$	
615 symmetry	$-\frac{\sqrt{105}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{420} \quad 0$	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad -\frac{3\sqrt{21}}{112} \quad 0 \quad -\frac{3\sqrt{21}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{35}}{560} \quad 0 \quad -\frac{13\sqrt{35}i}{560} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{35}i}{35} \quad \frac{3\sqrt{21}}{112} \quad 0 \quad -\frac{3\sqrt{21}i}{112} \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{35}}{560} \quad 0 \quad -\frac{13\sqrt{35}i}{560} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{7}}{112} \quad 0 \quad \frac{3\sqrt{7}i}{112} \quad 0 \quad 0 \quad 0 \quad -\frac{11\sqrt{105}}{1680} \quad 0 \quad -\frac{11\sqrt{105}i}{1680} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{3\sqrt{7}}{112} \quad 0 \quad \frac{3\sqrt{7}i}{112} \quad 0 \quad 0 \quad 0 \quad \frac{11\sqrt{105}}{1680} \quad 0 \quad -\frac{11\sqrt{105}i}{1680} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{105}}{120} \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{56} \quad -\frac{\sqrt{105}i}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{105}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{420} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{105}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{420} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{105}i}{120} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad -\frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{420} \quad 0 \quad 0 \quad 0$	
616 symmetry	$0 \quad 0 \quad 0 \quad \frac{5\sqrt{7}i}{112} \quad 0 \quad \frac{5\sqrt{7}}{112} \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{80} \quad 0 \quad -\frac{\sqrt{105}}{80} \quad 0 \quad 0$	$\sqrt{15}xyz$
	$0 \quad 0 \quad \frac{5\sqrt{7}i}{112} \quad 0 \quad -\frac{5\sqrt{7}}{112} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad \frac{\sqrt{105}i}{80} \quad 0 \quad \frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad 0$	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,1;a)}(A'', 1)$	$0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{28} \ 0 \ \frac{\sqrt{21}}{28} \ 0 \ 0 \ 0 \ \frac{\sqrt{35}i}{70} \ 0 \ \frac{\sqrt{35}}{70} \ -\frac{\sqrt{35}i}{35} \ 0$	
	$0 \ 0 \ -\frac{\sqrt{21}i}{28} \ 0 \ -\frac{\sqrt{21}}{28} \ 0 \ 0 \ 0 \ \frac{\sqrt{35}i}{70} \ 0 \ -\frac{\sqrt{35}}{70} \ 0 \ 0 \ \frac{\sqrt{35}i}{35}$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{28} \ 0 \ -\frac{\sqrt{7}}{28} \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ -\frac{\sqrt{105}i}{70} \ 0 \ \frac{\sqrt{105}}{70} \ 0 \ 0$	
	$0 \ 0 \ -\frac{\sqrt{7}i}{28} \ 0 \ \frac{\sqrt{7}}{28} \ 0 \ 0 \ -\frac{\sqrt{7}i}{14} \ -\frac{\sqrt{105}i}{70} \ 0 \ -\frac{\sqrt{105}}{70} \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{56} \ 0 \ 0 \ \frac{\sqrt{7}}{56} \ 0 \ 0 \ -\frac{\sqrt{105}i}{120} \ 0 \ 0 \ -\frac{\sqrt{105}}{120}$	
	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{56} \ -\frac{\sqrt{7}}{56} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}i}{120} \ \frac{\sqrt{105}}{120} \ 0$	
	$0 \ 0 \ \frac{\sqrt{7}i}{56} \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{56} \ -\frac{\sqrt{105}i}{120} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}i}{120}$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{56} \ 0 \ 0 \ -\frac{\sqrt{7}i}{56} \ 0 \ 0 \ \frac{\sqrt{105}i}{120} \ 0 \ 0 \ -\frac{\sqrt{105}i}{120}$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{7}}{56} \ 0 \ \frac{\sqrt{7}i}{56} \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}}{120} \ 0 \ -\frac{\sqrt{105}i}{120} \ 0 \ 0$	
	$0 \ 0 \ \frac{\sqrt{7}}{56} \ 0 \ \frac{\sqrt{7}i}{56} \ 0 \ 0 \ 0 \ \frac{\sqrt{105}}{120} \ 0 \ -\frac{\sqrt{105}i}{120} \ 0 \ 0$	
617	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
$\mathbb{Q}_3^{(1,1;a)}(A'', 2)$	$0 \ \frac{\sqrt{21}}{42} \ \frac{\sqrt{35}i}{112} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{3\sqrt{21}i}{112} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{21}i}{84}$	
	$-\frac{\sqrt{21}}{42} \ 0 \ 0 \ -\frac{\sqrt{35}i}{112} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{3\sqrt{21}i}{112} \ 0 \ 0 \ 0 \ \frac{\sqrt{21}i}{84} \ 0$	
	$0 \ -\frac{\sqrt{7}}{42} \ \frac{\sqrt{105}i}{336} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}i}{168} \ -\frac{\sqrt{7}i}{336} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{24}$	
	$\frac{\sqrt{7}}{42} \ 0 \ 0 \ -\frac{\sqrt{105}i}{336} \ 0 \ 0 \ -\frac{\sqrt{105}i}{168} \ 0 \ 0 \ \frac{\sqrt{7}i}{336} \ 0 \ 0 \ -\frac{\sqrt{7}i}{24} \ 0$	
	$-\frac{\sqrt{7}i}{24} \ 0 \ 0 \ \frac{\sqrt{105}}{84} \ 0 \ \frac{\sqrt{105}i}{84} \ 0 \ 0 \ 0 \ -\frac{5\sqrt{7}}{84} \ 0 \ \frac{\sqrt{7}i}{24} \ 0 \ 0$	
	$0 \ \frac{\sqrt{7}i}{24} \ -\frac{\sqrt{105}}{84} \ 0 \ \frac{\sqrt{105}i}{84} \ 0 \ 0 \ 0 \ \frac{5\sqrt{7}}{84} \ 0 \ \frac{\sqrt{7}i}{24} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ \frac{\sqrt{105}i}{112} \ 0 \ 0 \ -\frac{\sqrt{105}i}{112} \ 0 \ 0 \ -\frac{\sqrt{7}i}{48} \ 0 \ -\frac{\sqrt{7}i}{21} \ -\frac{\sqrt{7}i}{48} \ 0$	
	$0 \ 0 \ \frac{\sqrt{105}i}{112} \ 0 \ 0 \ 0 \ \frac{\sqrt{105}i}{112} \ -\frac{\sqrt{7}i}{48} \ 0 \ \frac{\sqrt{7}}{21} \ 0 \ 0 \ \frac{\sqrt{7}i}{48}$	
	$0 \ \frac{\sqrt{7}i}{24} \ 0 \ 0 \ -\frac{\sqrt{105}i}{84} \ 0 \ 0 \ -\frac{\sqrt{105}}{84} \ 0 \ 0 \ \frac{\sqrt{7}i}{24} \ 0 \ 0 \ -\frac{5\sqrt{7}}{84}$	
	$\frac{\sqrt{7}i}{24} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}i}{84} \ \frac{\sqrt{105}}{84} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{24} \ \frac{5\sqrt{7}}{84} \ 0$	
618	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,1;a)}(A'', 3)$	0	$-\frac{\sqrt{35}}{70} \quad \frac{3\sqrt{21}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{35}i}{140}$
	$\frac{\sqrt{35}}{70}$	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{21}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{560} \quad 0 \quad 0 \quad -\frac{3\sqrt{35}i}{140} \quad 0$
	0	$-\frac{\sqrt{105}}{70} \quad \frac{3\sqrt{7}i}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}i}{56} \quad \frac{5\sqrt{105}i}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{120}$
	$\frac{\sqrt{105}}{70}$	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{7}i}{112} \quad 0 \quad 0 \quad \frac{3\sqrt{7}i}{56} \quad 0 \quad 0 \quad -\frac{5\sqrt{105}i}{336} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{120} \quad 0$
	$\frac{\sqrt{105}i}{120}$	$0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad \frac{\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{105}i}{120} \quad -\frac{\sqrt{7}}{28} \quad 0 \quad \frac{\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{5\sqrt{7}i}{112} \quad 0 \quad -\frac{\sqrt{7}}{14} \quad \frac{5\sqrt{7}i}{112} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{80} \quad 0$
	0	$0 \quad 0 \quad \frac{5\sqrt{7}i}{112} \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad -\frac{5\sqrt{7}i}{112} \quad -\frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{80}$
	$\frac{\sqrt{105}i}{120}$	$0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{420}$
	$\frac{\sqrt{105}i}{120}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{56} \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{420} \quad 0$
619	symmetry	$\sqrt{3}yz$
$\mathbb{G}_2^{(a)}(A', 1)$	0	$0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{56} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$
620	symmetry	$\sqrt{3}xy$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_2^{(a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
621	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{G}_2^{(a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 \end{bmatrix}$
622	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

*continued ...*

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(a)}(A'', 2)$	$-\frac{\sqrt{70}}{28} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{70}}{28} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{56} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{56} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0$	
623	symmetry	$\sqrt{3}xz$
$\mathbb{G}_2^{(a)}(A'', 3)$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{14} \quad 0 \quad 0$	
		$\sqrt{35}yz(y-z)(y+z)$
624	symmetry	

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_4^{(a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 \end{bmatrix}$
625	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
626	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

*continued ...*

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(a)}(A', 3)$	0 0 $\frac{3\sqrt{7}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0 0 0 0 0 0	
	0 0 0 $\frac{3\sqrt{7}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0 0 $\frac{3\sqrt{35}}{70}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0 0 $\frac{3\sqrt{35}}{70}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{21}}{56}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{40}$ 0	
	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 $-\frac{\sqrt{21}}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{35}}{40}$ 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{21}}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{35}}{40}$ 0 0	
627	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{G}_4^{(a)}(A', 4)$	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 0 0 0 0 $\frac{\sqrt{105}}{35}$	
	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 $-\frac{\sqrt{21}}{14}$ 0 0 0 0 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 $\frac{\sqrt{21}}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{35}}{40}$ 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 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
628	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$

*continued ..*

Table 9

No.	multipole	matrix
	$\mathbb{G}_4^{(a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \end{bmatrix}$
629	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{420} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{420} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{420} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{420} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{210} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{210} \end{bmatrix}$
630	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_4^{(a)}(A'', 3)$	$\begin{bmatrix} \frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{140} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
631	symmetry	$\begin{bmatrix} & & & & & & & & & & & & & -\frac{\sqrt{35}xz(x-z)(x+z)}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} \\ \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
632	symmetry	$\begin{bmatrix} & & & & & & & & & & & & & -\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2} \\ & & & & & & & & & & & & & & \end{bmatrix}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(a)}(A'', 5)$	0 0 0 0 $-\frac{3\sqrt{7}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0 0 0	
	0 0 0 0 0 $-\frac{3\sqrt{7}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0 0 $-\frac{3\sqrt{35}}{70}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0 0 $-\frac{3\sqrt{35}}{70}$ 0 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	
	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 0 0 0 $\frac{\sqrt{35}}{40}$ 0 0 0 0 0 0	
633	symmetry	$\sqrt{3}yz$
$\mathbb{G}_2^{(1,-1;a)}(A', 1)$	0 0 0 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 $\frac{3\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0	
	0 0 0 0 0 $\frac{3\sqrt{70}i}{280}$ $-\frac{3\sqrt{70}}{140}$ 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0	
	0 0 0 0 $-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 $\frac{\sqrt{14}}{28}$	
	0 0 0 0 0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ $-\frac{\sqrt{14}}{28}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{210}}{140}$ $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 $\frac{\sqrt{14}}{28}$ $-\frac{\sqrt{14}i}{28}$ 0	
	0 0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 $-\frac{\sqrt{14}}{28}$ 0 0 $\frac{\sqrt{14}i}{28}$	
	$\frac{\sqrt{14}i}{28}$ 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{14}i}{28}$ $\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 0 0 0 0	
	0 $\frac{\sqrt{14}}{28}$ $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0 0	
	$-\frac{\sqrt{14}}{28}$ 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0 0	
634	symmetry	$\sqrt{3}xy$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,-1;a)}(A',2)$	0 0 0 $-\frac{3\sqrt{70}}{280}$ 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 0 $-\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0	
	0 0 $\frac{3\sqrt{70}}{280}$ 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 0 $\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{210}}{280}$ 0 $-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0	
	0 0 $-\frac{3\sqrt{210}}{280}$ 0 $-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0	
	0 $\frac{\sqrt{14}}{28}$ 0 0 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$	
	$-\frac{\sqrt{14}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0	
	0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$	
	$\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0	
	0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0	
	0 0 $-\frac{\sqrt{210}i}{140}$ 0 $\frac{\sqrt{210}}{140}$ 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 $\frac{\sqrt{14}}{28}$ 0 0 0	
635	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{G}_2^{(1,-1;a)}(A'',1)$	0 0 0 $\frac{\sqrt{210}i}{280}$ 0 $\frac{\sqrt{210}}{280}$ $\frac{\sqrt{210}i}{70}$ 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 $-\frac{\sqrt{14}}{56}$ 0 0	
	0 0 $\frac{\sqrt{210}i}{280}$ 0 $-\frac{\sqrt{210}}{280}$ 0 0 0 $-\frac{\sqrt{210}i}{70}$ $\frac{\sqrt{14}i}{56}$ 0 $\frac{\sqrt{14}}{56}$ 0 0 0	
	0 0 0 $-\frac{3\sqrt{70}i}{280}$ 0 $\frac{3\sqrt{70}}{280}$ 0 0 0 0 $\frac{\sqrt{42}i}{168}$ 0 $\frac{\sqrt{42}}{168}$ $\frac{\sqrt{42}i}{42}$ 0	
	0 0 $-\frac{3\sqrt{70}i}{280}$ 0 $-\frac{3\sqrt{70}}{280}$ 0 0 0 0 $\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ 0 0 $-\frac{\sqrt{42}i}{42}$	
	0 $-\frac{\sqrt{42}i}{84}$ 0 0 $-\frac{\sqrt{70}i}{70}$ 0 0 $\frac{\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{42}i}{42}$ 0 0 $\frac{\sqrt{42}}{84}$	
	$-\frac{\sqrt{42}i}{84}$ 0 0 0 $\frac{\sqrt{70}i}{70}$ $-\frac{\sqrt{70}}{140}$ 0 0 0 0 $-\frac{\sqrt{42}i}{42}$ $-\frac{\sqrt{42}}{84}$ 0	
	0 $-\frac{\sqrt{42}}{84}$ $-\frac{\sqrt{70}i}{70}$ 0 0 0 0 $\frac{\sqrt{70}i}{140}$ $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 $-\frac{\sqrt{42}i}{84}$	
	$\frac{\sqrt{42}}{84}$ 0 0 $\frac{\sqrt{70}i}{70}$ 0 0 $\frac{\sqrt{70}i}{140}$ 0 0 $\frac{\sqrt{42}i}{42}$ 0 0 $-\frac{\sqrt{42}i}{84}$ 0	
	$\frac{\sqrt{42}i}{42}$ 0 0 $\frac{\sqrt{70}}{140}$ 0 $\frac{\sqrt{70}i}{140}$ 0 0 0 $-\frac{\sqrt{42}}{84}$ 0 $\frac{\sqrt{42}i}{84}$ 0 0	
636	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,-1;a)}(A'', 2)$	0 0 0 $-\frac{3\sqrt{70}i}{280}$ 0 $\frac{3\sqrt{70}}{280}$ 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 0	
	0 0 $-\frac{3\sqrt{70}i}{280}$ 0 $-\frac{3\sqrt{70}}{280}$ 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0	
	0 0 0 $\frac{3\sqrt{210}i}{280}$ 0 $\frac{3\sqrt{210}}{280}$ 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 $\frac{\sqrt{14}}{56}$ 0 0 0	
	0 0 $\frac{3\sqrt{210}i}{280}$ 0 $-\frac{3\sqrt{210}}{280}$ 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0	
	0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 0 0 0 0 $\frac{\sqrt{14}}{28}$	
	$\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0	
	0 $-\frac{\sqrt{14}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$	
	$\frac{\sqrt{14}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0	
	0 0 0 $\frac{\sqrt{210}}{140}$ 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0	
	0 0 $-\frac{\sqrt{210}}{140}$ 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0	
637	symmetry	$\sqrt{3}xz$
$\mathbb{G}_2^{(1,-1;a)}(A'', 3)$	0 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 0 $\frac{3\sqrt{70}i}{140}$ $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0	
	0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 0 $\frac{3\sqrt{70}i}{140}$ 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0	
	0 0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$	
	0 0 0 $-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 $\frac{\sqrt{14}i}{28}$ 0	
	$\frac{\sqrt{14}i}{28}$ 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 0	
	0 $-\frac{\sqrt{14}i}{28}$ 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0 $\frac{\sqrt{14}i}{28}$ 0	
	0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 $\frac{\sqrt{210}i}{140}$ $-\frac{\sqrt{14}i}{28}$ 0 0 0 0 $-\frac{\sqrt{14}i}{28}$	
	$\frac{\sqrt{14}i}{28}$ 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0	
	$\frac{\sqrt{14}i}{28}$ 0 0 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 0	
638	symmetry	$\sqrt{35}yz(y-z)(y+z)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,-1;a)}(A', 1)$	0 0 0 0 $\frac{\sqrt{3}i}{48}$ 0 0 $-\frac{\sqrt{3}}{12}$ 0 0 $-\frac{\sqrt{5}i}{16}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{3}i}{48}$ $\frac{\sqrt{3}}{12}$ 0 0 0 0 $\frac{\sqrt{5}i}{16}$ 0 0 0	
	0 0 0 0 $-\frac{3i}{16}$ 0 0 $\frac{1}{8}$ 0 0 0 $\frac{\sqrt{15}i}{48}$ 0 0 $\frac{\sqrt{15}}{24}$	
	0 0 0 0 0 $\frac{3i}{16}$ $-\frac{1}{8}$ 0 0 0 0 $-\frac{\sqrt{15}i}{48}$ $-\frac{\sqrt{15}}{24}$ 0	
	0 0 0 0 0 $\frac{1}{16}$ $-\frac{i}{16}$ 0 0 0 0 $\frac{\sqrt{15}}{48}$ $\frac{\sqrt{15}i}{48}$ 0	
	0 0 0 0 $-\frac{1}{16}$ 0 0 $\frac{i}{16}$ 0 0 $-\frac{\sqrt{15}}{48}$ 0 0 $-\frac{\sqrt{15}i}{48}$	
	$-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0 0	
	0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0	
	0 $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0	
	$-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0	
639	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{G}_4^{(1,-1;a)}(A', 2)$	0 0 0 $-\frac{5\sqrt{3}}{48}$ 0 $\frac{5\sqrt{3}i}{48}$ 0 0 0 $\frac{\sqrt{5}}{16}$ 0 $\frac{\sqrt{5}i}{16}$ 0 0 0	
	0 0 $\frac{5\sqrt{3}}{48}$ 0 $\frac{5\sqrt{3}i}{48}$ 0 0 0 $-\frac{\sqrt{5}}{16}$ 0 $\frac{\sqrt{5}i}{16}$ 0 0 0 0	
	0 0 0 $\frac{1}{16}$ 0 $\frac{i}{16}$ 0 0 0 $\frac{\sqrt{15}}{48}$ 0 0 $-\frac{\sqrt{15}i}{48}$ 0 0 0	
	0 0 $-\frac{1}{16}$ 0 $\frac{i}{16}$ 0 0 0 $-\frac{\sqrt{15}}{48}$ 0 $-\frac{\sqrt{15}i}{48}$ 0 0 0 0	
	$0 -\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$	
	$\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0	
	0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$	
	$\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0	
	0 0 0 $\frac{i}{16}$ 0 $-\frac{1}{16}$ 0 0 0 $\frac{\sqrt{15}i}{48}$ 0 $\frac{\sqrt{15}}{48}$ 0 0 0	
640	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,-1;a)}(A', 3)$	0 0 0 0 $\frac{11\sqrt{21}i}{336}$ 0 0 $-\frac{\sqrt{21}}{84}$ 0 0 $\frac{\sqrt{35}i}{112}$ 0 0 0	
	0 0 0 0 0 $-\frac{11\sqrt{21}i}{336}$ $\frac{\sqrt{21}}{84}$ 0 0 0 0 $-\frac{\sqrt{35}i}{112}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{7}i}{112}$ 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{105}i}{336}$ 0 0 $\frac{\sqrt{105}}{168}$	
	0 0 0 0 0 $\frac{\sqrt{7}i}{112}$ $\frac{3\sqrt{7}}{56}$ 0 0 0 0 $\frac{\sqrt{105}i}{336}$ $-\frac{\sqrt{105}}{168}$ 0	
	0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{112}$ $-\frac{\sqrt{7}i}{112}$ 0 0 0 0 $-\frac{5\sqrt{105}}{336}$ $\frac{5\sqrt{105}i}{336}$ 0	
	0 0 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{112}$ 0 0 $\frac{\sqrt{7}i}{112}$ 0 0 $\frac{5\sqrt{105}}{336}$ 0 0 $-\frac{5\sqrt{105}i}{336}$	
	$\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 $-\frac{\sqrt{105}}{84}$ 0 0 0	
	0 $-\frac{\sqrt{105}i}{168}$ $-\frac{\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0	
	0 $\frac{\sqrt{105}}{168}$ $\frac{\sqrt{7}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{105}i}{84}$ 0 0 0 0	
	$-\frac{\sqrt{105}}{168}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 0	
641	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{G}_4^{(1,-1;a)}(A', 4)$	0 0 0 $-\frac{\sqrt{21}}{48}$ 0 $-\frac{\sqrt{21}i}{48}$ 0 0 0 $-\frac{\sqrt{35}}{112}$ 0 $\frac{\sqrt{35}i}{112}$ 0 0	
	0 0 $\frac{\sqrt{21}}{48}$ 0 $-\frac{\sqrt{21}i}{48}$ 0 0 0 $\frac{\sqrt{35}}{112}$ 0 $\frac{\sqrt{35}i}{112}$ 0 0 0	
	0 0 0 $-\frac{5\sqrt{7}}{112}$ 0 $\frac{5\sqrt{7}i}{112}$ 0 0 0 $-\frac{\sqrt{105}}{336}$ 0 $-\frac{\sqrt{105}i}{336}$ 0 0	
	0 0 $\frac{5\sqrt{7}}{112}$ 0 $\frac{5\sqrt{7}i}{112}$ 0 0 0 $\frac{\sqrt{105}}{336}$ 0 $-\frac{\sqrt{105}i}{336}$ 0 0 0	
	0 $\frac{\sqrt{105}}{168}$ $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{84}$	
	$-\frac{\sqrt{105}}{168}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{84}$ 0	
	0 $\frac{\sqrt{105}i}{168}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{84}$	
	$\frac{\sqrt{105}i}{168}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{84}$ 0	
	0 0 0 $-\frac{\sqrt{7}i}{112}$ 0 $-\frac{\sqrt{7}}{112}$ $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{5\sqrt{105}i}{336}$ 0 $\frac{5\sqrt{105}}{336}$ 0 0	
	0 0 $-\frac{\sqrt{7}i}{112}$ 0 $\frac{\sqrt{7}}{112}$ 0 0 $\frac{\sqrt{7}i}{14}$ $-\frac{5\sqrt{105}i}{336}$ 0 $-\frac{5\sqrt{105}}{336}$ 0 0 0	
642	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,-1;a)}(A'', 1)$	0 0 0 $-\frac{\sqrt{5}i}{30}$ 0 $-\frac{\sqrt{5}}{30}$ $\frac{\sqrt{5}i}{15}$ 0 0 $\frac{\sqrt{3}i}{12}$ 0 $-\frac{\sqrt{3}}{12}$ 0 0	
	0 0 $-\frac{\sqrt{5}i}{30}$ 0 $\frac{\sqrt{5}}{30}$ 0 0 $-\frac{\sqrt{5}i}{15}$ $\frac{\sqrt{3}i}{12}$ 0 $\frac{\sqrt{3}}{12}$ 0 0 0	
	0 0 0 $\frac{\sqrt{15}i}{30}$ 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 $\frac{i}{12}$ 0 $\frac{1}{12}$ $-\frac{i}{6}$ 0	
	0 0 $\frac{\sqrt{15}i}{30}$ 0 $\frac{\sqrt{15}}{30}$ 0 0 0 $\frac{i}{12}$ 0 $-\frac{1}{12}$ 0 0 $\frac{i}{6}$	
	0 $-\frac{i}{6}$ 0 0 $-\frac{\sqrt{15}i}{120}$ 0 0 $-\frac{\sqrt{15}}{120}$ 0 0 $\frac{i}{24}$ 0 0 $-\frac{1}{24}$	
	$-\frac{i}{6}$ 0 0 0 0 $\frac{\sqrt{15}i}{120}$ $\frac{\sqrt{15}}{120}$ 0 0 0 $-\frac{i}{24}$ $\frac{1}{24}$ 0	
	0 $-\frac{1}{6}$ $-\frac{\sqrt{15}i}{120}$ 0 0 0 0 $-\frac{\sqrt{15}i}{120}$ $-\frac{i}{24}$ 0 0 0 0 $\frac{i}{24}$	
	$\frac{1}{6}$ 0 0 $\frac{\sqrt{15}i}{120}$ 0 0 $-\frac{\sqrt{15}i}{120}$ 0 0 $\frac{i}{24}$ 0 0 $\frac{i}{24}$ 0	
	$-\frac{i}{6}$ 0 0 $-\frac{\sqrt{15}}{120}$ 0 $-\frac{\sqrt{15}i}{120}$ 0 0 0 $\frac{1}{24}$ 0 $-\frac{i}{24}$ 0 0	
	0 $\frac{i}{6}$ $\frac{\sqrt{15}}{120}$ 0 $-\frac{\sqrt{15}i}{120}$ 0 0 0 $-\frac{1}{24}$ 0 $-\frac{i}{24}$ 0 0 0	
643	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 0 0 $\frac{11\sqrt{7}i}{168}$ 0 $\frac{11\sqrt{7}}{168}$ $\frac{\sqrt{7}i}{21}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0 $\frac{\sqrt{105}}{168}$ 0 0	
	0 0 $\frac{11\sqrt{7}i}{168}$ 0 $-\frac{11\sqrt{7}}{168}$ 0 0 $-\frac{\sqrt{7}i}{21}$ $-\frac{\sqrt{105}i}{168}$ 0 $-\frac{\sqrt{105}}{168}$ 0 0 0	
	0 0 0 $\frac{\sqrt{21}i}{168}$ 0 $-\frac{\sqrt{21}}{168}$ 0 0 0 $-\frac{\sqrt{35}i}{168}$ 0 $-\frac{\sqrt{35}}{168}$ $-\frac{\sqrt{35}i}{42}$ 0	
	0 0 $\frac{\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{168}$ 0 0 0 $-\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{168}$ 0 0 $\frac{\sqrt{35}i}{42}$	
	0 $\frac{\sqrt{35}i}{84}$ 0 0 $-\frac{\sqrt{21}i}{168}$ 0 0 $-\frac{\sqrt{21}}{168}$ 0 0 $\frac{\sqrt{35}i}{168}$ 0 0 $\frac{5\sqrt{35}}{168}$	
	$\frac{\sqrt{35}i}{84}$ 0 0 0 $\frac{\sqrt{21}i}{168}$ $\frac{\sqrt{21}}{168}$ 0 0 0 0 $-\frac{\sqrt{35}i}{168}$ $-\frac{5\sqrt{35}}{168}$ 0	
	0 $\frac{\sqrt{35}}{84}$ $-\frac{\sqrt{21}i}{168}$ 0 0 0 0 $-\frac{\sqrt{21}i}{168}$ $-\frac{\sqrt{35}i}{168}$ 0 0 0 0 $-\frac{5\sqrt{35}i}{168}$	
	$-\frac{\sqrt{35}}{84}$ 0 0 $\frac{\sqrt{21}i}{168}$ 0 0 $-\frac{\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{35}i}{168}$ 0 0 $-\frac{5\sqrt{35}i}{168}$ 0	
	$-\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{21}}{84}$ 0 $\frac{\sqrt{21}i}{84}$ 0 0 0 $\frac{\sqrt{35}}{42}$ 0 $-\frac{\sqrt{35}i}{42}$ 0 0	
	0 $\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{21}}{84}$ 0 $\frac{\sqrt{21}i}{84}$ 0 0 0 $-\frac{\sqrt{35}}{42}$ 0 $-\frac{\sqrt{35}i}{42}$ 0 0 0	
644	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 0 0 $\frac{\sqrt{21}i}{168}$ 0 $-\frac{\sqrt{21}}{168}$ 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 $\frac{\sqrt{35}}{56}$ 0 0	
	0 0 $\frac{\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{168}$ 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 $-\frac{\sqrt{35}}{56}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{105}i}{168}$ 0 $-\frac{\sqrt{105}}{168}$ 0 0	
	0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{105}i}{168}$ 0 $\frac{\sqrt{105}}{168}$ 0 0 0	
	0 $-\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 $-\frac{\sqrt{105}}{168}$	
	$-\frac{\sqrt{105}i}{84}$ 0 0 0 $-\frac{\sqrt{7}i}{56}$ $-\frac{\sqrt{7}}{56}$ 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ $\frac{\sqrt{105}}{168}$ 0	
	0 $\frac{\sqrt{105}}{84}$ $-\frac{\sqrt{7}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ $\frac{\sqrt{105}i}{56}$ 0 0 0 0 $-\frac{\sqrt{105}i}{168}$	
	$-\frac{\sqrt{105}}{84}$ 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}}{84}$ 0 $-\frac{\sqrt{105}i}{84}$ 0 0 0	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 $-\frac{\sqrt{105}i}{84}$ 0 0 0	
645	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{G}_4^{(1,-1;a)}(A'',4)$	0 0 $-\frac{\sqrt{3}i}{48}$ 0 0 0 0 $\frac{\sqrt{3}i}{12}$ $-\frac{\sqrt{5}i}{16}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{3}i}{48}$ 0 0 $\frac{\sqrt{3}i}{12}$ 0 0 $\frac{\sqrt{5}i}{16}$ 0 0 0 0 0	
	0 0 $-\frac{3i}{16}$ 0 0 0 0 $\frac{i}{8}$ $-\frac{\sqrt{15}i}{48}$ 0 0 0 0 $-\frac{\sqrt{15}i}{24}$	
	0 0 0 $\frac{3i}{16}$ 0 0 $\frac{i}{8}$ 0 0 $\frac{\sqrt{15}i}{48}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0	
	$\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0	
	0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0	
	0 0 0 $-\frac{i}{16}$ 0 0 $\frac{i}{16}$ 0 0 $\frac{\sqrt{15}i}{48}$ 0 0 0 $\frac{\sqrt{15}i}{48}$ 0	
	0 0 $-\frac{i}{16}$ 0 0 0 0 $-\frac{i}{16}$ $\frac{\sqrt{15}i}{48}$ 0 0 0 0 $-\frac{\sqrt{15}i}{48}$	
	0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0	
	$-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0	
646	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,-1;a)}(A'',5)$	0 0 $\frac{11\sqrt{21}i}{336}$ 0 0 0 0 $-\frac{\sqrt{21}i}{84}$ $-\frac{\sqrt{35}i}{112}$ 0 0 0 0 0	
	0 0 0 $-\frac{11\sqrt{21}i}{336}$ 0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $\frac{\sqrt{35}i}{112}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{7}i}{112}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ $-\frac{\sqrt{105}i}{336}$ 0 0 0 0 $\frac{\sqrt{105}i}{168}$	
	0 0 0 $-\frac{\sqrt{7}i}{112}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 $\frac{\sqrt{105}i}{168}$ 0	
	$\frac{\sqrt{105}i}{168}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{84}$ 0 0 0	
	0 $-\frac{\sqrt{105}i}{168}$ $\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{84}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{7}i}{112}$ 0 $-\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{7}i}{112}$ 0 0 $\frac{5\sqrt{105}i}{336}$ 0 0 0 $-\frac{5\sqrt{105}i}{336}$ 0	
	0 0 $-\frac{\sqrt{7}i}{112}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{7}i}{112}$ $\frac{5\sqrt{105}i}{336}$ 0 0 0 0 $\frac{5\sqrt{105}i}{336}$	
	0 $\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 0	
	$\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ $\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{105}i}{84}$ 0 0 0	
647	symmetry	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$
$\mathbb{G}_6^{(1,-1;a)}(A',1)$	0 $-\frac{\sqrt{33}i}{44}$ 0 0 0 0 0 0 $\frac{\sqrt{55}}{88}$ 0 0 0 $\frac{\sqrt{33}i}{44}$ 0 0 $-\frac{\sqrt{33}}{88}$	
	$-\frac{\sqrt{33}i}{44}$ 0 0 0 0 0 0 $-\frac{\sqrt{55}}{88}$ 0 0 0 0 0 $-\frac{\sqrt{33}i}{44}$ $\frac{\sqrt{33}}{88}$ 0	
	0 $-\frac{\sqrt{11}i}{44}$ 0 0 $\frac{\sqrt{165}i}{132}$ 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0 0 $-\frac{3\sqrt{11}}{88}$	
	$-\frac{\sqrt{11}i}{44}$ 0 0 0 0 $-\frac{\sqrt{165}i}{132}$ $\frac{\sqrt{165}}{264}$ 0 0 0 0 0 $\frac{3\sqrt{11}}{88}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{165}}{132}$ $\frac{\sqrt{165}i}{132}$ 0 0 $\frac{\sqrt{11}i}{22}$ 0 $-\frac{\sqrt{11}}{44}$ $-\frac{\sqrt{11}i}{44}$ 0	
	0 0 0 0 $\frac{\sqrt{165}}{132}$ 0 0 $-\frac{\sqrt{165}i}{132}$ $\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{44}$ 0 0 $\frac{\sqrt{11}i}{44}$	
	$-\frac{\sqrt{11}i}{22}$ 0 0 0 0 $\frac{\sqrt{165}i}{132}$ 0 0 0 $\frac{\sqrt{11}}{22}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0 0	
	0 $\frac{\sqrt{11}i}{22}$ 0 0 $\frac{\sqrt{165}i}{132}$ 0 0 0 $-\frac{\sqrt{11}}{22}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0 0	
	0 $\frac{\sqrt{11}}{22}$ 0 0 0 0 0 $-\frac{\sqrt{165}i}{132}$ $\frac{\sqrt{11}i}{22}$ 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0	
	$-\frac{\sqrt{11}}{22}$ 0 0 0 0 0 $-\frac{\sqrt{165}i}{132}$ 0 0 $-\frac{\sqrt{11}i}{22}$ 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0	
648	symmetry	$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_6^{(1,-1;a)}(A', 2)$	0 0 0 $\frac{\sqrt{55}}{88}$ 0 $-\frac{\sqrt{55}i}{88}$ 0 0 0 $-\frac{\sqrt{33}}{88}$ 0 $-\frac{\sqrt{33}i}{88}$ 0 0	
	0 0 $-\frac{\sqrt{55}}{88}$ 0 $-\frac{\sqrt{55}i}{88}$ 0 0 0 $\frac{\sqrt{33}}{88}$ 0 $-\frac{\sqrt{33}i}{88}$ 0 0 0	
	$\frac{\sqrt{11}i}{22}$ 0 0 $-\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{264}$ 0 0 0 $-\frac{3\sqrt{11}}{88}$ 0 $\frac{3\sqrt{11}i}{88}$ 0 0	
	0 $-\frac{\sqrt{11}i}{22}$ $\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{264}$ 0 0 0 $\frac{3\sqrt{11}}{88}$ 0 $\frac{3\sqrt{11}i}{88}$ 0 0 0	
	0 $-\frac{\sqrt{11}}{22}$ $\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 0 0 0 $\frac{\sqrt{11}i}{22}$	
	$\frac{\sqrt{11}}{22}$ 0 0 $-\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 0 $\frac{\sqrt{11}i}{22}$	
	0 $\frac{\sqrt{11}i}{22}$ 0 0 $-\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 0 0 $\frac{\sqrt{11}}{22}$	
	$\frac{\sqrt{11}i}{22}$ 0 0 0 0 $\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{11}i}{44}$ $-\frac{\sqrt{11}}{22}$ 0	
	0 0 0 $-\frac{\sqrt{165}i}{132}$ 0 $\frac{\sqrt{165}}{132}$ 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 $-\frac{\sqrt{11}}{44}$ $\frac{\sqrt{11}i}{22}$ 0	
	0 0 $-\frac{\sqrt{165}i}{132}$ 0 $-\frac{\sqrt{165}}{132}$ 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 $\frac{\sqrt{11}}{44}$ 0 0 $-\frac{\sqrt{11}i}{22}$	
649	symmetry	$\frac{\sqrt{462}yz(y^2-3z^2)(3y^2-z^2)}{16}$
$\mathbb{G}_6^{(1,-1;a)}(A', 3)$	0 0 0 0 $-\frac{\sqrt{30}i}{32}$ 0 0 $\frac{\sqrt{30}}{32}$ 0 0 $\frac{3\sqrt{2}i}{32}$ 0 0 $\frac{3\sqrt{2}}{32}$	
	0 0 0 0 0 $\frac{\sqrt{30}i}{32}$ $-\frac{\sqrt{30}}{32}$ 0 0 0 0 $-\frac{3\sqrt{2}i}{32}$ $-\frac{3\sqrt{2}}{32}$ 0	
	0 0 0 0 $-\frac{\sqrt{10}i}{32}$ 0 0 $\frac{\sqrt{10}}{32}$ 0 0 $\frac{\sqrt{6}i}{32}$ 0 0 $\frac{\sqrt{6}}{32}$	
	0 0 0 0 0 $\frac{\sqrt{10}i}{32}$ $-\frac{\sqrt{10}}{32}$ 0 0 0 0 $-\frac{\sqrt{6}i}{32}$ $-\frac{\sqrt{6}}{32}$ 0	
	0 0 0 0 0 $\frac{\sqrt{10}}{16}$ $\frac{\sqrt{10}i}{16}$ 0 0 0 0 $-\frac{\sqrt{6}}{16}$ $\frac{\sqrt{6}i}{16}$ 0	
	0 0 0 0 $-\frac{\sqrt{10}}{16}$ 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 $\frac{\sqrt{6}}{16}$ 0 0 $-\frac{\sqrt{6}i}{16}$	
	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	
650	symmetry	$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_6^{(1,-1;a)}(A', 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & -\frac{\sqrt{10}i}{16} & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{16} & 0 & -\frac{\sqrt{10}i}{16} & 0 & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 \end{bmatrix}$
651	symmetry	$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$ $\begin{bmatrix} 0 & -\frac{\sqrt{110}i}{110} & 0 & 0 & \frac{\sqrt{66}i}{352} & 0 & 0 & \frac{5\sqrt{66}}{1056} & 0 & 0 & \frac{13\sqrt{110}i}{1760} & 0 & 0 & -\frac{\sqrt{110}}{160} \\ -\frac{\sqrt{110}i}{110} & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}i}{352} & -\frac{5\sqrt{66}}{1056} & 0 & 0 & 0 & -\frac{13\sqrt{110}i}{1760} & \frac{\sqrt{110}}{160} & 0 & 0 \\ 0 & \frac{\sqrt{330}i}{110} & 0 & 0 & -\frac{13\sqrt{22}i}{1056} & 0 & 0 & -\frac{\sqrt{22}}{96} & 0 & 0 & -\frac{7\sqrt{330}i}{1056} & 0 & 0 & \frac{37\sqrt{330}}{5280} \\ \frac{\sqrt{330}i}{110} & 0 & 0 & 0 & 0 & \frac{13\sqrt{22}i}{1056} & \frac{\sqrt{22}}{96} & 0 & 0 & 0 & \frac{7\sqrt{330}i}{1056} & -\frac{37\sqrt{330}}{5280} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{22}i}{33} & 0 & \frac{5\sqrt{22}}{528} & \frac{5\sqrt{22}i}{528} & 0 & 0 & 0 & \frac{\sqrt{330}}{240} & -\frac{\sqrt{330}i}{240} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{22}i}{33} & 0 & -\frac{5\sqrt{22}}{528} & 0 & 0 & -\frac{5\sqrt{22}i}{528} & 0 & 0 & -\frac{\sqrt{330}}{240} & 0 & 0 & \frac{\sqrt{330}i}{240} \\ -\frac{\sqrt{330}i}{165} & 0 & 0 & \frac{\sqrt{22}}{33} & 0 & -\frac{\sqrt{22}i}{66} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{110} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{330}i}{165} & -\frac{\sqrt{22}}{33} & 0 & -\frac{\sqrt{22}i}{66} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{110} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{330}}{165} & \frac{\sqrt{22}i}{33} & 0 & 0 & 0 & 0 & -\frac{\sqrt{22}i}{66} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{110} \\ \frac{\sqrt{330}}{165} & 0 & 0 & -\frac{\sqrt{22}i}{33} & 0 & 0 & -\frac{\sqrt{22}i}{66} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{110} & 0 \end{bmatrix}$
652	symmetry	$\frac{\sqrt{210}xy(x^4 + 2x^2y^2 - 16x^2z^2 + y^4 - 16y^2z^2 + 16z^4)}{16}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_6^{(1,-1;a)}(A', 6)$	$\frac{\sqrt{110}i}{55}$	$0 \quad 0 \quad -\frac{\sqrt{66}}{132} \quad 0 \quad -\frac{\sqrt{66}i}{132} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{110}}{220} \quad 0 \quad \frac{3\sqrt{110}i}{220} \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{110}i}{55}$	$\frac{\sqrt{66}}{132} \quad 0 \quad -\frac{\sqrt{66}i}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{110}}{220} \quad 0 \quad \frac{3\sqrt{110}i}{220} \quad 0 \quad 0 \quad 0$
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{22}}{528} \quad 0 \quad -\frac{\sqrt{22}i}{528} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{330}}{2640} \quad 0 \quad -\frac{\sqrt{330}i}{2640} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{22}}{528} \quad 0 \quad -\frac{\sqrt{22}i}{528} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}}{2640} \quad 0 \quad -\frac{\sqrt{330}i}{2640} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{330}}{165} \quad -\frac{\sqrt{22}i}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{22}i}{33} \quad -\frac{\sqrt{330}i}{110} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{330}}{165} \quad 0 \quad 0 \quad \frac{\sqrt{22}i}{66} \quad 0 \quad 0 \quad \frac{\sqrt{22}i}{33} \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{110} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{330}i}{165} \quad 0 \quad 0 \quad -\frac{\sqrt{22}i}{66} \quad 0 \quad 0 \quad \frac{\sqrt{22}}{33} \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{110} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{330}i}{165} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{22}i}{66} \quad -\frac{\sqrt{22}}{33} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{330}i}{110} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{5\sqrt{22}i}{528} \quad 0 \quad \frac{5\sqrt{22}}{528} \quad \frac{\sqrt{22}i}{33} \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{240} \quad 0 \quad -\frac{\sqrt{330}}{240} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{5\sqrt{22}i}{528} \quad 0 \quad -\frac{5\sqrt{22}}{528} \quad 0 \quad 0 \quad -\frac{\sqrt{22}i}{33} \quad \frac{\sqrt{330}i}{240} \quad 0 \quad \frac{\sqrt{330}}{240} \quad 0 \quad 0 \quad 0$	
653	symmetry	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$
$\mathbb{G}_6^{(1,-1;a)}(A'', 1)$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}i}{616} \quad 0 \quad -\frac{\sqrt{770}}{616} \quad \frac{\sqrt{770}i}{308} \quad 0 \quad 0 \quad \frac{3\sqrt{462}i}{616} \quad 0 \quad -\frac{3\sqrt{462}}{616} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{770}i}{616} \quad 0 \quad \frac{\sqrt{770}}{616} \quad 0 \quad 0 \quad -\frac{\sqrt{770}i}{308} \quad \frac{3\sqrt{462}i}{616} \quad 0 \quad \frac{3\sqrt{462}}{616} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{2310}i}{616} \quad 0 \quad -\frac{\sqrt{2310}}{616} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{154}i}{616} \quad 0 \quad \frac{3\sqrt{154}}{616} \quad -\frac{3\sqrt{154}i}{308} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{2310}i}{616} \quad 0 \quad \frac{\sqrt{2310}}{616} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{154}i}{616} \quad 0 \quad -\frac{3\sqrt{154}}{616} \quad 0 \quad 0 \quad \frac{3\sqrt{154}i}{308}$	
	$0 \quad \frac{\sqrt{154}i}{77} \quad 0 \quad 0 \quad -\frac{\sqrt{2310}i}{924} \quad 0 \quad 0 \quad -\frac{\sqrt{2310}}{924} \quad 0 \quad 0 \quad -\frac{3\sqrt{154}i}{308} \quad 0 \quad 0 \quad \frac{3\sqrt{154}}{308}$	
	$\frac{\sqrt{154}i}{77} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2310}i}{924} \quad \frac{\sqrt{2310}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{154}i}{308} \quad -\frac{3\sqrt{154}}{308} \quad 0$	
	$0 \quad \frac{\sqrt{154}}{77} \quad -\frac{\sqrt{2310}i}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2310}i}{924} \quad \frac{3\sqrt{154}i}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{154}i}{308}$	
	$-\frac{\sqrt{154}}{77} \quad 0 \quad 0 \quad \frac{\sqrt{2310}i}{924} \quad 0 \quad 0 \quad -\frac{\sqrt{2310}i}{924} \quad 0 \quad 0 \quad -\frac{3\sqrt{154}i}{308} \quad 0 \quad 0 \quad -\frac{3\sqrt{154}i}{308} \quad 0$	
	$\frac{\sqrt{154}i}{77} \quad 0 \quad 0 \quad -\frac{\sqrt{2310}}{924} \quad 0 \quad -\frac{\sqrt{2310}i}{924} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{154}}{308} \quad 0 \quad \frac{3\sqrt{154}i}{308} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{154}i}{77} \quad \frac{\sqrt{2310}}{924} \quad 0 \quad -\frac{\sqrt{2310}i}{924} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{154}}{308} \quad 0 \quad \frac{3\sqrt{154}i}{308} \quad 0 \quad 0 \quad 0$	
654	symmetry	$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_6^{(1,-1;a)}(A'', 2)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & \frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{40} & -\frac{\sqrt{10}i}{20} & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & \frac{\sqrt{10}i}{40} & 0 & -\frac{\sqrt{10}}{40} & 0 & 0 & \frac{\sqrt{10}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{24} & 0 & \frac{\sqrt{2}}{24} & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & \frac{\sqrt{30}}{40} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{24} & 0 & -\frac{\sqrt{2}}{24} & 0 & 0 & \frac{\sqrt{2}i}{12} & -\frac{\sqrt{30}i}{40} & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & \frac{\sqrt{30}}{60} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{12} & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & -\frac{\sqrt{30}}{60} & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 \end{bmatrix}$	
		$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$
$\mathbb{G}_6^{(1,-1;a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{110}i}{88} & 0 & \frac{\sqrt{110}}{88} & \frac{\sqrt{110}i}{44} & 0 & 0 & \frac{\sqrt{66}i}{88} & 0 & -\frac{\sqrt{66}}{88} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{110}i}{88} & 0 & -\frac{\sqrt{110}}{88} & 0 & 0 & -\frac{\sqrt{110}i}{44} & \frac{\sqrt{66}i}{88} & 0 & \frac{\sqrt{66}}{88} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{330}i}{264} & 0 & \frac{\sqrt{330}}{264} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{88} & 0 & -\frac{\sqrt{22}}{88} & \frac{\sqrt{22}i}{44} & 0 \\ 0 & 0 & -\frac{\sqrt{330}i}{264} & 0 & -\frac{\sqrt{330}}{264} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{88} & 0 & \frac{\sqrt{22}}{88} & 0 & 0 & -\frac{\sqrt{22}i}{44} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{132} & 0 & 0 & -\frac{\sqrt{330}}{132} & 0 & 0 & -\frac{\sqrt{22}i}{44} & 0 & 0 & -\frac{\sqrt{22}}{44} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} & \frac{\sqrt{330}}{132} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{44} & \frac{\sqrt{22}}{44} & 0 \\ 0 & 0 & \frac{\sqrt{330}i}{132} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{44} \\ 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 & 0 & -\frac{\sqrt{22}i}{44} & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$	
		$\frac{\sqrt{42}(x-y)(x+y)(x^4 - 9x^2y^2 - 5x^2z^2 + y^4 - 5y^2z^2 + 5z^4)}{8}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_6^{(1,-1;a)}(A'', 6)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{32} & -\frac{3\sqrt{2}i}{32} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{32} \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{32} & 0 & 0 & \frac{\sqrt{30}i}{32} & 0 & 0 & \frac{3\sqrt{2}i}{32} & 0 & 0 & -\frac{3\sqrt{2}i}{32} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{16} & \frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
659	symmetry	$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$ $\begin{bmatrix} 0 & -\frac{\sqrt{110}}{110} & \frac{\sqrt{66}i}{352} & 0 & 0 & 0 & 0 & \frac{5\sqrt{66}i}{1056} & -\frac{13\sqrt{110}i}{1760} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}i}{160} \\ \frac{\sqrt{110}}{110} & 0 & 0 & -\frac{\sqrt{66}i}{352} & 0 & 0 & 0 & \frac{5\sqrt{66}i}{1056} & 0 & 0 & \frac{13\sqrt{110}i}{1760} & 0 & 0 & \frac{\sqrt{110}i}{160} \\ 0 & -\frac{\sqrt{330}}{110} & \frac{13\sqrt{22}i}{1056} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{96} & -\frac{7\sqrt{330}i}{1056} & 0 & 0 & 0 & 0 & \frac{37\sqrt{330}i}{5280} \\ \frac{\sqrt{330}}{110} & 0 & 0 & -\frac{13\sqrt{22}i}{1056} & 0 & 0 & \frac{\sqrt{22}i}{96} & 0 & 0 & \frac{7\sqrt{330}i}{1056} & 0 & 0 & \frac{37\sqrt{330}i}{5280} & 0 \\ -\frac{\sqrt{330}i}{165} & 0 & 0 & -\frac{\sqrt{22}}{66} & 0 & \frac{\sqrt{22}i}{33} & 0 & 0 & 0 & \frac{\sqrt{330}}{110} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{330}i}{165} & \frac{\sqrt{22}}{66} & 0 & \frac{\sqrt{22}i}{33} & 0 & 0 & 0 & -\frac{\sqrt{330}}{110} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{22}i}{528} & 0 & \frac{\sqrt{22}}{33} & \frac{5\sqrt{22}i}{528} & 0 & 0 & -\frac{\sqrt{330}i}{240} & 0 & 0 & \frac{\sqrt{330}i}{240} & 0 \\ 0 & 0 & \frac{5\sqrt{22}i}{528} & 0 & -\frac{\sqrt{22}}{33} & 0 & 0 & -\frac{5\sqrt{22}i}{528} & -\frac{\sqrt{330}i}{240} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{240} \\ 0 & -\frac{\sqrt{330}i}{165} & 0 & 0 & \frac{\sqrt{22}i}{33} & 0 & 0 & -\frac{\sqrt{22}}{66} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{110} \\ -\frac{\sqrt{330}i}{165} & 0 & 0 & 0 & 0 & -\frac{\sqrt{22}i}{33} & \frac{\sqrt{22}}{66} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}}{110} \end{bmatrix}$
660	symmetry	$\sqrt{3}yz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,0;a)}(A', 1)$	0	$-\frac{\sqrt{105}i}{84}$ 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{105}}{84}$
	$-\frac{\sqrt{105}i}{84}$	0 0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{168}$ $-\frac{\sqrt{105}}{84}$ 0
	0	$\frac{\sqrt{35}i}{28}$ 0 0 0 $\frac{\sqrt{21}i}{168}$ 0 0 0 $\frac{\sqrt{21}}{84}$ 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 0
	$\frac{\sqrt{35}i}{28}$	0 0 0 0 0 $-\frac{\sqrt{21}i}{168}$ $-\frac{\sqrt{21}}{84}$ 0 0 0 0 $-\frac{\sqrt{35}i}{56}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0
	0	0 0 $-\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0
	0	0 0 $\frac{\sqrt{21}i}{42}$ 0 0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0
	0	0 0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0
661	symmetry	$\sqrt{3}xy$
$\mathbb{G}_2^{(1,0;a)}(A', 2)$	$\frac{\sqrt{105}i}{42}$	0 0 $\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 $\frac{\sqrt{105}}{168}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0
	0	$-\frac{\sqrt{105}i}{42}$ $-\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0 0 $-\frac{\sqrt{35}}{56}$ 0 $-\frac{\sqrt{35}i}{56}$ 0 0
	0	0 0 $-\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0 0 $\frac{\sqrt{35}}{56}$ 0 $-\frac{\sqrt{35}i}{56}$ 0 0 0
	0	0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$ $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{21}i}{84}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{21}i}{84}$ $-\frac{\sqrt{21}}{42}$ 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0
	0	0 0 0 $-\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ $\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0
662	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,0;a)}(A'', 1)$	0 0 0 $\frac{\sqrt{21}i}{56}$ 0 $\frac{\sqrt{21}}{56}$ 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 $-\frac{\sqrt{35}}{56}$ 0 0	
	0 0 $\frac{\sqrt{21}i}{56}$ 0 $-\frac{\sqrt{21}}{56}$ 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 $\frac{\sqrt{35}}{56}$ 0 0 0	
	0 0 0 $\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 $-\frac{\sqrt{105}}{56}$ 0 0 0	
	0 0 $\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{56}$ 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 $\frac{\sqrt{105}}{56}$ 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 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 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{\sqrt{7}i}{14}$ 0 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 0 0 0 0 0	
663	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
$\mathbb{G}_2^{(1,0;a)}(A'', 2)$	0 0 0 $\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 $\frac{\sqrt{105}}{168}$ $\frac{\sqrt{105}i}{42}$ 0	
	0 0 $\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 $-\frac{\sqrt{105}}{168}$ 0 0 $-\frac{\sqrt{105}i}{42}$	
	0 0 0 $\frac{\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{168}$ $\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{35}i}{56}$ 0 $\frac{\sqrt{35}}{56}$ 0 0 0	
	0 0 $\frac{\sqrt{21}i}{168}$ 0 $-\frac{\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}i}{42}$ $-\frac{\sqrt{35}i}{56}$ 0 $-\frac{\sqrt{35}}{56}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{21}i}{21}$ $\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{21}i}{21}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0 0 0 0	
664	symmetry	$\sqrt{3}xz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,0;a)}(A'', 3)$	0	$-\frac{\sqrt{105}}{84}, -\frac{\sqrt{7}i}{56}, 0, 0, 0, 0, 0, 0, -\frac{\sqrt{105}i}{168}, 0, 0, 0, 0, -\frac{\sqrt{105}i}{84}$
	$\frac{\sqrt{105}}{84}$	$0, 0, 0, \frac{\sqrt{7}i}{56}, 0, 0, 0, 0, 0, \frac{\sqrt{105}i}{168}, 0, 0, -\frac{\sqrt{105}i}{84}, 0$
	0	$-\frac{\sqrt{35}}{28}, -\frac{\sqrt{21}i}{168}, 0, 0, 0, 0, -\frac{\sqrt{21}i}{84}, \frac{\sqrt{35}i}{56}, 0, 0, 0, 0, 0$
	$\frac{\sqrt{35}}{28}$	$0, 0, 0, \frac{\sqrt{21}i}{168}, 0, 0, -\frac{\sqrt{21}i}{84}, 0, 0, -\frac{\sqrt{35}i}{56}, 0, 0, 0, 0$
	0	$0, 0, 0, -\frac{\sqrt{21}}{84}, 0, \frac{\sqrt{21}i}{42}, 0, 0, 0, -\frac{\sqrt{35}}{28}, 0, 0, 0, 0$
	0	$0, 0, \frac{\sqrt{21}}{84}, 0, \frac{\sqrt{21}i}{42}, 0, 0, 0, \frac{\sqrt{35}}{28}, 0, 0, 0, 0, 0$
	0	$0, 0, 0, -\frac{\sqrt{21}i}{42}, 0, \frac{\sqrt{21}}{42}, -\frac{\sqrt{21}i}{42}, 0, 0, 0, 0, 0, 0, 0, 0$
	0	$0, 0, -\frac{\sqrt{21}i}{42}, 0, -\frac{\sqrt{21}}{42}, 0, 0, \frac{\sqrt{21}i}{42}, 0, 0, 0, 0, 0, 0, 0$
	0	$0, 0, 0, 0, \frac{\sqrt{21}i}{42}, 0, 0, -\frac{\sqrt{21}}{84}, 0, 0, 0, 0, 0, \frac{\sqrt{35}}{28}, 0$
	0	$0, 0, 0, 0, 0, -\frac{\sqrt{21}i}{42}, \frac{\sqrt{21}}{84}, 0, 0, 0, 0, 0, -\frac{\sqrt{35}}{28}, 0$
665	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{G}_4^{(1,0;a)}(A', 1)$	0	$\frac{\sqrt{3}i}{10}, 0, 0, \frac{3\sqrt{5}i}{80}, 0, 0, 0, 0, 0, \frac{\sqrt{3}i}{80}, 0, 0, -\frac{\sqrt{3}}{20}$
	$\frac{\sqrt{3}i}{10}$	$0, 0, 0, 0, -\frac{3\sqrt{5}i}{80}, 0, 0, 0, 0, 0, -\frac{\sqrt{3}i}{80}, \frac{\sqrt{3}}{20}, 0$
	0	$\frac{i}{10}, 0, 0, -\frac{\sqrt{15}i}{80}, 0, 0, \frac{\sqrt{15}}{40}, 0, 0, \frac{7i}{80}, 0, 0, \frac{1}{40}$
	$\frac{i}{10}$	$0, 0, 0, 0, \frac{\sqrt{15}i}{80}, -\frac{\sqrt{15}}{40}, 0, 0, 0, -\frac{7i}{80}, -\frac{1}{40}, 0$
	0	$0, 0, 0, 0, -\frac{\sqrt{15}}{80}, \frac{\sqrt{15}i}{80}, 0, 0, -\frac{i}{5}, 0, -\frac{1}{16}, -\frac{i}{16}, 0$
	0	$0, 0, 0, \frac{\sqrt{15}}{80}, 0, 0, -\frac{\sqrt{15}i}{80}, -\frac{i}{5}, 0, \frac{1}{16}, 0, 0, \frac{i}{16}$
	$\frac{i}{40}$	$0, 0, 0, 0, \frac{\sqrt{15}i}{20}, 0, 0, 0, -\frac{1}{40}, 0, -\frac{3i}{20}, 0, 0$
	0	$-\frac{i}{40}, 0, 0, \frac{\sqrt{15}i}{20}, 0, 0, 0, \frac{1}{40}, 0, -\frac{3i}{20}, 0, 0, 0$
	0	$-\frac{1}{40}, 0, 0, 0, 0, 0, -\frac{\sqrt{15}i}{20}, -\frac{i}{40}, 0, 0, 0, 0, -\frac{3i}{20}$
	$\frac{1}{40}$	$0, 0, 0, 0, 0, -\frac{\sqrt{15}i}{20}, 0, 0, \frac{i}{40}, 0, 0, -\frac{3i}{20}, 0$
666	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,0;a)}(A', 2)$	0 0 0 $-\frac{3\sqrt{5}}{80}$ 0 $\frac{3\sqrt{5}i}{80}$ 0 0 0 $\frac{3\sqrt{3}}{80}$ 0 $\frac{3\sqrt{3}i}{80}$ 0 0	
	0 0 $\frac{3\sqrt{5}}{80}$ 0 $\frac{3\sqrt{5}i}{80}$ 0 0 0 $-\frac{3\sqrt{3}}{80}$ 0 $\frac{3\sqrt{3}i}{80}$ 0 0 0	
	$-\frac{i}{5}$ 0 0 $-\frac{\sqrt{15}}{80}$ 0 $-\frac{\sqrt{15}i}{80}$ 0 0 0 $-\frac{1}{16}$ 0 $\frac{i}{16}$ 0 0 0	
	0 $\frac{i}{5}$ $\frac{\sqrt{15}}{80}$ 0 $-\frac{\sqrt{15}i}{80}$ 0 0 0 $\frac{1}{16}$ 0 $\frac{i}{16}$ 0 0 0	
	0 $\frac{1}{40}$ $\frac{\sqrt{15}i}{20}$ 0 0 0 0 0 $-\frac{3i}{20}$ 0 0 0 0 $-\frac{i}{40}$	
	$-\frac{1}{40}$ 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 0 0 0 $\frac{3i}{20}$ 0 0 0 $-\frac{i}{40}$ 0	
	0 $-\frac{i}{40}$ 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 0 0 0 $-\frac{3i}{20}$ 0 0 0 $-\frac{1}{40}$	
	$-\frac{i}{40}$ 0 0 0 0 $\frac{\sqrt{15}i}{20}$ 0 0 0 0 0 $\frac{3i}{20}$ $\frac{1}{40}$ 0	
	0 0 0 $-\frac{\sqrt{15}i}{80}$ 0 $\frac{\sqrt{15}}{80}$ 0 0 0 $-\frac{i}{16}$ 0 $-\frac{1}{16}$ $-\frac{i}{5}$ 0	
	0 0 $-\frac{\sqrt{15}i}{80}$ 0 $-\frac{\sqrt{15}}{80}$ 0 0 0 $-\frac{i}{16}$ 0 $\frac{1}{16}$ 0 0 $\frac{i}{5}$	
667	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
$\mathbb{G}_4^{(1,0;a)}(A', 3)$	0 $-\frac{\sqrt{21}i}{70}$ 0 0 $-\frac{3\sqrt{35}i}{112}$ 0 0 0 0 0 $-\frac{17\sqrt{21}i}{560}$ 0 0 $-\frac{\sqrt{21}}{28}$	
	$-\frac{\sqrt{21}i}{70}$ 0 0 0 0 $\frac{3\sqrt{35}i}{112}$ 0 0 0 0 0 $\frac{17\sqrt{21}i}{560}$ $\frac{\sqrt{21}}{28}$ 0	
	0 $\frac{3\sqrt{7}i}{70}$ 0 0 $\frac{\sqrt{105}i}{112}$ 0 0 $\frac{\sqrt{105}}{56}$ 0 0 0 $-\frac{23\sqrt{7}i}{560}$ 0 0 $-\frac{\sqrt{7}}{40}$	
	$\frac{3\sqrt{7}i}{70}$ 0 0 0 0 $-\frac{\sqrt{105}i}{112}$ $-\frac{\sqrt{105}}{56}$ 0 0 0 0 $\frac{23\sqrt{7}i}{560}$ $\frac{\sqrt{7}}{40}$ 0	
	0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 $\frac{\sqrt{105}}{560}$ $\frac{\sqrt{105}i}{560}$ 0 0 0 0 $-\frac{\sqrt{7}}{80}$ $\frac{\sqrt{7}i}{80}$ 0	
	0 0 $-\frac{\sqrt{105}i}{70}$ 0 $-\frac{\sqrt{105}}{560}$ 0 0 $-\frac{\sqrt{105}i}{560}$ 0 0 $\frac{\sqrt{7}}{80}$ 0 0 $-\frac{\sqrt{7}i}{80}$	
	$\frac{\sqrt{7}i}{40}$ 0 0 $\frac{3\sqrt{105}}{280}$ 0 $\frac{\sqrt{105}i}{140}$ 0 0 0 $-\frac{\sqrt{7}}{20}$ 0 $-\frac{\sqrt{7}i}{140}$ 0 0	
	0 $-\frac{\sqrt{7}i}{40}$ $-\frac{3\sqrt{105}}{280}$ 0 $\frac{\sqrt{105}i}{140}$ 0 0 0 $\frac{\sqrt{7}}{20}$ 0 $-\frac{\sqrt{7}i}{140}$ 0 0 0	
	0 $\frac{\sqrt{7}}{40}$ $\frac{3\sqrt{105}i}{280}$ 0 0 0 0 $\frac{\sqrt{105}i}{140}$ $\frac{\sqrt{7}i}{20}$ 0 0 0 0 $\frac{\sqrt{7}i}{140}$	
	$-\frac{\sqrt{7}}{40}$ 0 0 $-\frac{3\sqrt{105}i}{280}$ 0 0 0 $\frac{\sqrt{105}i}{140}$ 0 0 $-\frac{\sqrt{7}i}{20}$ 0 0 0 $\frac{\sqrt{7}i}{140}$ 0	
668	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,0;a)}(A', 4)$	$\frac{\sqrt{21}i}{35}$ 0 0 $\frac{3\sqrt{35}}{112}$ 0 $\frac{3\sqrt{35}i}{112}$ 0 0 0 0 $-\frac{3\sqrt{21}}{560}$ 0 $\frac{3\sqrt{21}i}{560}$ 0 0	
	0 $-\frac{\sqrt{21}i}{35}$ $-\frac{3\sqrt{35}}{112}$ 0 $\frac{3\sqrt{35}i}{112}$ 0 0 0 0 $\frac{3\sqrt{21}}{560}$ 0 $\frac{3\sqrt{21}i}{560}$ 0 0 0	
	0 0 0 $\frac{\sqrt{105}}{112}$ 0 $-\frac{\sqrt{105}i}{112}$ 0 0 0 0 $\frac{37\sqrt{7}}{560}$ 0 $\frac{37\sqrt{7}i}{560}$ 0 0 0	
	0 0 $-\frac{\sqrt{105}}{112}$ 0 $-\frac{\sqrt{105}i}{112}$ 0 0 0 0 $-\frac{37\sqrt{7}}{560}$ 0 $\frac{37\sqrt{7}i}{560}$ 0 0 0	
	0 $\frac{\sqrt{7}}{40}$ $\frac{\sqrt{105}i}{140}$ 0 0 0 0 $\frac{3\sqrt{105}i}{280}$ $-\frac{\sqrt{7}i}{140}$ 0 0 0 0 $-\frac{\sqrt{7}i}{20}$	
	$-\frac{\sqrt{7}}{40}$ 0 0 $-\frac{\sqrt{105}i}{140}$ 0 0 $\frac{3\sqrt{105}i}{280}$ 0 0 $\frac{\sqrt{7}i}{140}$ 0 0 $-\frac{\sqrt{7}i}{20}$ 0	
	0 $\frac{\sqrt{7}i}{40}$ 0 0 $\frac{\sqrt{105}i}{140}$ 0 0 $\frac{3\sqrt{105}}{280}$ 0 0 $\frac{\sqrt{7}i}{140}$ 0 0 $\frac{\sqrt{7}}{20}$	
	$\frac{\sqrt{7}i}{40}$ 0 0 0 0 $-\frac{\sqrt{105}i}{140}$ $-\frac{3\sqrt{105}}{280}$ 0 0 0 0 $-\frac{\sqrt{7}i}{140}$ $-\frac{\sqrt{7}}{20}$ 0	
	0 0 0 $\frac{\sqrt{105}i}{560}$ 0 $\frac{\sqrt{105}}{560}$ $-\frac{\sqrt{105}i}{70}$ 0 0 0 $-\frac{\sqrt{7}i}{80}$ 0 $\frac{\sqrt{7}}{80}$ 0 0	
	0 0 $\frac{\sqrt{105}i}{560}$ 0 $-\frac{\sqrt{105}}{560}$ 0 0 $\frac{\sqrt{105}i}{70}$ $-\frac{\sqrt{7}i}{80}$ 0 $-\frac{\sqrt{7}}{80}$ 0 0 0	
669	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{G}_4^{(1,0;a)}(A'', 1)$	$0 0 0 0 0 0 0 0 0 \frac{\sqrt{5}i}{20} 0 -\frac{\sqrt{5}}{20} 0 0 0$	
	$0 0 0 0 0 0 0 0 0 \frac{\sqrt{5}i}{20} 0 \frac{\sqrt{5}}{20} 0 0 0 0$	
	$0 0 0 0 0 0 0 0 0 \frac{\sqrt{15}i}{60} 0 \frac{\sqrt{15}}{60} -\frac{\sqrt{15}i}{30} 0$	
	$0 0 0 0 0 0 0 0 0 \frac{\sqrt{15}i}{60} 0 -\frac{\sqrt{15}}{60} 0 0 \frac{\sqrt{15}i}{30}$	
	$0 \frac{\sqrt{15}i}{30} 0 0 \frac{i}{8} 0 0 \frac{1}{8} 0 0 \frac{\sqrt{15}i}{40} 0 0 0 -\frac{\sqrt{15}}{40}$	
	$\frac{\sqrt{15}i}{30} 0 0 0 -\frac{i}{8} -\frac{1}{8} 0 0 0 0 0 -\frac{\sqrt{15}i}{40} \frac{\sqrt{15}}{40} 0$	
	$0 \frac{\sqrt{15}}{30} \frac{i}{8} 0 0 0 0 \frac{i}{8} -\frac{\sqrt{15}i}{40} 0 0 0 0 \frac{\sqrt{15}i}{40}$	
	$-\frac{\sqrt{15}}{30} 0 0 -\frac{i}{8} 0 0 \frac{i}{8} 0 0 \frac{\sqrt{15}i}{40} 0 0 0 \frac{\sqrt{15}i}{40} 0$	
	$\frac{\sqrt{15}i}{30} 0 0 \frac{1}{8} 0 \frac{i}{8} 0 0 0 \frac{\sqrt{15}}{40} 0 -\frac{\sqrt{15}i}{40} 0 0 0$	
	$0 -\frac{\sqrt{15}i}{30} -\frac{1}{8} 0 \frac{i}{8} 0 0 0 -\frac{\sqrt{15}}{40} 0 -\frac{\sqrt{15}i}{40} 0 0 0 0$	
670	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 0 0 $\frac{3\sqrt{105}i}{280}$ 0 $\frac{3\sqrt{105}}{280}$ 0 0 0 $\frac{\sqrt{7}i}{280}$ 0 $-\frac{\sqrt{7}}{280}$ 0 0	
	0 0 $\frac{3\sqrt{105}i}{280}$ 0 $-\frac{3\sqrt{105}}{280}$ 0 0 0 $\frac{\sqrt{7}i}{280}$ 0 $\frac{\sqrt{7}}{280}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{35}i}{280}$ 0 $-\frac{3\sqrt{35}}{280}$ 0 0 0 $\frac{5\sqrt{21}i}{168}$ 0 $\frac{5\sqrt{21}}{168}$ $\frac{\sqrt{21}i}{30}$ 0	
	0 0 $\frac{3\sqrt{35}i}{280}$ 0 $\frac{3\sqrt{35}}{280}$ 0 0 0 $\frac{5\sqrt{21}i}{168}$ 0 $-\frac{5\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}i}{30}$	
	0 $\frac{\sqrt{21}i}{60}$ 0 0 $-\frac{\sqrt{35}i}{40}$ 0 0 0 $\frac{\sqrt{35}}{56}$ 0 0 $-\frac{\sqrt{21}i}{40}$ 0 0 $-\frac{\sqrt{21}}{40}$	
	$\frac{\sqrt{21}i}{60}$ 0 0 0 $\frac{\sqrt{35}i}{40}$ $-\frac{\sqrt{35}}{56}$ 0 0 0 0 $\frac{\sqrt{21}i}{40}$ $\frac{\sqrt{21}}{40}$ 0	
	0 $\frac{\sqrt{21}}{60}$ $-\frac{\sqrt{35}i}{40}$ 0 0 0 $\frac{\sqrt{35}i}{56}$ $\frac{\sqrt{21}i}{40}$ 0 0 0 0 $\frac{\sqrt{21}i}{40}$	
	$-\frac{\sqrt{21}}{60}$ 0 0 $\frac{\sqrt{35}i}{40}$ 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 $-\frac{\sqrt{21}i}{40}$ 0 0 $\frac{\sqrt{21}i}{40}$ 0	
	$-\frac{\sqrt{21}i}{30}$ 0 0 $\frac{\sqrt{35}}{140}$ 0 $\frac{\sqrt{35}i}{140}$ 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{21}i}{30}$ $-\frac{\sqrt{35}}{140}$ 0 $\frac{\sqrt{35}i}{140}$ 0 0 0 0 0 0 0 0 0	
671	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
$\mathbb{G}_4^{(1,0;a)}(A'', 3)$	0 0 0 $\frac{3\sqrt{35}i}{280}$ 0 $-\frac{3\sqrt{35}}{280}$ 0 0 0 $-\frac{9\sqrt{21}i}{280}$ 0 $-\frac{9\sqrt{21}}{280}$ $-\frac{\sqrt{21}i}{35}$ 0	
	0 0 $\frac{3\sqrt{35}i}{280}$ 0 $\frac{3\sqrt{35}}{280}$ 0 0 0 $-\frac{9\sqrt{21}i}{280}$ 0 $\frac{9\sqrt{21}}{280}$ 0 0 $\frac{\sqrt{21}i}{35}$	
	0 0 0 $\frac{\sqrt{105}i}{280}$ 0 $\frac{\sqrt{105}}{280}$ $\frac{\sqrt{105}i}{70}$ 0 0 $-\frac{\sqrt{7}i}{280}$ 0 $\frac{\sqrt{7}}{280}$ 0 0	
	0 0 $\frac{\sqrt{105}i}{280}$ 0 $-\frac{\sqrt{105}}{280}$ 0 0 $-\frac{\sqrt{105}i}{70}$ $-\frac{\sqrt{7}i}{280}$ 0 $-\frac{\sqrt{7}}{280}$ 0 0 0	
	0 $-\frac{\sqrt{7}i}{20}$ 0 0 $-\frac{\sqrt{105}i}{280}$ 0 0 $\frac{3\sqrt{105}}{280}$ 0 0 $-\frac{\sqrt{7}i}{40}$ 0 0 $-\frac{\sqrt{7}}{40}$	
	$-\frac{\sqrt{7}i}{20}$ 0 0 0 $\frac{\sqrt{105}i}{280}$ $-\frac{3\sqrt{105}}{280}$ 0 0 0 0 $\frac{\sqrt{7}i}{40}$ $\frac{\sqrt{7}}{40}$ 0	
	0 $\frac{\sqrt{7}}{20}$ $\frac{\sqrt{105}i}{280}$ 0 0 0 $-\frac{3\sqrt{105}i}{280}$ $-\frac{\sqrt{7}i}{40}$ 0 0 0 0 $-\frac{\sqrt{7}i}{40}$	
	$-\frac{\sqrt{7}}{20}$ 0 0 $-\frac{\sqrt{105}i}{280}$ 0 0 $-\frac{3\sqrt{105}i}{280}$ 0 0 $\frac{\sqrt{7}i}{40}$ 0 0 $-\frac{\sqrt{7}i}{40}$ 0	
	0 0 0 $\frac{\sqrt{105}}{70}$ 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 $\frac{\sqrt{7}}{20}$ 0 $\frac{\sqrt{7}i}{20}$ 0 0 0	
	0 0 $-\frac{\sqrt{105}}{70}$ 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 $-\frac{\sqrt{7}}{20}$ 0 $\frac{\sqrt{7}i}{20}$ 0 0 0	
672	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_4^{(1,0;a)}(A'', 4)$	$\begin{bmatrix} 0 & -\frac{\sqrt{3}}{10} & -\frac{3\sqrt{5}i}{80} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{80} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{20} \\ \frac{\sqrt{3}}{10} & 0 & 0 & \frac{3\sqrt{5}i}{80} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{80} & 0 & 0 & -\frac{\sqrt{3}i}{20} & 0 \\ 0 & \frac{1}{10} & -\frac{\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{40} & -\frac{7i}{80} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{40} \\ -\frac{1}{10} & 0 & 0 & \frac{\sqrt{15}i}{80} & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & \frac{7i}{80} & 0 & 0 & -\frac{i}{40} & 0 \\ -\frac{i}{40} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{3}{20} & 0 & -\frac{i}{40} & 0 & 0 & 0 \\ 0 & \frac{i}{40} & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{3}{20} & 0 & -\frac{i}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{80} & 0 & 0 & -\frac{\sqrt{15}i}{80} & 0 & 0 & -\frac{i}{16} & 0 & -\frac{1}{5} & -\frac{i}{16} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{80} & 0 & 0 & 0 & \frac{\sqrt{15}i}{80} & -\frac{i}{16} & 0 & \frac{1}{5} & 0 & 0 & \frac{i}{16} \\ 0 & \frac{i}{40} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & -\frac{i}{40} & 0 & 0 & -\frac{3}{20} & 0 \\ \frac{i}{40} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & \frac{i}{40} & \frac{3}{20} & 0 & 0 & 0 \end{bmatrix}$
673	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
	$\mathbb{G}_4^{(1,0;a)}(A'', 5)$	$\begin{bmatrix} 0 & -\frac{\sqrt{21}}{70} & -\frac{3\sqrt{35}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{17\sqrt{21}i}{560} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} \\ \frac{\sqrt{21}}{70} & 0 & 0 & \frac{3\sqrt{35}i}{112} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{21}i}{560} & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 \\ 0 & -\frac{3\sqrt{7}}{70} & -\frac{\sqrt{105}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} & -\frac{23\sqrt{7}i}{560} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{40} & 0 \\ \frac{3\sqrt{7}}{70} & 0 & 0 & \frac{\sqrt{105}i}{112} & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & \frac{23\sqrt{7}i}{560} & 0 & 0 & -\frac{\sqrt{7}i}{40} & 0 & 0 \\ \frac{\sqrt{7}i}{40} & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & \frac{3\sqrt{105}i}{280} & 0 & 0 & 0 & \frac{\sqrt{7}}{140} & 0 & \frac{\sqrt{7}i}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{7}i}{40} & -\frac{\sqrt{105}}{140} & 0 & \frac{3\sqrt{105}i}{280} & 0 & 0 & 0 & -\frac{\sqrt{7}}{140} & 0 & \frac{\sqrt{7}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}i}{560} & 0 & -\frac{\sqrt{105}}{70} & \frac{\sqrt{105}i}{560} & 0 & 0 & \frac{\sqrt{7}i}{80} & 0 & 0 & -\frac{\sqrt{7}i}{80} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{105}i}{560} & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & -\frac{\sqrt{105}i}{560} & \frac{\sqrt{7}i}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{80} & 0 \\ 0 & \frac{\sqrt{7}i}{40} & 0 & 0 & \frac{3\sqrt{105}i}{280} & 0 & 0 & \frac{\sqrt{105}}{140} & 0 & 0 & -\frac{\sqrt{7}i}{20} & 0 & 0 & -\frac{\sqrt{7}i}{140} & 0 \\ \frac{\sqrt{7}i}{40} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{105}i}{280} & -\frac{\sqrt{105}}{140} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{20} & \frac{\sqrt{7}}{140} & 0 & 0 \end{bmatrix}$
674	symmetry	1

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_0^{(1,1;a)}(A'')$	0 0 0 $-\frac{\sqrt{105}i}{140}$ 0 $-\frac{\sqrt{105}}{140}$ $\frac{\sqrt{105}i}{70}$ 0 0 $-\frac{\sqrt{7}i}{28}$ 0 $\frac{\sqrt{7}}{28}$ 0 0	
	0 0 $-\frac{\sqrt{105}i}{140}$ 0 $\frac{\sqrt{105}}{140}$ 0 0 $-\frac{\sqrt{105}i}{70}$ $-\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{35}i}{140}$ 0 $-\frac{3\sqrt{35}}{140}$ 0 0 0 $-\frac{\sqrt{21}i}{84}$ 0 $-\frac{\sqrt{21}}{84}$ $\frac{\sqrt{21}i}{42}$ 0	
	0 0 $\frac{3\sqrt{35}i}{140}$ 0 $\frac{3\sqrt{35}}{140}$ 0 0 0 $-\frac{\sqrt{21}i}{84}$ 0 $\frac{\sqrt{21}}{84}$ 0 0 $-\frac{\sqrt{21}i}{42}$	
	0 $\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{21}}{42}$	
	$\frac{\sqrt{21}i}{42}$ 0 0 0 $\frac{\sqrt{35}i}{70}$ $\frac{\sqrt{35}}{70}$ 0 0 0 0 $-\frac{\sqrt{21}i}{42}$ $\frac{\sqrt{21}}{42}$ 0	
	0 $\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{35}i}{70}$ 0 0 0 0 $-\frac{\sqrt{35}i}{70}$ $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$	
	$-\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0	
	$\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{35}}{70}$ 0 $-\frac{\sqrt{35}i}{70}$ 0 0 0 $\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0	
	0 $-\frac{\sqrt{21}i}{42}$ $\frac{\sqrt{35}}{70}$ 0 $-\frac{\sqrt{35}i}{70}$ 0 0 0 $-\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0	
675	symmetry	$\sqrt{3}yz$
$\mathbb{G}_2^{(1,1;a)}(A', 1)$	0 0 0 0 $-\frac{\sqrt{105}i}{140}$ 0 0 $-\frac{\sqrt{105}}{105}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{105}i}{140}$ $\frac{\sqrt{105}}{105}$ 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 0 0 $\frac{11\sqrt{35}i}{420}$ 0 0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $\frac{\sqrt{21}}{42}$	
	0 0 0 0 0 $-\frac{11\sqrt{35}i}{420}$ $-\frac{\sqrt{35}}{42}$ 0 0 0 0 $\frac{\sqrt{21}i}{84}$ $-\frac{\sqrt{21}}{42}$ 0	
	0 0 0 $-\frac{\sqrt{35}i}{42}$ 0 $\frac{\sqrt{35}}{105}$ $\frac{\sqrt{35}i}{105}$ 0 0 0 0 $\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{21}i}{42}$ 0	
	0 0 $-\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{105}$ 0 0 $-\frac{\sqrt{35}i}{105}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{21}i}{42}$	
	$\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{35}}{420}$ 0 $-\frac{\sqrt{35}i}{42}$ 0 0 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0	
	0 $-\frac{\sqrt{21}i}{42}$ $\frac{\sqrt{35}}{420}$ 0 $-\frac{\sqrt{35}i}{42}$ 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0 0 0 0	
	0 $\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{35}i}{420}$ 0 0 0 0 $-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0	
	$-\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{35}i}{420}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0	
676	symmetry	$\sqrt{3}xy$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,1;a)}(A', 2)$	0 0 0 $\frac{\sqrt{105}}{60}$ 0 $\frac{\sqrt{105}i}{60}$ 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 $-\frac{\sqrt{105}}{60}$ 0 $\frac{\sqrt{105}i}{60}$ 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{35}}{420}$ 0 $\frac{\sqrt{35}i}{420}$ 0 0 0 $-\frac{\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0	
	0 0 $\frac{\sqrt{35}}{420}$ 0 $\frac{\sqrt{35}i}{420}$ 0 0 0 $\frac{\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0	
	0 $\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{35}i}{42}$ 0 0 0 0 $-\frac{\sqrt{35}i}{420}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$	
	$-\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{35}i}{420}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0	
	0 $\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{35}}{420}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$	
	$\frac{\sqrt{21}i}{42}$ 0 0 0 $\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{35}}{420}$ 0 0 0 0 0 $\frac{\sqrt{21}}{28}$ 0	
	0 0 0 $\frac{\sqrt{35}i}{105}$ 0 $\frac{\sqrt{35}}{105}$ $-\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0	
	0 0 $\frac{\sqrt{35}i}{105}$ 0 $-\frac{\sqrt{35}}{105}$ 0 0 $\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0	
677	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{G}_2^{(1,1;a)}(A'', 1)$	0 0 0 $-\frac{3\sqrt{35}i}{280}$ 0 $-\frac{3\sqrt{35}}{280}$ $\frac{\sqrt{35}i}{35}$ 0 0 $-\frac{\sqrt{21}i}{56}$ 0 $\frac{\sqrt{21}}{56}$ 0 0	
	0 0 $-\frac{3\sqrt{35}i}{280}$ 0 $\frac{3\sqrt{35}}{280}$ 0 0 $-\frac{\sqrt{35}i}{35}$ $-\frac{\sqrt{21}i}{56}$ 0 $-\frac{\sqrt{21}}{56}$ 0 0 0	
	0 0 0 $-\frac{11\sqrt{105}i}{840}$ 0 $\frac{11\sqrt{105}}{840}$ 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{14}$ 0	
	0 0 $-\frac{11\sqrt{105}i}{840}$ 0 $-\frac{11\sqrt{105}}{840}$ 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$	
	0 $\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{105}i}{280}$ 0 0 $\frac{\sqrt{105}}{210}$ 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{7}}{28}$	
	$\frac{\sqrt{7}i}{28}$ 0 0 0 $\frac{\sqrt{105}i}{280}$ $-\frac{\sqrt{105}}{210}$ 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ $\frac{\sqrt{7}}{28}$ 0	
	0 $\frac{\sqrt{7}}{28}$ $-\frac{\sqrt{105}i}{280}$ 0 0 0 $\frac{\sqrt{105}i}{210}$ $-\frac{\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$	
	$-\frac{\sqrt{7}}{28}$ 0 0 $\frac{\sqrt{105}i}{280}$ 0 0 $\frac{\sqrt{105}i}{210}$ 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0	
	$-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{105}}{840}$ 0 $-\frac{\sqrt{105}i}{840}$ 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 $\frac{3\sqrt{7}i}{56}$ 0 0	
	0 $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{105}}{840}$ 0 $-\frac{\sqrt{105}i}{840}$ 0 0 0 $\frac{3\sqrt{7}}{56}$ 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0	
678	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,1;a)}(A'', 2)$	0 0 0 $-\frac{11\sqrt{105}i}{840}$ 0 $\frac{11\sqrt{105}}{840}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ 0 0	
	0 0 $-\frac{11\sqrt{105}i}{840}$ 0 $-\frac{11\sqrt{105}}{840}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0	
	0 0 0 $\frac{13\sqrt{35}i}{840}$ 0 $\frac{13\sqrt{35}}{840}$ $-\frac{\sqrt{35}i}{42}$ 0 0 0 $\frac{\sqrt{21}i}{56}$ 0 $-\frac{\sqrt{21}}{56}$ 0 0 0	
	0 0 $\frac{13\sqrt{35}i}{840}$ 0 $-\frac{13\sqrt{35}}{840}$ 0 0 0 $\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{21}i}{56}$ 0 $\frac{\sqrt{21}}{56}$ 0 0 0	
	0 $-\frac{\sqrt{21}i}{28}$ 0 0 $-\frac{\sqrt{35}i}{168}$ 0 0 0 $\frac{\sqrt{35}}{420}$ 0 0 $-\frac{5\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{21}}{42}$	
	$-\frac{\sqrt{21}i}{28}$ 0 0 0 $\frac{\sqrt{35}i}{168}$ $-\frac{\sqrt{35}}{420}$ 0 0 0 0 $\frac{5\sqrt{21}i}{168}$ $-\frac{\sqrt{21}}{42}$ 0	
	0 $\frac{\sqrt{21}}{28}$ $\frac{\sqrt{35}i}{168}$ 0 0 0 0 $-\frac{\sqrt{35}i}{420}$ $-\frac{5\sqrt{21}i}{168}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$	
	$-\frac{\sqrt{21}}{28}$ 0 0 $-\frac{\sqrt{35}i}{168}$ 0 0 $-\frac{\sqrt{35}i}{420}$ 0 0 $\frac{5\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0	
	0 0 0 $\frac{\sqrt{35}}{120}$ 0 $-\frac{\sqrt{35}i}{120}$ 0 0 0 $\frac{\sqrt{21}}{168}$ 0 $\frac{\sqrt{21}i}{168}$ 0 0 0	
	0 0 $-\frac{\sqrt{35}}{120}$ 0 $-\frac{\sqrt{35}i}{120}$ 0 0 0 $-\frac{\sqrt{21}}{168}$ 0 $\frac{\sqrt{21}i}{168}$ 0 0 0	
679	symmetry	$\sqrt{3}xz$
$\mathbb{G}_2^{(1,1;a)}(A'', 3)$	0 0 $-\frac{\sqrt{105}i}{140}$ 0 0 0 0 $-\frac{\sqrt{105}i}{105}$ $-\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{105}i}{140}$ 0 0 $-\frac{\sqrt{105}i}{105}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 0	
	0 0 $-\frac{11\sqrt{35}i}{420}$ 0 0 0 0 $-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{21}i}{84}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$	
	0 0 0 $\frac{11\sqrt{35}i}{420}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{21}i}{84}$ 0 0 0 $\frac{\sqrt{21}i}{42}$ 0	
	$\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0 $-\frac{\sqrt{35}i}{420}$ 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0	
	$-\frac{\sqrt{21}i}{42}$ $\frac{\sqrt{35}}{42}$ 0 $-\frac{\sqrt{35}i}{420}$ 0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0	
	0 0 0 $\frac{\sqrt{35}i}{105}$ 0 $-\frac{\sqrt{35}}{42}$ $\frac{\sqrt{35}i}{105}$ 0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0	
	0 0 $\frac{\sqrt{35}i}{105}$ 0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{35}i}{105}$ $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 $-\frac{\sqrt{21}i}{42}$	
	$\frac{\sqrt{21}i}{42}$ 0 0 0 0 $\frac{\sqrt{35}i}{420}$ $\frac{\sqrt{35}}{42}$ 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0	
	$\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0	
680	symmetry	$\sqrt{35}yz(y-z)(y+z)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(A', 1)$	0	$-\frac{9\sqrt{22}i}{440} \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{330}}{132} \quad 0 \quad 0 \quad -\frac{13\sqrt{22}i}{440} \quad 0 \quad 0 \quad \frac{3\sqrt{22}}{110}$
	$-\frac{9\sqrt{22}i}{440}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{330}i}{120} \quad -\frac{\sqrt{330}}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{22}i}{440} \quad -\frac{3\sqrt{22}}{110} \quad 0$
	$0$	$-\frac{3\sqrt{66}i}{440} \quad 0 \quad 0 \quad \frac{3\sqrt{110}i}{440} \quad 0 \quad 0 \quad \frac{\sqrt{110}}{110} \quad 0 \quad 0 \quad -\frac{\sqrt{66}i}{120} \quad 0 \quad 0 \quad \frac{7\sqrt{66}}{660}$
	$-\frac{3\sqrt{66}i}{440}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{110}i}{440} \quad -\frac{\sqrt{110}}{110} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{120} \quad -\frac{7\sqrt{66}}{660} \quad 0$
	$0$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}}{55} \quad -\frac{\sqrt{110}i}{55} \quad 0 \quad 0 \quad \frac{3\sqrt{66}i}{220} \quad 0 \quad -\frac{\sqrt{66}}{66} \quad -\frac{\sqrt{66}i}{66} \quad 0$
	$0$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}}{55} \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{55} \quad \frac{3\sqrt{66}i}{220} \quad 0 \quad \frac{\sqrt{66}}{66} \quad 0 \quad \frac{\sqrt{66}i}{66}$
	$\frac{\sqrt{66}i}{330}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{110}i}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{66}}{330} \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0 \quad 0$
	$0$	$-\frac{\sqrt{66}i}{330} \quad 0 \quad 0 \quad \frac{3\sqrt{110}i}{440} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{66}}{330} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0$
	$\frac{\sqrt{66}}{330}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{110}i}{440} \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{330} \quad 0 \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0$
681	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{G}_4^{(1,1;a)}(A', 2)$	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{330}}{1320} \quad 0 \quad \frac{\sqrt{330}i}{1320} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{22}}{440} \quad 0 \quad \frac{\sqrt{22}i}{440} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{330}}{1320} \quad 0 \quad \frac{\sqrt{330}i}{1320} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{22}}{440} \quad 0 \quad \frac{\sqrt{22}i}{440} \quad 0 \quad 0 \quad 0$
	$\frac{3\sqrt{66}i}{220}$	$0 \quad 0 \quad -\frac{7\sqrt{110}}{440} \quad 0 \quad -\frac{7\sqrt{110}i}{440} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{66}}{264} \quad 0 \quad -\frac{5\sqrt{66}i}{264} \quad 0 \quad 0 \quad 0$
	$0$	$-\frac{3\sqrt{66}i}{220} \quad \frac{7\sqrt{110}}{440} \quad 0 \quad -\frac{7\sqrt{110}i}{440} \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{66}}{264} \quad 0 \quad -\frac{5\sqrt{66}i}{264} \quad 0 \quad 0 \quad 0$
	$0$	$\frac{\sqrt{66}}{330} \quad \frac{3\sqrt{110}i}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{66}i}{330}$
	$-\frac{\sqrt{66}}{330}$	$0 \quad 0 \quad -\frac{3\sqrt{110}i}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{66}i}{440} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{66}i}{330} \quad 0$
	$0$	$-\frac{\sqrt{66}i}{330} \quad 0 \quad 0 \quad -\frac{3\sqrt{110}i}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0 \quad 0 \quad -\frac{\sqrt{66}}{330} \quad 0$
	$-\frac{\sqrt{66}i}{330}$	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{110}i}{440} \quad 0 \quad \frac{3\sqrt{66}i}{440} \quad \frac{\sqrt{66}}{330} \quad 0$
	$0$	$0 \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{55} \quad 0 \quad -\frac{\sqrt{110}}{55} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{66}i}{66} \quad 0 \quad -\frac{\sqrt{66}}{66} \quad \frac{3\sqrt{66}i}{220} \quad 0$
682	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(A', 3)$	0	$-\frac{3\sqrt{154}i}{440}$ 0 0 0 $-\frac{\sqrt{2310}i}{1848}$ 0 0 $\frac{\sqrt{2310}}{924}$ 0 0 $-\frac{29\sqrt{154}i}{3080}$ 0 0 0
	$-\frac{3\sqrt{154}i}{440}$	0 0 0 0 0 $\frac{\sqrt{2310}i}{1848}$ $-\frac{\sqrt{2310}}{924}$ 0 0 0 0 $\frac{29\sqrt{154}i}{3080}$ 0 0
	0	$\frac{3\sqrt{462}i}{440}$ 0 0 0 $-\frac{\sqrt{770}i}{616}$ 0 0 0 0 0 $\frac{29\sqrt{462}i}{9240}$ 0 0 $-\frac{29\sqrt{462}}{4620}$
	$\frac{3\sqrt{462}i}{440}$	0 0 0 0 0 $\frac{\sqrt{770}i}{616}$ 0 0 0 0 $-\frac{29\sqrt{462}i}{9240}$ $\frac{29\sqrt{462}}{4620}$ 0
	0	0 0 0 $\frac{\sqrt{770}i}{220}$ 0 $-\frac{\sqrt{770}}{385}$ $-\frac{\sqrt{770}i}{385}$ 0 0 0 0 $-\frac{\sqrt{462}}{210}$ $\frac{\sqrt{462}i}{210}$ 0
	0	0 0 $\frac{\sqrt{770}i}{220}$ 0 $\frac{\sqrt{770}}{385}$ 0 0 $\frac{\sqrt{770}i}{385}$ 0 0 $\frac{\sqrt{462}}{210}$ 0 0 $-\frac{\sqrt{462}i}{210}$
	$\frac{17\sqrt{462}i}{2310}$	0 0 $-\frac{\sqrt{770}}{385}$ 0 $-\frac{\sqrt{770}i}{440}$ 0 0 0 $\frac{\sqrt{462}}{210}$ 0 $-\frac{3\sqrt{462}i}{440}$ 0 0
	0	$-\frac{17\sqrt{462}i}{2310}$ $\frac{\sqrt{770}}{385}$ 0 $-\frac{\sqrt{770}i}{440}$ 0 0 0 $-\frac{\sqrt{462}}{210}$ 0 $-\frac{3\sqrt{462}i}{440}$ 0 0
	0	$\frac{17\sqrt{462}}{2310}$ $-\frac{\sqrt{770}i}{385}$ 0 0 0 0 $-\frac{\sqrt{770}i}{440}$ $-\frac{\sqrt{462}i}{210}$ 0 0 0 0 $\frac{3\sqrt{462}i}{440}$
	$-\frac{17\sqrt{462}}{2310}$	0 0 0 $\frac{\sqrt{770}i}{385}$ 0 0 $-\frac{\sqrt{770}i}{440}$ 0 0 $\frac{\sqrt{462}i}{210}$ 0 0 $\frac{3\sqrt{462}i}{440}$ 0
683	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{G}_4^{(1,1;a)}(A', 4)$	$\frac{3\sqrt{154}i}{220}$	0 0 0 $-\frac{\sqrt{2310}}{1848}$ 0 $-\frac{\sqrt{2310}i}{1848}$ 0 0 0 $\frac{29\sqrt{154}}{3080}$ 0 $-\frac{29\sqrt{154}i}{3080}$ 0 0
	0	$-\frac{3\sqrt{154}i}{220}$ $\frac{\sqrt{2310}}{1848}$ 0 $-\frac{\sqrt{2310}i}{1848}$ 0 0 0 $-\frac{29\sqrt{154}}{3080}$ 0 $-\frac{29\sqrt{154}i}{3080}$ 0 0
	0	0 0 0 $\frac{\sqrt{770}}{616}$ 0 $-\frac{\sqrt{770}i}{616}$ 0 0 0 $\frac{29\sqrt{462}}{9240}$ 0 $\frac{29\sqrt{462}i}{9240}$ 0 0
	0	0 0 $-\frac{\sqrt{770}}{616}$ 0 $-\frac{\sqrt{770}i}{616}$ 0 0 0 $-\frac{29\sqrt{462}}{9240}$ 0 $\frac{29\sqrt{462}i}{9240}$ 0 0
	0	$\frac{17\sqrt{462}}{2310}$ $-\frac{\sqrt{770}i}{440}$ 0 0 0 0 $-\frac{\sqrt{770}i}{385}$ $-\frac{3\sqrt{462}i}{440}$ 0 0 0 0 $\frac{\sqrt{462}i}{210}$
	$-\frac{17\sqrt{462}}{2310}$	0 0 0 $\frac{\sqrt{770}i}{440}$ 0 0 $-\frac{\sqrt{770}i}{385}$ 0 0 $\frac{3\sqrt{462}i}{440}$ 0 0 $\frac{\sqrt{462}i}{210}$ 0
	0	$\frac{17\sqrt{462}i}{2310}$ 0 0 $-\frac{\sqrt{770}i}{440}$ 0 0 $-\frac{\sqrt{770}}{385}$ 0 0 0 $\frac{3\sqrt{462}i}{440}$ 0 0 $-\frac{\sqrt{462}}{210}$
	$\frac{17\sqrt{462}i}{2310}$	0 0 0 0 $\frac{\sqrt{770}i}{440}$ $\frac{\sqrt{770}}{385}$ 0 0 0 0 $-\frac{3\sqrt{462}i}{440}$ $\frac{\sqrt{462}}{210}$ 0
	0	0 0 0 $-\frac{\sqrt{770}i}{385}$ 0 $-\frac{\sqrt{770}}{385}$ $\frac{\sqrt{770}i}{220}$ 0 0 $-\frac{\sqrt{462}i}{210}$ 0 $\frac{\sqrt{462}}{210}$ 0 0
	0	0 0 $-\frac{\sqrt{770}i}{385}$ 0 $\frac{\sqrt{770}}{385}$ 0 0 $-\frac{\sqrt{770}i}{220}$ $-\frac{\sqrt{462}i}{210}$ 0 $-\frac{\sqrt{462}}{210}$ 0 0
684	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(A'', 1)$	0 0 0 $-\frac{5\sqrt{22}i}{264}$ 0 $-\frac{5\sqrt{22}}{264}$ $\frac{5\sqrt{22}i}{132}$ 0 0 $-\frac{7\sqrt{330}i}{1320}$ 0 $\frac{7\sqrt{330}}{1320}$ 0 0	
	0 0 $-\frac{5\sqrt{22}i}{264}$ 0 $\frac{5\sqrt{22}}{264}$ 0 0 $-\frac{5\sqrt{22}i}{132}$ $-\frac{7\sqrt{330}i}{1320}$ 0 $-\frac{7\sqrt{330}}{1320}$ 0 0 0	
	0 0 0 $\frac{5\sqrt{66}i}{264}$ 0 $-\frac{5\sqrt{66}}{264}$ 0 0 0 0 $-\frac{7\sqrt{110}i}{1320}$ 0 $-\frac{7\sqrt{110}}{1320}$ $\frac{7\sqrt{110}i}{660}$ 0	
	0 0 $\frac{5\sqrt{66}i}{264}$ 0 $\frac{5\sqrt{66}}{264}$ 0 0 0 $-\frac{7\sqrt{110}i}{1320}$ 0 $\frac{7\sqrt{110}}{1320}$ 0 0 $-\frac{7\sqrt{110}i}{660}$	
	0 $-\frac{\sqrt{110}i}{330}$ 0 0 $\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{66}}{66}$ 0 0 $-\frac{\sqrt{110}i}{165}$ 0 0 0 $\frac{\sqrt{110}}{165}$	
	$-\frac{\sqrt{110}i}{330}$ 0 0 0 $-\frac{\sqrt{66}i}{66}$ $-\frac{\sqrt{66}}{66}$ 0 0 0 0 0 $\frac{\sqrt{110}i}{165}$ $-\frac{\sqrt{110}}{165}$ 0	
	0 $-\frac{\sqrt{110}}{330}$ $\frac{\sqrt{66}i}{66}$ 0 0 0 0 $\frac{\sqrt{66}i}{66}$ $\frac{\sqrt{110}i}{165}$ 0 0 0 0 $-\frac{\sqrt{110}i}{165}$	
	$\frac{\sqrt{110}}{330}$ 0 0 $-\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{66}i}{66}$ 0 0 $-\frac{\sqrt{110}i}{165}$ 0 0 0 $-\frac{\sqrt{110}i}{165}$ 0	
	$-\frac{\sqrt{110}i}{330}$ 0 0 $\frac{\sqrt{66}}{66}$ 0 $\frac{\sqrt{66}i}{66}$ 0 0 0 $-\frac{\sqrt{110}}{165}$ 0 $\frac{\sqrt{110}i}{165}$ 0 0	
	0 $\frac{\sqrt{110}i}{330}$ $-\frac{\sqrt{66}}{66}$ 0 $\frac{\sqrt{66}i}{66}$ 0 0 0 $\frac{\sqrt{110}}{165}$ 0 $\frac{\sqrt{110}i}{165}$ 0 0 0	
685	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 0 0 $-\frac{19\sqrt{770}i}{9240}$ 0 $-\frac{19\sqrt{770}}{9240}$ $\frac{5\sqrt{770}i}{924}$ 0 0 $-\frac{41\sqrt{462}i}{9240}$ 0 $\frac{41\sqrt{462}}{9240}$ 0 0	
	0 0 $-\frac{19\sqrt{770}i}{9240}$ 0 $\frac{19\sqrt{770}}{9240}$ 0 0 $-\frac{5\sqrt{770}i}{924}$ $-\frac{41\sqrt{462}i}{9240}$ 0 $-\frac{41\sqrt{462}}{9240}$ 0 0 0	
	0 0 0 $-\frac{23\sqrt{2310}i}{9240}$ 0 $\frac{23\sqrt{2310}}{9240}$ 0 0 0 $-\frac{17\sqrt{154}i}{1848}$ 0 $\frac{17\sqrt{154}}{1848}$ $-\frac{19\sqrt{154}i}{4620}$ 0	
	0 0 $-\frac{23\sqrt{2310}i}{9240}$ 0 $-\frac{23\sqrt{2310}}{9240}$ 0 0 0 $\frac{17\sqrt{154}i}{1848}$ 0 $-\frac{17\sqrt{154}}{1848}$ 0 0 $\frac{19\sqrt{154}i}{4620}$	
	0 $-\frac{\sqrt{154}i}{210}$ 0 0 $\frac{\sqrt{2310}i}{4620}$ 0 0 $\frac{\sqrt{2310}}{462}$ 0 0 0 $-\frac{47\sqrt{154}i}{4620}$ 0 0 0 $\frac{2\sqrt{154}}{1155}$	
	$-\frac{\sqrt{154}i}{210}$ 0 0 0 $-\frac{\sqrt{2310}i}{4620}$ $-\frac{\sqrt{2310}}{462}$ 0 0 0 0 $\frac{47\sqrt{154}i}{4620}$ $-\frac{2\sqrt{154}}{1155}$ 0	
	0 $-\frac{\sqrt{154}}{210}$ $\frac{\sqrt{2310}i}{4620}$ 0 0 0 0 $\frac{\sqrt{2310}i}{462}$ $\frac{47\sqrt{154}i}{4620}$ 0 0 0 0 $-\frac{2\sqrt{154}i}{1155}$	
	$\frac{\sqrt{154}}{210}$ 0 0 $-\frac{\sqrt{2310}i}{4620}$ 0 0 $\frac{\sqrt{2310}i}{462}$ 0 0 0 $-\frac{47\sqrt{154}i}{4620}$ 0 0 0 $-\frac{2\sqrt{154}i}{1155}$ 0	
	$\frac{\sqrt{154}i}{105}$ 0 0 $-\frac{\sqrt{2310}}{420}$ 0 $-\frac{\sqrt{2310}i}{420}$ 0 0 0 $\frac{\sqrt{154}}{84}$ 0 $-\frac{\sqrt{154}i}{84}$ 0 0 0	
	0 $-\frac{\sqrt{154}i}{105}$ $\frac{\sqrt{2310}}{420}$ 0 $-\frac{\sqrt{2310}i}{420}$ 0 0 0 $-\frac{\sqrt{154}}{84}$ 0 $-\frac{\sqrt{154}i}{84}$ 0 0 0	
686	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 0 0 $-\frac{23\sqrt{2310}i}{9240}$ 0 $\frac{23\sqrt{2310}}{9240}$ 0 0 0 $-\frac{\sqrt{154}i}{3080}$ 0 $-\frac{\sqrt{154}}{3080}$ $-\frac{3\sqrt{154}i}{220}$ 0	
	0 0 $-\frac{23\sqrt{2310}i}{9240}$ 0 $-\frac{23\sqrt{2310}}{9240}$ 0 0 0 $-\frac{\sqrt{154}i}{3080}$ 0 $\frac{\sqrt{154}}{3080}$ 0 0 $\frac{3\sqrt{154}i}{220}$	
	0 0 0 $\frac{9\sqrt{770}i}{3080}$ 0 $\frac{9\sqrt{770}}{3080}$ $-\frac{\sqrt{770}i}{220}$ 0 0 $\frac{41\sqrt{462}i}{9240}$ 0 $-\frac{41\sqrt{462}}{9240}$ 0 0	
	0 0 $\frac{9\sqrt{770}i}{3080}$ 0 $-\frac{9\sqrt{770}}{3080}$ 0 0 $\frac{\sqrt{770}i}{220}$ $\frac{41\sqrt{462}i}{9240}$ 0 $\frac{41\sqrt{462}}{9240}$ 0 0	
	0 $\frac{\sqrt{462}i}{210}$ 0 0 $-\frac{\sqrt{770}i}{220}$ 0 0 $-\frac{\sqrt{770}}{385}$ 0 0 $\frac{\sqrt{462}i}{220}$ 0 0 $-\frac{17\sqrt{462}}{2310}$	
	$\frac{\sqrt{462}i}{210}$ 0 0 0 $\frac{\sqrt{770}i}{220}$ $\frac{\sqrt{770}}{385}$ 0 0 0 0 $-\frac{\sqrt{462}i}{220}$ $\frac{17\sqrt{462}}{2310}$ 0	
	0 $-\frac{\sqrt{462}}{210}$ $\frac{\sqrt{770}i}{220}$ 0 0 0 0 $\frac{\sqrt{770}i}{385}$ $\frac{\sqrt{462}i}{220}$ 0 0 0 0 $-\frac{17\sqrt{462}i}{2310}$	
	$\frac{\sqrt{462}}{210}$ 0 0 $-\frac{\sqrt{770}i}{220}$ 0 0 $\frac{\sqrt{770}i}{385}$ 0 0 $-\frac{\sqrt{462}i}{220}$ 0 0 $-\frac{17\sqrt{462}i}{2310}$	
	0 0 0 $\frac{3\sqrt{770}}{1540}$ 0 $-\frac{3\sqrt{770}i}{1540}$ 0 0 0 $\frac{13\sqrt{462}}{4620}$ 0 $\frac{13\sqrt{462}i}{4620}$ 0 0	
	0 0 $-\frac{3\sqrt{770}}{1540}$ 0 $-\frac{3\sqrt{770}i}{1540}$ 0 0 0 $-\frac{13\sqrt{462}}{4620}$ 0 $\frac{13\sqrt{462}i}{4620}$ 0 0	
687	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{G}_4^{(1,1;a)}(A'', 4)$	0 $\frac{9\sqrt{22}}{440}$ $-\frac{\sqrt{330}i}{120}$ 0 0 0 0 $-\frac{\sqrt{330}i}{132}$ $-\frac{13\sqrt{22}i}{440}$ 0 0 0 0 $\frac{3\sqrt{22}i}{110}$	
	$-\frac{9\sqrt{22}}{440}$ 0 0 $\frac{\sqrt{330}i}{120}$ 0 0 $-\frac{\sqrt{330}i}{132}$ 0 0 $\frac{13\sqrt{22}i}{440}$ 0 0 0 $\frac{3\sqrt{22}i}{110}$ 0	
	0 $-\frac{3\sqrt{66}}{440}$ $\frac{3\sqrt{110}i}{440}$ 0 0 0 0 $\frac{\sqrt{110}i}{110}$ $\frac{\sqrt{66}i}{120}$ 0 0 0 0 $-\frac{7\sqrt{66}i}{660}$	
	$\frac{3\sqrt{66}}{440}$ 0 0 $-\frac{3\sqrt{110}i}{440}$ 0 0 $\frac{\sqrt{110}i}{110}$ 0 0 $-\frac{\sqrt{66}i}{120}$ 0 0 0 $-\frac{7\sqrt{66}i}{660}$ 0	
	$-\frac{\sqrt{66}i}{330}$ 0 0 $-\frac{3\sqrt{110}}{440}$ 0 0 0 0 0 $-\frac{3\sqrt{66}}{440}$ 0 $-\frac{\sqrt{66}i}{330}$ 0 0	
	0 $\frac{\sqrt{66}i}{330}$ $\frac{3\sqrt{110}}{440}$ 0 0 0 0 0 $\frac{3\sqrt{66}}{440}$ 0 $-\frac{\sqrt{66}i}{330}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{110}i}{55}$ 0 0 $\frac{\sqrt{110}i}{55}$ 0 0 $-\frac{\sqrt{66}i}{66}$ 0 $\frac{3\sqrt{66}}{220}$ $-\frac{\sqrt{66}i}{66}$ 0	
	0 0 $-\frac{\sqrt{110}i}{55}$ 0 0 0 0 $-\frac{\sqrt{110}i}{55}$ $-\frac{\sqrt{66}i}{66}$ 0 $-\frac{3\sqrt{66}}{220}$ 0 0 $\frac{\sqrt{66}i}{66}$	
	0 $\frac{\sqrt{66}i}{330}$ 0 0 0 0 0 $\frac{3\sqrt{110}}{440}$ 0 0 $-\frac{\sqrt{66}i}{330}$ 0 0 $-\frac{3\sqrt{66}}{440}$	
	$\frac{\sqrt{66}i}{330}$ 0 0 0 0 $-\frac{3\sqrt{110}}{440}$ 0 0 0 0 $\frac{\sqrt{66}i}{330}$ $\frac{3\sqrt{66}}{440}$ 0	
688	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(A'', 5)$	0	$-\frac{3\sqrt{154}}{440}, -\frac{\sqrt{2310}i}{1848}, 0, 0, 0, 0, \frac{\sqrt{2310}i}{924}, \frac{29\sqrt{154}i}{3080}, 0, 0, 0, 0, 0, 0$
	$\frac{3\sqrt{154}}{440}$	$0, 0, 0, \frac{\sqrt{2310}i}{1848}, 0, 0, \frac{\sqrt{2310}i}{924}, 0, 0, -\frac{29\sqrt{154}i}{3080}, 0, 0, 0, 0, 0$
	0	$-\frac{3\sqrt{462}}{440}, \frac{\sqrt{770}i}{616}, 0, 0, 0, 0, 0, 0, \frac{29\sqrt{462}i}{9240}, 0, 0, 0, 0, -\frac{29\sqrt{462}i}{4620}$
	$\frac{3\sqrt{462}}{440}$	$0, 0, -\frac{\sqrt{770}i}{616}, 0, 0, 0, 0, 0, -\frac{29\sqrt{462}i}{9240}, 0, 0, -\frac{29\sqrt{462}i}{4620}, 0, 0$
	$\frac{17\sqrt{462}i}{2310}$	$0, 0, -\frac{\sqrt{770}}{440}, 0, -\frac{\sqrt{770}i}{385}, 0, 0, 0, \frac{3\sqrt{462}}{440}, 0, -\frac{\sqrt{462}i}{210}, 0, 0$
	0	$-\frac{17\sqrt{462}i}{2310}, \frac{\sqrt{770}}{440}, 0, -\frac{\sqrt{770}i}{385}, 0, 0, 0, -\frac{3\sqrt{462}}{440}, 0, -\frac{\sqrt{462}i}{210}, 0, 0, 0$
	0	$0, 0, 0, -\frac{\sqrt{770}i}{385}, 0, \frac{\sqrt{770}}{220}, -\frac{\sqrt{770}i}{385}, 0, 0, \frac{\sqrt{462}i}{210}, 0, 0, -\frac{\sqrt{462}i}{210}, 0, 0$
	0	$0, 0, -\frac{\sqrt{770}i}{385}, 0, -\frac{\sqrt{770}}{220}, 0, 0, \frac{\sqrt{770}i}{385}, \frac{\sqrt{462}i}{210}, 0, 0, 0, 0, \frac{\sqrt{462}i}{210}$
	$\frac{17\sqrt{462}i}{2310}$	$0, 0, 0, -\frac{\sqrt{770}i}{385}, 0, 0, -\frac{\sqrt{770}}{440}, 0, 0, \frac{\sqrt{462}i}{210}, 0, 0, -\frac{3\sqrt{462}}{440}, 0$
	$\frac{17\sqrt{462}i}{2310}$	$0, 0, 0, 0, \frac{\sqrt{770}i}{385}, \frac{\sqrt{770}}{440}, 0, 0, 0, 0, -\frac{\sqrt{462}i}{210}, \frac{3\sqrt{462}}{440}, 0, 0$
689	symmetry	$x$
$\mathbb{T}_1^{(a)}(A', 1)$	0	$0, 0, -\frac{3\sqrt{35}i}{140}, 0, 0, 0, 0, 0, -\frac{\sqrt{21}i}{28}, 0, 0, 0, 0, 0, 0$
	0	$0, 0, 0, -\frac{3\sqrt{35}i}{140}, 0, 0, 0, 0, 0, -\frac{\sqrt{21}i}{28}, 0, 0, 0, 0, 0, 0$
	0	$0, 0, \frac{3\sqrt{105}i}{140}, 0, 0, 0, 0, 0, 0, -\frac{\sqrt{7}i}{28}, 0, 0, 0, 0, 0, 0$
	0	$0, 0, 0, \frac{3\sqrt{105}i}{140}, 0, 0, 0, 0, 0, 0, -\frac{\sqrt{7}i}{28}, 0, 0, 0, 0, 0, 0$
	$\frac{\sqrt{7}i}{14}$	$0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0$
	$0, \frac{\sqrt{7}i}{14}$	$0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0$
	0	$0, 0, 0, 0, 0, 0, -\frac{\sqrt{105}i}{70}, 0, 0, 0, 0, 0, 0, 0, \frac{\sqrt{7}i}{14}, 0$
	0	$0, 0, 0, 0, 0, 0, 0, 0, -\frac{\sqrt{105}i}{70}, 0, 0, 0, 0, 0, 0, \frac{\sqrt{7}i}{14}$
	0	$0, 0, 0, 0, -\frac{\sqrt{105}i}{70}, 0, 0, 0, 0, 0, -\frac{\sqrt{7}i}{14}, 0, 0, 0, 0$
	0	$0, 0, 0, 0, 0, -\frac{\sqrt{105}i}{70}, 0, 0, 0, 0, 0, 0, -\frac{\sqrt{7}i}{14}, 0, 0$
690	symmetry	$z$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_1^{(a)}(A', 2)$	0 0 0 0 0 0 $\frac{3\sqrt{35}i}{70}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{3\sqrt{35}i}{70}$ 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 $\frac{\sqrt{7}i}{14}$	
	0 0 0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0	
	0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 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 0 0 0 0 0 0 0	
691 symmetry	<i>y</i>	
	0 0 0 0 $-\frac{3\sqrt{35}i}{140}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0	
	0 0 0 0 0 $-\frac{3\sqrt{35}i}{140}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0	
	0 0 0 0 $-\frac{3\sqrt{105}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0	
	0 0 0 0 0 $-\frac{3\sqrt{105}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$	
	$\frac{\sqrt{7}i}{14}$ 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 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0	
692 symmetry	$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$	
	0 0 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(a)}(A', 1)$	0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 $\frac{i}{4}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 $\frac{i}{4}$ 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 $\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 $\frac{\sqrt{3}i}{12}$ 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 $-\frac{\sqrt{5}i}{40}$ 0 0 0 0 0 0 $\frac{\sqrt{3}i}{24}$ 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 $-\frac{\sqrt{5}i}{40}$ 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{24}$ 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{5}i}{40}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{24}$ 0 0 0	
693	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{T}_3^{(a)}(A', 2)$	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 $\frac{\sqrt{15}i}{15}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$	
	0 0 0 0 $-\frac{\sqrt{5}i}{40}$ 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 $\frac{\sqrt{3}i}{24}$ 0 0 0	
	0 0 $-\frac{\sqrt{5}i}{40}$ 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	
	$-\frac{\sqrt{3}i}{6}$ 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	
694	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{T}_3^{(a)}(A', 3)$	$\begin{bmatrix} 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 \end{bmatrix}$
695	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
696	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{T}_3^{(a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
697	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} \\ -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 \end{bmatrix}$
698	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{T}_3^{(a)}(A'', 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
699	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{168} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{168} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 \end{bmatrix}$
700	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
$\mathbb{T}_5^{(a)}(A', 2)$	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 $\frac{\sqrt{210}i}{42}$ 0 0 0 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 $\frac{\sqrt{42}i}{84}$	
	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $-\frac{5\sqrt{42}i}{168}$ 0 0	
	0 0 $\frac{\sqrt{70}i}{56}$ 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 $\frac{5\sqrt{42}i}{168}$ 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 0	
701	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$
$\mathbb{T}_5^{(a)}(A', 3)$	0 0 0 0 0 0 0 0 $-\frac{3\sqrt{10}i}{40}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{10}i}{40}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{40}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{40}$ 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 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{30}i}{40}$ 0	
	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 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 $-\frac{\sqrt{30}i}{40}$ 0 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	
702	symmetry	$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{T}_5^{(a)}(A', 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
703	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 \end{bmatrix}$
704	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

*continued ...*

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(a)}(A', 6)$	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 0 0 0 0 0 0 0	0 $\frac{\sqrt{30}i}{20}$
	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 $\frac{\sqrt{6}i}{12}$ 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 $-\frac{\sqrt{10}i}{20}$ 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 $-\frac{\sqrt{10}i}{20}$ 0 0 0	0 0 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 0 0 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 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
705	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
$\mathbb{T}_5^{(a)}(A'', 1)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	$\frac{\sqrt{30}i}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	0 $\frac{\sqrt{30}i}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{40}$ 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 $-\frac{\sqrt{30}i}{40}$ 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 $-\frac{\sqrt{30}i}{40}$ 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 $-\frac{\sqrt{30}i}{40}$ 0 0	0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0	0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$	0 0 0 0 0 0 0
706	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$T_5^{(a)}(A'', 2)$	$\begin{bmatrix} -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{40} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
707	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} \\ \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 \end{bmatrix}$
708	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$

*continued ...*

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(a)}(A'', 4)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} \\ -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 \end{bmatrix}$
709	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
$\mathbb{T}_5^{(a)}(A'', 5)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
710	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,-1;a)}(A', 1)$	0	$-\frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28}$
	$-\frac{3\sqrt{14}}{56}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad -\frac{\sqrt{14}i}{28} \quad 0$
	0	$-\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{42}}{56}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{280} \quad -\frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{70} \quad -\frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{28} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad -\frac{\sqrt{42}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{70}i}{70} \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0$
711	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{T}_3^{(1,-1;a)}(A', 2)$	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{280} \quad 0 \quad -\frac{\sqrt{210}}{280} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{210}i}{280} \quad 0 \quad -\frac{\sqrt{210}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0$
	$\frac{\sqrt{42}}{28}$	$0 \quad 0 \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{42}}{28} \quad \frac{\sqrt{70}i}{280} \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0$	
	0	$0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{70} \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad \frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad -\frac{\sqrt{42}}{28} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad -\frac{\sqrt{70}i}{70} \quad 0 \quad \frac{\sqrt{42}}{28}$
712	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,-1;a)}(A', 3)$	0	$\frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{84}$
	$\frac{\sqrt{210}}{168}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{168} \quad \frac{\sqrt{210}i}{84} \quad 0$
	0	$-\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{70}}{56}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{168} \quad \frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{84} \quad 0 \quad \frac{\sqrt{42}i}{42} \quad -\frac{\sqrt{42}}{42} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{42}}{84} \quad 0 \quad -\frac{\sqrt{42}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{42} \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{42}i}{42} \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{42}}{42} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad \frac{\sqrt{70}}{56}$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0$
713	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
$\mathbb{T}_3^{(1,-1;a)}(A', 4)$	$-\frac{\sqrt{210}}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0$	
	0	$\frac{\sqrt{210}}{84} \quad \frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{168} \quad 0 \quad -\frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{42}i}{168} \quad 0 \quad -\frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{42} \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{42} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{168} \quad \frac{\sqrt{42}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{42} \quad 0 \quad \frac{\sqrt{42}i}{42} \quad -\frac{\sqrt{42}}{84} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{42}}{42} \quad 0 \quad -\frac{\sqrt{42}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$
714	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
$T_3^{(1,-1;a)}(A'', 1)$	0 0 0 $-\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ $\frac{\sqrt{210}}{84}$ 0	
	0 0 $-\frac{\sqrt{14}}{56}$ 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 $-\frac{\sqrt{210}}{84}$	
	0 0 0 $-\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ $\frac{\sqrt{42}}{84}$ 0 0 $\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0	
	0 0 $-\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 $-\frac{\sqrt{42}}{84}$ $\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{42}}{42}$ $\frac{\sqrt{42}i}{42}$ 0 0 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{42}}{42}$ 0 0 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{42}i}{42}$ 0 $\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{42}i}{42}$ 0 $\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0 0 0	
715	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
$T_3^{(1,-1;a)}(A'', 2)$	0 $-\frac{3\sqrt{14}i}{56}$ $\frac{\sqrt{210}}{280}$ 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 0 0 0 $-\frac{\sqrt{14}}{28}$	
	$\frac{3\sqrt{14}i}{56}$ 0 0 $-\frac{\sqrt{210}}{280}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 $-\frac{\sqrt{14}}{28}$ 0	
	0 $\frac{\sqrt{42}i}{56}$ $\frac{\sqrt{70}}{280}$ 0 0 0 0 $-\frac{\sqrt{70}}{140}$ $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0	
	$-\frac{\sqrt{42}i}{56}$ 0 0 $-\frac{\sqrt{70}}{280}$ 0 0 $-\frac{\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0	
	0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 $\frac{\sqrt{70}}{70}$ 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0	
	0 0 $-\frac{3\sqrt{70}i}{280}$ 0 $\frac{\sqrt{70}}{70}$ 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{70}}{70}$ 0 0 0 $\frac{\sqrt{70}}{70}$ 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0	
	0 0 $-\frac{\sqrt{70}}{70}$ 0 0 0 0 $-\frac{\sqrt{70}}{70}$ 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{70}}{70}$ 0 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{56}$	
	0 0 0 0 0 $\frac{\sqrt{70}}{70}$ $\frac{3\sqrt{70}i}{280}$ 0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0	
716	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,-1;a)}(A'', 3)$	0	$-\frac{\sqrt{210}i}{168}, -\frac{\sqrt{14}}{56}, 0, 0, 0, 0, 0, 0, -\frac{\sqrt{210}}{168}, 0, 0, 0, 0, -\frac{\sqrt{210}}{84}$
	$\frac{\sqrt{210}i}{168}$	$0, 0, 0, \frac{\sqrt{14}}{56}, 0, 0, 0, 0, 0, \frac{\sqrt{210}}{168}, 0, 0, -\frac{\sqrt{210}}{84}, 0$
	0	$-\frac{\sqrt{70}i}{56}, -\frac{\sqrt{42}}{168}, 0, 0, 0, 0, -\frac{\sqrt{42}}{84}, \frac{\sqrt{70}}{56}, 0, 0, 0, 0, 0$
	$\frac{\sqrt{70}i}{56}$	$0, 0, 0, \frac{\sqrt{42}}{168}, 0, 0, -\frac{\sqrt{42}}{84}, 0, 0, -\frac{\sqrt{70}}{56}, 0, 0, 0, 0$
	0	$0, 0, 0, -\frac{\sqrt{42}i}{168}, 0, \frac{\sqrt{42}}{42}, 0, 0, 0, -\frac{\sqrt{70}i}{56}, 0, 0, 0, 0$
	0	$0, 0, \frac{\sqrt{42}i}{168}, 0, \frac{\sqrt{42}}{42}, 0, 0, 0, \frac{\sqrt{70}i}{56}, 0, 0, 0, 0, 0$
	0	$0, 0, 0, -\frac{\sqrt{42}}{42}, 0, \frac{\sqrt{42}i}{84}, -\frac{\sqrt{42}}{42}, 0, 0, 0, 0, 0, 0, 0, 0$
	0	$0, 0, -\frac{\sqrt{42}}{42}, 0, -\frac{\sqrt{42}i}{84}, 0, 0, \frac{\sqrt{42}}{42}, 0, 0, 0, 0, 0, 0$
	0	$0, 0, 0, 0, \frac{\sqrt{42}}{42}, 0, 0, -\frac{\sqrt{42}i}{168}, 0, 0, 0, 0, 0, \frac{\sqrt{70}i}{56}$
	0	$0, 0, 0, 0, 0, -\frac{\sqrt{42}}{42}, \frac{\sqrt{42}i}{168}, 0, 0, 0, 0, 0, -\frac{\sqrt{70}i}{56}, 0$
717	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
$\mathbb{T}_5^{(1,-1;a)}(A', 1)$	0	$\frac{\sqrt{105}}{84}, 0, 0, -\frac{\sqrt{7}}{56}, 0, 0, 0, 0, -\frac{3\sqrt{105}}{280}, 0, 0, -\frac{\sqrt{105}i}{210}$
	$\frac{\sqrt{105}}{84}$	$0, 0, 0, 0, \frac{\sqrt{7}}{56}, 0, 0, 0, 0, 0, \frac{3\sqrt{105}}{280}, \frac{\sqrt{105}i}{210}, 0$
	0	$\frac{\sqrt{35}}{84}, 0, 0, \frac{\sqrt{21}}{168}, 0, 0, \frac{\sqrt{21}i}{84}, 0, 0, \frac{\sqrt{35}}{840}, 0, 0, -\frac{\sqrt{35}i}{60}$
	$\frac{\sqrt{35}}{84}$	$0, 0, 0, 0, -\frac{\sqrt{21}}{168}, -\frac{\sqrt{21}i}{84}, 0, 0, 0, -\frac{\sqrt{35}}{840}, \frac{\sqrt{35}i}{60}, 0$
	0	$0, 0, 0, 0, 0, \frac{\sqrt{21}i}{56}, \frac{\sqrt{21}}{56}, 0, 0, \frac{\sqrt{35}}{42}, 0, \frac{\sqrt{35}i}{120}, -\frac{\sqrt{35}}{120}, 0$
	0	$0, 0, 0, 0, -\frac{\sqrt{21}i}{56}, 0, 0, -\frac{\sqrt{21}}{56}, \frac{\sqrt{35}}{42}, 0, -\frac{\sqrt{35}i}{120}, 0, 0, \frac{\sqrt{35}}{120}$
	$\frac{\sqrt{35}}{60}$	$0, 0, \frac{\sqrt{21}i}{42}, 0, \frac{5\sqrt{21}}{168}, 0, 0, 0, -\frac{\sqrt{35}i}{60}, 0, \frac{5\sqrt{35}}{168}, 0, 0$
	0	$-\frac{\sqrt{35}}{60}, -\frac{\sqrt{21}i}{42}, 0, \frac{5\sqrt{21}}{168}, 0, 0, 0, \frac{\sqrt{35}i}{60}, 0, \frac{5\sqrt{35}}{168}, 0, 0, 0$
	0	$\frac{\sqrt{35}i}{60}, \frac{\sqrt{21}}{42}, 0, 0, 0, -\frac{5\sqrt{21}}{168}, \frac{\sqrt{35}}{60}, 0, 0, 0, 0, \frac{5\sqrt{35}}{168}, 0$
	$-\frac{\sqrt{35}i}{60}$	$0, 0, -\frac{\sqrt{21}}{42}, 0, 0, -\frac{5\sqrt{21}}{168}, 0, 0, -\frac{\sqrt{35}}{60}, 0, 0, 0, \frac{5\sqrt{35}}{168}, 0$
718	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
$\mathbb{T}_5^{(1,-1;a)}(A', 2)$	0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 $-\frac{\sqrt{105}i}{168}$ 0 $\frac{\sqrt{105}}{168}$ 0 0	
	0 0 $\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 $\frac{\sqrt{105}}{168}$ 0 0 0	
	$-\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{168}$ 0 0 0 $-\frac{13\sqrt{35}i}{840}$ 0 $-\frac{13\sqrt{35}}{840}$ 0 0	
	0 $\frac{\sqrt{35}}{42}$ $\frac{\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{168}$ 0 0 0 $\frac{13\sqrt{35}i}{840}$ 0 $-\frac{13\sqrt{35}}{840}$ 0 0 0	
	0 $-\frac{\sqrt{35}i}{60}$ $\frac{5\sqrt{21}}{168}$ 0 0 0 0 $-\frac{\sqrt{21}}{42}$ $\frac{5\sqrt{35}}{168}$ 0 0 0 0 $\frac{\sqrt{35}}{60}$	
	$\frac{\sqrt{35}i}{60}$ 0 0 $-\frac{5\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 $-\frac{5\sqrt{35}}{168}$ 0 0 $\frac{\sqrt{35}}{60}$ 0	
	0 $-\frac{\sqrt{35}}{60}$ 0 0 $-\frac{5\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $\frac{5\sqrt{35}}{168}$ 0 0 $-\frac{\sqrt{35}i}{60}$	
	$-\frac{\sqrt{35}}{60}$ 0 0 0 0 $\frac{5\sqrt{21}}{168}$ $\frac{\sqrt{21}i}{42}$ 0 0 0 0 $-\frac{5\sqrt{35}}{168}$ $\frac{\sqrt{35}i}{60}$ 0	
	0 0 0 $-\frac{\sqrt{21}}{56}$ 0 $-\frac{\sqrt{21}i}{56}$ 0 0 0 $-\frac{\sqrt{35}}{120}$ 0 $\frac{\sqrt{35}i}{120}$ $\frac{\sqrt{35}}{42}$ 0	
	0 0 $-\frac{\sqrt{21}}{56}$ 0 $\frac{\sqrt{21}i}{56}$ 0 0 0 $-\frac{\sqrt{35}}{120}$ 0 $-\frac{\sqrt{35}i}{120}$ 0 0 $-\frac{\sqrt{35}}{42}$	
719	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$
$\mathbb{T}_5^{(1,-1;a)}(A', 3)$	0 $-\frac{\sqrt{3}}{20}$ 0 0 $\frac{3\sqrt{5}}{40}$ 0 0 0 0 $\frac{\sqrt{3}}{40}$ 0 0 $\frac{\sqrt{3}i}{10}$	
	$-\frac{\sqrt{3}}{20}$ 0 0 0 0 $-\frac{3\sqrt{5}}{40}$ 0 0 0 0 0 $-\frac{\sqrt{3}}{40}$ $-\frac{\sqrt{3}i}{10}$ 0	
	0 $-\frac{1}{20}$ 0 0 $-\frac{\sqrt{15}}{40}$ 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 $\frac{7}{40}$ 0 0 $-\frac{i}{20}$	
	$-\frac{1}{20}$ 0 0 0 0 $\frac{\sqrt{15}}{40}$ $\frac{\sqrt{15}i}{20}$ 0 0 0 0 $-\frac{7}{40}$ $\frac{i}{20}$ 0	
	0 0 0 0 0 $\frac{\sqrt{15}i}{40}$ $\frac{\sqrt{15}}{40}$ 0 0 $\frac{1}{10}$ 0 $\frac{i}{8}$ $-\frac{1}{8}$ 0	
	0 0 0 0 $-\frac{\sqrt{15}i}{40}$ 0 0 $-\frac{\sqrt{15}}{40}$ $\frac{1}{10}$ 0 $-\frac{i}{8}$ 0 0 $\frac{1}{8}$	
	$\frac{1}{20}$ 0 0 0 0 $-\frac{\sqrt{15}}{40}$ 0 0 0 $\frac{i}{20}$ 0 $\frac{3}{40}$ 0 0	
	0 $-\frac{1}{20}$ 0 0 $-\frac{\sqrt{15}}{40}$ 0 0 0 $-\frac{i}{20}$ 0 $\frac{3}{40}$ 0 0 0	
	0 $\frac{i}{20}$ 0 0 0 0 0 $\frac{\sqrt{15}}{40}$ $-\frac{1}{20}$ 0 0 0 0 $\frac{3}{40}$	
	$-\frac{i}{20}$ 0 0 0 0 0 $\frac{\sqrt{15}}{40}$ 0 0 $\frac{1}{20}$ 0 0 0 $\frac{3}{40}$ 0	
720	symmetry	$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,-1;a)}(A', 4)$	0 0 0 $\frac{3\sqrt{5}i}{40}$ 0 $\frac{3\sqrt{5}}{40}$ 0 0 0 $-\frac{3\sqrt{3}i}{40}$ 0 $\frac{3\sqrt{3}}{40}$ 0 0	
	0 0 $-\frac{3\sqrt{5}i}{40}$ 0 $\frac{3\sqrt{5}}{40}$ 0 0 0 $\frac{3\sqrt{3}i}{40}$ 0 $\frac{3\sqrt{3}}{40}$ 0 0 0	
	$\frac{1}{10}$ 0 0 $\frac{\sqrt{15}i}{40}$ 0 $-\frac{\sqrt{15}}{40}$ 0 0 0 $\frac{i}{8}$ 0 $\frac{1}{8}$ 0 0 0	
	0 $-\frac{1}{10}$ $-\frac{\sqrt{15}i}{40}$ 0 $-\frac{\sqrt{15}}{40}$ 0 0 0 $-\frac{i}{8}$ 0 $\frac{1}{8}$ 0 0 0	
	0 $-\frac{i}{20}$ $-\frac{\sqrt{15}}{40}$ 0 0 0 0 0 $\frac{3}{40}$ 0 0 0 0 $-\frac{1}{20}$	
	$\frac{i}{20}$ 0 0 $\frac{\sqrt{15}}{40}$ 0 0 0 0 0 $-\frac{3}{40}$ 0 0 0 $-\frac{1}{20}$ 0	
	0 $-\frac{1}{20}$ 0 0 $\frac{\sqrt{15}}{40}$ 0 0 0 0 0 $\frac{3}{40}$ 0 0 0 $\frac{i}{20}$	
	$-\frac{1}{20}$ 0 0 0 0 $-\frac{\sqrt{15}}{40}$ 0 0 0 0 0 0 $-\frac{3}{40}$ $-\frac{i}{20}$ 0	
	0 0 0 $-\frac{\sqrt{15}}{40}$ 0 $-\frac{\sqrt{15}i}{40}$ 0 0 0 $-\frac{1}{8}$ 0 $\frac{i}{8}$ $\frac{1}{10}$ 0	
	0 0 $-\frac{\sqrt{15}}{40}$ 0 $\frac{\sqrt{15}i}{40}$ 0 0 0 $-\frac{1}{8}$ 0 $-\frac{i}{8}$ 0 0 $-\frac{1}{10}$	
721	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$
$\mathbb{T}_5^{(1,-1;a)}(A', 5)$	0 $\frac{1}{10}$ 0 0 0 0 0 0 0 0 $-\frac{1}{10}$ 0 0 0	
	$\frac{1}{10}$ 0 0 0 0 0 0 0 0 0 0 $\frac{1}{10}$ 0 0 0	
	0 $-\frac{\sqrt{3}}{10}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{30}$ 0 0 0 $\frac{\sqrt{3}i}{15}$	
	$-\frac{\sqrt{3}}{10}$ 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}}{30}$ $-\frac{\sqrt{3}i}{15}$ 0	
	0 0 0 $\frac{\sqrt{5}}{10}$ 0 $-\frac{\sqrt{5}i}{20}$ $\frac{\sqrt{5}}{20}$ 0 0 0 0 $-\frac{\sqrt{3}i}{20}$ $-\frac{\sqrt{3}}{20}$ 0	
	0 0 $\frac{\sqrt{5}}{10}$ 0 $\frac{\sqrt{5}i}{20}$ 0 0 $-\frac{\sqrt{5}}{20}$ 0 0 $\frac{\sqrt{3}i}{20}$ 0 0 $\frac{\sqrt{3}}{20}$	
	$\frac{\sqrt{3}}{15}$ 0 0 $-\frac{\sqrt{5}i}{20}$ 0 $-\frac{\sqrt{5}}{20}$ 0 0 0 $\frac{\sqrt{3}i}{20}$ 0 $\frac{\sqrt{3}}{60}$ 0 0	
	0 $-\frac{\sqrt{3}}{15}$ $\frac{\sqrt{5}i}{20}$ 0 $-\frac{\sqrt{5}}{20}$ 0 0 0 $-\frac{\sqrt{3}i}{20}$ 0 $\frac{\sqrt{3}}{60}$ 0 0 0	
	0 $-\frac{\sqrt{3}i}{15}$ $\frac{\sqrt{5}}{20}$ 0 0 0 0 $-\frac{\sqrt{5}}{20}$ $\frac{\sqrt{3}}{20}$ 0 0 0 0 $-\frac{\sqrt{3}}{60}$	
	$\frac{\sqrt{3}i}{15}$ 0 0 $-\frac{\sqrt{5}}{20}$ 0 0 0 $-\frac{\sqrt{5}}{20}$ 0 0 $-\frac{\sqrt{3}}{20}$ 0 0 0 $-\frac{\sqrt{3}}{60}$	
722	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,-1;a)}(A', 6)$	$\begin{bmatrix} -\frac{1}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{10} & 0 & -\frac{1}{10} & 0 & 0 & 0 \\ 0 & \frac{1}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{10} & 0 & -\frac{1}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{30} & 0 & \frac{\sqrt{3}}{30} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{30} & 0 & \frac{\sqrt{3}}{30} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{15} & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & \frac{\sqrt{3}}{60} & 0 & 0 & 0 & -\frac{\sqrt{3}}{20} \\ \frac{\sqrt{3}i}{15} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & -\frac{\sqrt{3}}{60} & 0 & 0 & -\frac{\sqrt{3}}{20} & 0 \\ 0 & \frac{\sqrt{3}}{15} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & -\frac{\sqrt{3}}{60} & 0 & 0 & -\frac{\sqrt{3}i}{20} \\ \frac{\sqrt{3}}{15} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & \frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{60} & \frac{\sqrt{3}i}{20} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{3}}{20} & 0 & \frac{\sqrt{3}i}{20} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{20} & 0 & 0 & -\frac{\sqrt{5}}{10} & \frac{\sqrt{3}}{20} & 0 & -\frac{\sqrt{3}i}{20} & 0 & 0 & 0 \end{bmatrix}$	
	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$	
723	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
$\mathbb{T}_5^{(1,-1;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 & -\frac{3\sqrt{5}i}{40} & 0 & 0 & 0 & -\frac{3\sqrt{3}}{40} & 0 & -\frac{3\sqrt{3}i}{40} & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{5}}{40} & 0 & \frac{3\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}}{40} & 0 & \frac{3\sqrt{3}i}{40} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & \frac{1}{8} & 0 & -\frac{i}{8} & -\frac{1}{10} & 0 \\ 0 & 0 & \frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & 0 & \frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 & \frac{1}{10} \\ 0 & -\frac{1}{20} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & \frac{3}{40} & 0 & 0 & \frac{i}{20} \\ -\frac{1}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & -\frac{3}{40} & -\frac{i}{20} & 0 \\ 0 & \frac{i}{20} & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & -\frac{3}{40} & 0 & 0 & 0 & 0 & \frac{1}{20} \\ -\frac{i}{20} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & \frac{3}{40} & 0 & 0 & \frac{1}{20} & 0 \\ \frac{1}{10} & 0 & 0 & \frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & \frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 \\ 0 & -\frac{1}{10} & -\frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & -\frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 \end{bmatrix}$	
	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$	
724	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	0 0 0 $\frac{\sqrt{15}}{40}$ 0 $\frac{\sqrt{15}i}{40}$ 0 0 0 $\frac{1}{40}$ 0 $-\frac{i}{40}$ $-\frac{1}{5}$ 0
	0	0 0 $\frac{\sqrt{15}}{40}$ 0 $-\frac{\sqrt{15}i}{40}$ 0 0 0 $\frac{1}{40}$ 0 $\frac{i}{40}$ 0 0 $\frac{1}{5}$
	0	0 0 0 $\frac{\sqrt{5}}{40}$ 0 $-\frac{\sqrt{5}i}{40}$ $\frac{\sqrt{5}}{10}$ 0 0 $\frac{3\sqrt{3}}{40}$ 0 $\frac{3\sqrt{3}i}{40}$ 0 0
	0	0 0 $\frac{\sqrt{5}}{40}$ 0 $\frac{\sqrt{5}i}{40}$ 0 0 $-\frac{\sqrt{5}}{10}$ $\frac{3\sqrt{3}}{40}$ 0 $-\frac{3\sqrt{3}i}{40}$ 0 0 0
	0	$\frac{\sqrt{3}}{20}$ 0 0 $-\frac{\sqrt{5}}{40}$ 0 0 $\frac{\sqrt{5}i}{20}$ 0 0 $-\frac{7\sqrt{3}}{120}$ 0 0 $-\frac{\sqrt{3}i}{15}$
	$\frac{\sqrt{3}}{20}$	0 0 0 0 0 $\frac{\sqrt{5}}{40}$ $-\frac{\sqrt{5}i}{20}$ 0 0 0 0 $\frac{7\sqrt{3}}{120}$ $\frac{\sqrt{3}i}{15}$ 0
	0	$\frac{\sqrt{3}i}{20}$ $\frac{\sqrt{5}}{40}$ 0 0 0 0 $\frac{\sqrt{5}}{20}$ $-\frac{7\sqrt{3}}{120}$ 0 0 0 0 $\frac{\sqrt{3}}{15}$
	$-\frac{\sqrt{3}i}{20}$	0 0 $-\frac{\sqrt{5}}{40}$ 0 0 0 $\frac{\sqrt{5}}{20}$ 0 0 $\frac{7\sqrt{3}}{120}$ 0 0 $\frac{\sqrt{3}}{15}$ 0
	0	0 0 0 $\frac{\sqrt{5}i}{40}$ 0 $\frac{\sqrt{5}}{40}$ 0 0 0 $\frac{\sqrt{3}i}{120}$ 0 $-\frac{\sqrt{3}}{120}$ 0 0
	0	0 0 $-\frac{\sqrt{5}i}{40}$ 0 $\frac{\sqrt{5}}{40}$ 0 0 0 $-\frac{\sqrt{3}i}{120}$ 0 $-\frac{\sqrt{3}}{120}$ 0 0 0
725	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$
$\mathbb{T}_5^{(1,-1;a)}(A'', 3)$	0	$\frac{\sqrt{105}i}{84}$ $\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{3\sqrt{105}}{280}$ 0 0 0 0 $\frac{\sqrt{105}}{210}$
	$-\frac{\sqrt{105}i}{84}$	0 0 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{3\sqrt{105}}{280}$ 0 0 0 $\frac{\sqrt{105}}{210}$ 0
	0	$-\frac{\sqrt{35}i}{84}$ $\frac{\sqrt{21}}{168}$ 0 0 0 0 $-\frac{\sqrt{21}}{84}$ $-\frac{\sqrt{35}}{840}$ 0 0 0 0 $-\frac{\sqrt{35}}{60}$
	$\frac{\sqrt{35}i}{84}$	0 0 $-\frac{\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}}{84}$ 0 0 $\frac{\sqrt{35}}{840}$ 0 0 0 $-\frac{\sqrt{35}}{60}$ 0
	$-\frac{\sqrt{35}}{60}$	0 0 $\frac{5\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0 $-\frac{5\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{60}$ 0 0
	0	$\frac{\sqrt{35}}{60}$ $-\frac{5\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0 $\frac{5\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{60}$ 0 0
	0	0 0 0 $\frac{\sqrt{21}}{56}$ 0 0 $-\frac{\sqrt{21}}{56}$ 0 0 $-\frac{\sqrt{35}}{120}$ 0 $-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{35}}{120}$ 0
	0	0 0 $\frac{\sqrt{21}}{56}$ 0 0 0 $\frac{\sqrt{21}}{56}$ $-\frac{\sqrt{35}}{120}$ 0 $\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{35}}{120}$
	0	$\frac{\sqrt{35}}{60}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 $-\frac{5\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{35}}{60}$ 0 0 $-\frac{5\sqrt{35}i}{168}$
	$\frac{\sqrt{35}}{60}$	0 0 0 0 $\frac{\sqrt{21}}{42}$ $\frac{5\sqrt{21}i}{168}$ 0 0 0 0 $-\frac{\sqrt{35}}{60}$ $\frac{5\sqrt{35}i}{168}$ 0
726	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$

*continued ...*

Table 9

No.	multipole	matrix
$T_5^{(1,-1;a)}(A'', 4)$	0	$-\frac{\sqrt{3}i}{20} \quad -\frac{3\sqrt{5}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{10}$
	$\frac{\sqrt{3}i}{20}$	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{5}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{40} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{10} \quad 0$
	0	$\frac{i}{20} \quad -\frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20} \quad -\frac{7}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{20}$
	$-\frac{i}{20}$	$0 \quad 0 \quad \frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad \frac{7}{40} \quad 0 \quad 0 \quad 0 \quad -\frac{1}{20} \quad 0$
	$-\frac{1}{20}$	$0 \quad 0 \quad -\frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3i}{40} \quad 0 \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0$
	0	$\frac{1}{20} \quad \frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3i}{40} \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad -\frac{1}{8} \quad 0 \quad -\frac{i}{10} \quad -\frac{1}{8} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{40} \quad -\frac{1}{8} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad \frac{1}{8}$
	$\frac{1}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0 \quad -\frac{3i}{40}$
	$\frac{1}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{20} \quad \frac{3i}{40} \quad 0$
727	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
$T_5^{(1,-1;a)}(A'', 5)$	0	$-\frac{i}{10} \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{i}{10}$	$0 \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{3}i}{10} \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{15}$
	$\frac{\sqrt{3}i}{10}$	$0 \quad 0 \quad -\frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{15} \quad 0$
	$\frac{\sqrt{3}}{15}$	$0 \quad 0 \quad \frac{\sqrt{5}i}{20} \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{60} \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0 \quad 0$
	0	$-\frac{\sqrt{3}}{15} \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{60} \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad -\frac{\sqrt{5}i}{10} \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad \frac{\sqrt{5}i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad -\frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{20}$
	$\frac{\sqrt{3}}{15}$	$0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{60}$
	$\frac{\sqrt{3}}{15}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{20} \quad \frac{\sqrt{3}i}{60} \quad 0$
728	symmetry	$x$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_1^{(1,0;a)}(A', 1)$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{140} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad \frac{3\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{210}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{210}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad \frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28}$	
	$-\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{14}}{28} \quad -\frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{14}i}{28} \quad \frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
$\mathbb{T}_1^{(1,0;a)}(A', 2)$	$\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$z$	
	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{210}i}{280} \quad 0 \quad -\frac{3\sqrt{210}}{280} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{3\sqrt{210}i}{280} \quad 0 \quad -\frac{3\sqrt{210}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28}$	
	$-\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0$	
	$0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28}$	
730	$y$	
	$\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0$	

continued ...

Table 9

No.	multipole	matrix	
$\mathbb{T}_1^{(1,0;a)}(A'')$	0 0 $-\frac{3\sqrt{70}}{280}$ 0 0 0 0 $-\frac{3\sqrt{70}}{140}$ $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0		
	0 0 0 $\frac{3\sqrt{70}}{280}$ 0 0 $-\frac{3\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 0		
	0 0 $\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$		
	0 0 0 $-\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 0 0 $-\frac{\sqrt{14}}{28}$ 0		
	$\frac{\sqrt{14}}{28}$ 0 0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 0 0		
	0 $-\frac{\sqrt{14}}{28}$ 0 0 $\frac{\sqrt{210}}{140}$ 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 $\frac{\sqrt{14}}{28}$ 0 0 $\frac{\sqrt{14}}{28}$ 0		
	0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 0 $\frac{\sqrt{210}}{140}$ $\frac{\sqrt{14}}{28}$ 0 0 0 0 $-\frac{\sqrt{14}}{28}$		
	0 $-\frac{\sqrt{14}}{28}$ 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 0 0		
	$-\frac{\sqrt{14}}{28}$ 0 0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 0 0		
	$\frac{x(2x^2-3y^2-3z^2)}{2}$		
731	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$	
$\mathbb{T}_3^{(1,0;a)}(A', 1)$	0 0 0 0 $-\frac{7\sqrt{5}}{80}$ 0 0 $\frac{\sqrt{5}i}{20}$ 0 0 $-\frac{\sqrt{3}}{16}$ 0 0 0		
	0 0 0 0 0 $\frac{7\sqrt{5}}{80}$ $-\frac{\sqrt{5}i}{20}$ 0 0 0 0 $\frac{\sqrt{3}}{16}$ 0 0 0		
	0 0 0 0 $-\frac{\sqrt{15}}{240}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $\frac{1}{16}$ 0 0 $-\frac{i}{8}$		
	0 0 0 0 0 $\frac{\sqrt{15}}{240}$ $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{1}{16}$ $\frac{i}{8}$ 0		
	0 0 0 0 0 $\frac{\sqrt{15}i}{240}$ $\frac{\sqrt{15}}{240}$ 0 0 0 0 $\frac{3i}{16}$ $-\frac{3}{16}$ 0		
	0 0 0 0 $-\frac{\sqrt{15}i}{240}$ 0 0 $-\frac{\sqrt{15}}{240}$ 0 0 $-\frac{3i}{16}$ 0 0 $\frac{3}{16}$		
	$-\frac{1}{8}$ 0 0 $-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0		
	0 $\frac{1}{8}$ $\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0		
	0 $-\frac{i}{8}$ $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 0 0		
	$\frac{i}{8}$ 0 0 $\frac{\sqrt{15}}{60}$ 0 0 0 0 0 $\frac{1}{8}$ 0 0 0 0 0 0		
$-\frac{z(3x^2+3y^2-2z^2)}{2}$			
732	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,0;a)}(A', 2)$	0 0 0 $-\frac{3\sqrt{5}i}{80}$ 0 $-\frac{3\sqrt{5}}{80}$ 0 0 0 $-\frac{\sqrt{3}i}{16}$ 0 $\frac{\sqrt{3}}{16}$ 0 0 0	
	0 0 $\frac{3\sqrt{5}i}{80}$ 0 $-\frac{3\sqrt{5}}{80}$ 0 0 0 $\frac{\sqrt{3}i}{16}$ 0 $\frac{\sqrt{3}}{16}$ 0 0 0 0	
	0 0 0 $-\frac{11\sqrt{15}i}{240}$ 0 $\frac{11\sqrt{15}}{240}$ 0 0 0 $-\frac{i}{16}$ 0 $-\frac{1}{16}$ 0 0 0 0	
	0 0 $\frac{11\sqrt{15}i}{240}$ 0 $\frac{11\sqrt{15}}{240}$ 0 0 0 $\frac{i}{16}$ 0 $-\frac{1}{16}$ 0 0 0 0	
	0 $\frac{i}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}}{60}$ 0 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 $-\frac{1}{8}$ 0	
	0 $\frac{1}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{60}$ 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 0 $-\frac{i}{8}$ 0	
	0 0 0 $-\frac{\sqrt{15}}{240}$ 0 $-\frac{\sqrt{15}i}{240}$ 0 0 0 $-\frac{3}{16}$ 0 $\frac{3i}{16}$ 0 0 0	
	0 0 $-\frac{\sqrt{15}}{240}$ 0 $\frac{\sqrt{15}i}{240}$ 0 0 0 $-\frac{3}{16}$ 0 $-\frac{3i}{16}$ 0 0 0 0	
733	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
$\mathbb{T}_3^{(1,0;a)}(A', 3)$	0 0 0 0 $\frac{\sqrt{3}}{16}$ 0 0 $\frac{\sqrt{3}i}{12}$ 0 0 $\frac{\sqrt{5}}{16}$ 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{3}}{16}$ $-\frac{\sqrt{3}i}{12}$ 0 0 0 0 $-\frac{\sqrt{5}}{16}$ 0 0 0	
	0 0 0 0 $\frac{5}{48}$ 0 0 $\frac{i}{24}$ 0 0 $-\frac{\sqrt{15}}{48}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0	
	0 0 0 0 0 $-\frac{5}{48}$ $-\frac{i}{24}$ 0 0 0 0 $\frac{\sqrt{15}}{48}$ $\frac{\sqrt{15}i}{24}$ 0	
	0 0 0 $\frac{1}{6}$ 0 $-\frac{i}{48}$ $\frac{1}{48}$ 0 0 0 0 $\frac{\sqrt{15}i}{48}$ $\frac{\sqrt{15}}{48}$ 0	
	0 0 $\frac{1}{6}$ 0 $\frac{i}{48}$ 0 0 $-\frac{1}{48}$ 0 0 $-\frac{\sqrt{15}i}{48}$ 0 0 $-\frac{\sqrt{15}}{48}$ 0	
	$\frac{\sqrt{15}}{24}$ 0 0 $-\frac{i}{24}$ 0 $\frac{1}{6}$ 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}}{24}$ $\frac{i}{24}$ 0 $\frac{1}{6}$ 0 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}i}{24}$ $\frac{1}{24}$ 0 0 0 0 0 $\frac{1}{6}$ 0 0 0 0 0 0	
	$\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{1}{24}$ 0 0 $\frac{1}{6}$ 0 0 0 0 0 0 0 0	
734	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,0;a)}(A', 4)$	0 0 0 $-\frac{\sqrt{3}i}{48}$ 0 $\frac{\sqrt{3}}{48}$ 0 0 0 $\frac{\sqrt{5}i}{16}$ 0 $\frac{\sqrt{5}}{16}$ 0 0	
	0 0 $\frac{\sqrt{3}i}{48}$ 0 $\frac{\sqrt{3}}{48}$ 0 0 0 $-\frac{\sqrt{5}i}{16}$ 0 $\frac{\sqrt{5}}{16}$ 0 0 0	
	0 0 0 $\frac{7i}{48}$ 0 $\frac{7}{48}$ 0 0 0 $\frac{\sqrt{15}i}{48}$ 0 $-\frac{\sqrt{15}}{48}$ 0 0	
	0 0 $-\frac{7i}{48}$ 0 $\frac{7}{48}$ 0 0 0 $-\frac{\sqrt{15}i}{48}$ 0 $-\frac{\sqrt{15}}{48}$ 0 0 0	
	0 $-\frac{\sqrt{15}i}{24}$ $\frac{1}{6}$ 0 0 0 0 $\frac{1}{24}$ 0 0 0 0 0 0	
	$\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{1}{6}$ 0 0 $\frac{1}{24}$ 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{15}}{24}$ 0 0 $\frac{1}{6}$ 0 0 $-\frac{i}{24}$ 0 0 0 0 0 0 0	
	$\frac{\sqrt{15}}{24}$ 0 0 0 0 $-\frac{1}{6}$ $\frac{i}{24}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{1}{48}$ 0 $-\frac{i}{48}$ $\frac{1}{6}$ 0 0 $-\frac{\sqrt{15}}{48}$ 0 $-\frac{\sqrt{15}i}{48}$ 0 0	
	0 0 $\frac{1}{48}$ 0 $\frac{i}{48}$ 0 0 $-\frac{1}{6}$ $-\frac{\sqrt{15}}{48}$ 0 $\frac{\sqrt{15}i}{48}$ 0 0 0	
735	symmetry	$\sqrt{15}xyz$
$\mathbb{T}_3^{(1,0;a)}(A'', 1)$	0 0 0 $\frac{\sqrt{3}}{12}$ 0 $\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{3}}{12}$ 0 $-\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{1}{12}$ 0 $-\frac{i}{12}$ $-\frac{1}{6}$ 0 0 0 0 0 0 0 0	
	0 0 $\frac{1}{12}$ 0 $\frac{i}{12}$ 0 0 $\frac{1}{6}$ 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{1}{24}$ 0 0 $-\frac{i}{24}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{15}i}{24}$	
	0 0 0 0 0 $\frac{1}{24}$ $\frac{i}{24}$ 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{15}i}{24}$ 0	
	0 0 $\frac{1}{24}$ 0 0 0 0 $-\frac{1}{24}$ $-\frac{\sqrt{15}}{24}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$	
	0 0 0 $-\frac{1}{24}$ 0 0 $-\frac{1}{24}$ 0 0 $\frac{\sqrt{15}}{24}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0	
	0 0 0 $\frac{i}{24}$ 0 $\frac{1}{24}$ 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 $-\frac{\sqrt{15}}{24}$ 0 0	
	0 0 $-\frac{i}{24}$ 0 $\frac{1}{24}$ 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 $-\frac{\sqrt{15}}{24}$ 0 0 0	
736	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,0;a)}(A'', 2)$	0 0 $\frac{7\sqrt{5}}{80}$ 0 0 0 0 $\frac{\sqrt{5}}{20}$ $-\frac{\sqrt{3}}{16}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{7\sqrt{5}}{80}$ 0 0 $\frac{\sqrt{5}}{20}$ 0 0 $\frac{\sqrt{3}}{16}$ 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{15}}{240}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ $-\frac{1}{16}$ 0 0 0 0 0 $-\frac{1}{8}$	
	0 0 0 $\frac{\sqrt{15}}{240}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{1}{16}$ 0 0 $-\frac{1}{8}$ 0	
	$\frac{1}{8}$ 0 0 0 0 $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0	
	0 $-\frac{1}{8}$ 0 0 $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{15}}{240}$ 0 0 $-\frac{\sqrt{15}}{240}$ 0 0 $-\frac{3}{16}$ 0 0 $-\frac{3}{16}$ 0	
	0 0 $\frac{\sqrt{15}}{240}$ 0 0 0 0 $\frac{\sqrt{15}}{240}$ $-\frac{3}{16}$ 0 0 0 0 $\frac{3}{16}$	
	0 $-\frac{1}{8}$ 0 0 $\frac{\sqrt{15}}{60}$ 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 0	
	$-\frac{1}{8}$ 0 0 0 0 $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 $\frac{1}{8}$ 0 0 0	
737	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{T}_3^{(1,0;a)}(A'', 3)$	0 0 $\frac{\sqrt{3}}{16}$ 0 0 0 0 $-\frac{\sqrt{3}}{12}$ $-\frac{\sqrt{5}}{16}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{3}}{16}$ 0 0 $-\frac{\sqrt{3}}{12}$ 0 0 $\frac{\sqrt{5}}{16}$ 0 0 0 0 0 0	
	0 0 $-\frac{5}{48}$ 0 0 0 0 $\frac{1}{24}$ $-\frac{\sqrt{15}}{48}$ 0 0 0 0 $\frac{\sqrt{15}}{24}$	
	0 0 0 $\frac{5}{48}$ 0 0 $\frac{1}{24}$ 0 0 $\frac{\sqrt{15}}{48}$ 0 0 $\frac{\sqrt{15}}{24}$ 0	
	$\frac{\sqrt{15}}{24}$ 0 0 $-\frac{i}{6}$ 0 $\frac{1}{24}$ 0 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}}{24}$ $\frac{i}{6}$ 0 $\frac{1}{24}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{1}{48}$ 0 $-\frac{i}{6}$ $\frac{1}{48}$ 0 0 $\frac{\sqrt{15}}{48}$ 0 0 $-\frac{\sqrt{15}}{48}$ 0	
	0 0 $\frac{1}{48}$ 0 $\frac{i}{6}$ 0 0 $-\frac{1}{48}$ $\frac{\sqrt{15}}{48}$ 0 0 0 0 $\frac{\sqrt{15}}{48}$	
	0 $\frac{\sqrt{15}}{24}$ 0 0 0 $\frac{1}{24}$ 0 0 $-\frac{i}{6}$ 0 0 0 0 0 0 0	
	$\frac{\sqrt{15}}{24}$ 0 0 0 0 $-\frac{1}{24}$ $\frac{i}{6}$ 0 0 0 0 0 0 0 0	
738	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
$\mathbb{T}_5^{(1,0;a)}(A', 1)$	0 0 0 0 $-\frac{\sqrt{7}}{112}$ 0 0 $-\frac{5\sqrt{7}i}{112}$ 0 0 $-\frac{3\sqrt{105}}{560}$ 0 0 $\frac{\sqrt{105}i}{80}$	
	0 0 0 0 0 $\frac{\sqrt{7}}{112}$ $\frac{5\sqrt{7}i}{112}$ 0 0 0 0 $\frac{3\sqrt{105}}{560}$ $-\frac{\sqrt{105}i}{80}$ 0	
	0 0 0 0 $\frac{11\sqrt{21}}{336}$ 0 0 $\frac{\sqrt{21}i}{48}$ 0 0 $\frac{17\sqrt{35}}{560}$ 0 0 $-\frac{13\sqrt{35}i}{560}$	
	0 0 0 0 0 $-\frac{11\sqrt{21}}{336}$ $-\frac{\sqrt{21}i}{48}$ 0 0 0 0 $-\frac{17\sqrt{35}}{560}$ $\frac{13\sqrt{35}i}{560}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{21}i}{168}$ $-\frac{\sqrt{21}}{168}$ 0 0 0 0 $-\frac{3\sqrt{35}i}{280}$ $\frac{3\sqrt{35}}{280}$ 0	
	0 0 0 0 $\frac{\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{21}}{168}$ 0 0 $\frac{3\sqrt{35}i}{280}$ 0 0 $-\frac{3\sqrt{35}}{280}$	
	$\frac{\sqrt{35}}{70}$ 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{70}$ 0 0 0 0	
	0 $-\frac{\sqrt{35}}{70}$ $\frac{\sqrt{21}i}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{70}$ 0 0 0 0	
	0 $\frac{\sqrt{35}i}{70}$ $-\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}}{70}$ 0 0 0 0	
	$-\frac{\sqrt{35}i}{70}$ 0 0 $\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 0 0 0	
739	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$
$\mathbb{T}_5^{(1,0;a)}(A', 2)$	0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 $\frac{\sqrt{105}}{56}$ 0 0	
	0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 $\frac{\sqrt{105}}{56}$ 0 0 0	
	0 0 0 $\frac{\sqrt{21}i}{84}$ 0 $-\frac{\sqrt{21}}{84}$ 0 0 0 0 $\frac{\sqrt{35}i}{140}$ 0 $\frac{\sqrt{35}}{140}$ 0 0	
	0 0 $-\frac{\sqrt{21}i}{84}$ 0 $-\frac{\sqrt{21}}{84}$ 0 0 0 0 $-\frac{\sqrt{35}i}{140}$ 0 $\frac{\sqrt{35}}{140}$ 0 0	
	0 $-\frac{\sqrt{35}i}{70}$ 0 0 0 0 0 $\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}}{70}$	
	$\frac{\sqrt{35}i}{70}$ 0 0 0 0 0 $\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}}{70}$ 0	
	0 $-\frac{\sqrt{35}}{70}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{21}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{70}$	
	$-\frac{\sqrt{35}}{70}$ 0 0 0 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{70}$ 0	
	0 0 0 $\frac{\sqrt{21}}{168}$ 0 $\frac{\sqrt{21}i}{168}$ 0 0 0 $\frac{3\sqrt{35}}{280}$ 0 $-\frac{3\sqrt{35}i}{280}$ 0 0	
	0 0 $\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0 0 $\frac{3\sqrt{35}}{280}$ 0 $\frac{3\sqrt{35}i}{280}$ 0 0 0	
740	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(A', 3)$	0	$\begin{bmatrix} 0 & \frac{\sqrt{3}}{10} & 0 & 0 & \frac{3\sqrt{5}}{80} & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & \frac{\sqrt{3}}{80} & 0 & 0 & -\frac{\sqrt{3}i}{80} \\ \frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{80} & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{80} & \frac{\sqrt{3}i}{80} & 0 \\ 0 & \frac{1}{10} & 0 & 0 & \frac{7\sqrt{15}}{240} & 0 & 0 & -\frac{\sqrt{15}i}{240} & 0 & 0 & -\frac{3}{80} & 0 & 0 & \frac{3i}{80} \\ \frac{1}{10} & 0 & 0 & 0 & 0 & -\frac{7\sqrt{15}}{240} & \frac{\sqrt{15}i}{240} & 0 & 0 & 0 & 0 & \frac{3}{80} & -\frac{3i}{80} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{120} & -\frac{\sqrt{15}}{120} & 0 & 0 & -\frac{1}{5} & 0 & \frac{i}{8} & -\frac{1}{8} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{120} & 0 & 0 & \frac{\sqrt{15}}{120} & -\frac{1}{5} & 0 & -\frac{i}{8} & 0 & 0 & \frac{1}{8} \\ -\frac{1}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & -\frac{i}{10} & 0 & \frac{1}{10} & 0 & 0 \\ 0 & \frac{1}{10} & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & \frac{i}{10} & 0 & \frac{1}{10} & 0 & 0 & 0 \\ 0 & -\frac{i}{10} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & \frac{1}{10} & 0 & 0 & 0 & 0 & \frac{1}{10} \\ \frac{i}{10} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & -\frac{1}{10} & 0 & 0 & \frac{1}{10} & 0 \end{bmatrix}$
	741	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
	$\mathbb{T}_5^{(1,0;a)}(A', 4)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & \frac{\sqrt{3}i}{40} & 0 & -\frac{\sqrt{3}}{40} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{40} & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & -\frac{\sqrt{3}i}{40} & 0 & -\frac{\sqrt{3}}{40} & 0 & 0 & 0 \\ -\frac{1}{5} & 0 & 0 & \frac{\sqrt{15}i}{30} & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{5} & -\frac{\sqrt{15}i}{30} & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{10} & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{10} & 0 & 0 & 0 & 0 & \frac{1}{10} \\ -\frac{i}{10} & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{10} & 0 & 0 & \frac{1}{10} & 0 \\ 0 & \frac{1}{10} & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & \frac{1}{10} & 0 & 0 & -\frac{i}{10} & 0 \\ \frac{1}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{10} & \frac{i}{10} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}}{120} & 0 & \frac{\sqrt{15}i}{120} & 0 & 0 & 0 & -\frac{1}{8} & 0 & \frac{i}{8} & -\frac{1}{5} & 0 \\ 0 & 0 & \frac{\sqrt{15}}{120} & 0 & -\frac{\sqrt{15}i}{120} & 0 & 0 & 0 & -\frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & \frac{1}{5} \end{bmatrix}$
	742	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(A', 5)$	0	$\begin{bmatrix} 0 & \frac{1}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{1}{20} & 0 & 0 & \frac{i}{8} \\ \frac{1}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{1}{20} & -\frac{i}{8} & 0 \\ 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & -\frac{\sqrt{5}}{12} & 0 & 0 & \frac{\sqrt{5}i}{24} & 0 & 0 & -\frac{\sqrt{3}}{15} & 0 & 0 & -\frac{\sqrt{3}i}{120} \\ -\frac{\sqrt{3}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{12} & -\frac{\sqrt{5}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{15} & \frac{\sqrt{3}i}{120} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{30} & 0 & \frac{\sqrt{5}i}{60} & -\frac{\sqrt{5}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{60} & \frac{\sqrt{3}}{60} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{30} & 0 & -\frac{\sqrt{5}i}{60} & 0 & 0 & \frac{\sqrt{5}}{60} & 0 & 0 & -\frac{\sqrt{3}i}{60} & 0 & 0 & -\frac{\sqrt{3}}{60} \\ \frac{\sqrt{3}}{30} & 0 & 0 & -\frac{\sqrt{5}i}{15} & 0 & \frac{\sqrt{5}}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{10} & 0 & \frac{\sqrt{3}}{20} & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{30} & \frac{\sqrt{5}i}{15} & 0 & \frac{\sqrt{5}}{60} & 0 & 0 & 0 & \frac{\sqrt{3}i}{10} & 0 & \frac{\sqrt{3}}{20} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{30} & \frac{\sqrt{5}}{15} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{60} & -\frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{20} & 0 \\ \frac{\sqrt{3}i}{30} & 0 & 0 & -\frac{\sqrt{5}}{15} & 0 & 0 & \frac{\sqrt{5}}{60} & 0 & 0 & \frac{\sqrt{3}}{10} & 0 & 0 & 0 & -\frac{\sqrt{3}}{20} & 0 \end{bmatrix}$
	743	$\text{symmetry}$
		$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
	$\mathbb{T}_5^{(1,0;a)}(A', 6)$	$\begin{bmatrix} -\frac{1}{10} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{3i}{40} & 0 & \frac{3}{40} & 0 & 0 \\ 0 & \frac{1}{10} & -\frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & -\frac{3i}{40} & 0 & \frac{3}{40} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{24} & 0 & -\frac{\sqrt{5}}{24} & 0 & 0 & 0 & -\frac{7\sqrt{3}i}{120} & 0 & \frac{7\sqrt{3}}{120} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{24} & 0 & -\frac{\sqrt{5}}{24} & 0 & 0 & 0 & \frac{7\sqrt{3}i}{120} & 0 & \frac{7\sqrt{3}}{120} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{30} & \frac{\sqrt{5}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{15} & \frac{\sqrt{3}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{10} & 0 \\ \frac{\sqrt{3}i}{30} & 0 & 0 & -\frac{\sqrt{5}}{60} & 0 & 0 & 0 & \frac{\sqrt{5}}{15} & 0 & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & \frac{\sqrt{3}}{10} & 0 \\ 0 & \frac{\sqrt{3}}{30} & 0 & 0 & \frac{\sqrt{5}}{60} & 0 & 0 & -\frac{\sqrt{5}i}{15} & 0 & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & \frac{\sqrt{3}i}{10} & 0 \\ \frac{\sqrt{3}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{60} & \frac{\sqrt{5}i}{15} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{20} & -\frac{\sqrt{3}i}{10} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{60} & 0 & \frac{\sqrt{5}i}{60} & -\frac{\sqrt{5}}{30} & 0 & 0 & -\frac{\sqrt{3}}{60} & 0 & -\frac{\sqrt{3}i}{60} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{60} & 0 & -\frac{\sqrt{5}i}{60} & 0 & 0 & \frac{\sqrt{5}}{30} & -\frac{\sqrt{3}}{60} & 0 & \frac{\sqrt{3}i}{60} & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(A'', 1)$	0 0 0 $-\frac{\sqrt{5}}{40}$ 0 $\frac{\sqrt{5}i}{40}$ 0 0 0 $\frac{\sqrt{3}}{40}$ 0 $\frac{\sqrt{3}i}{40}$ 0 0	
	0 0 $-\frac{\sqrt{5}}{40}$ 0 $-\frac{\sqrt{5}i}{40}$ 0 0 0 $\frac{\sqrt{3}}{40}$ 0 $-\frac{\sqrt{3}i}{40}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{15}}{120}$ 0 $-\frac{\sqrt{15}i}{120}$ 0 0 0 $\frac{1}{8}$ 0 $-\frac{i}{8}$ $\frac{1}{5}$ 0	
	0 0 $-\frac{\sqrt{15}}{120}$ 0 $\frac{\sqrt{15}i}{120}$ 0 0 0 $\frac{1}{8}$ 0 $\frac{i}{8}$ 0 0 $-\frac{1}{5}$	
	0 $\frac{1}{10}$ 0 0 $\frac{\sqrt{15}}{30}$ 0 0 0 0 0 $\frac{1}{10}$ 0 0 $-\frac{i}{10}$	
	$\frac{1}{10}$ 0 0 0 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 0 0 $-\frac{1}{10}$ $\frac{i}{10}$ 0	
	0 $-\frac{i}{10}$ $\frac{\sqrt{15}}{30}$ 0 0 0 0 0 $-\frac{1}{10}$ 0 0 0 0 $-\frac{1}{10}$	
	$\frac{i}{10}$ 0 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 0 $\frac{1}{10}$ 0 0 $-\frac{1}{10}$ 0	
	$-\frac{1}{5}$ 0 0 $\frac{\sqrt{15}i}{30}$ 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 0 0 0 0 0	
	0 $\frac{1}{5}$ $-\frac{\sqrt{15}i}{30}$ 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 0 0 0 0 0 0	
745	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
$\mathbb{T}_5^{(1,0;a)}(A'', 2)$	0 0 0 $-\frac{\sqrt{15}}{120}$ 0 $-\frac{\sqrt{15}i}{120}$ 0 0 0 $-\frac{7}{40}$ 0 $\frac{7i}{40}$ $-\frac{1}{10}$ 0	
	0 0 $-\frac{\sqrt{15}}{120}$ 0 $\frac{\sqrt{15}i}{120}$ 0 0 0 $-\frac{7}{40}$ 0 $-\frac{7i}{40}$ 0 0 $\frac{1}{10}$	
	0 0 0 $-\frac{\sqrt{5}}{120}$ 0 $\frac{\sqrt{5}i}{120}$ $-\frac{\sqrt{5}}{30}$ 0 0 $-\frac{\sqrt{3}}{40}$ 0 $-\frac{\sqrt{3}i}{40}$ 0 0	
	0 0 $-\frac{\sqrt{5}}{120}$ 0 $-\frac{\sqrt{5}i}{120}$ 0 0 $\frac{\sqrt{5}}{30}$ $-\frac{\sqrt{3}}{40}$ 0 $\frac{\sqrt{3}i}{40}$ 0 0 0	
	0 $-\frac{\sqrt{3}}{10}$ 0 0 $-\frac{\sqrt{5}}{30}$ 0 0 $\frac{\sqrt{5}i}{15}$ 0 0 $\frac{\sqrt{3}}{30}$ 0 0 $-\frac{\sqrt{3}i}{30}$	
	$-\frac{\sqrt{3}}{10}$ 0 0 0 0 $\frac{\sqrt{5}}{30}$ $-\frac{\sqrt{5}i}{15}$ 0 0 0 0 $-\frac{\sqrt{3}}{30}$ $\frac{\sqrt{3}i}{30}$ 0	
	0 $-\frac{\sqrt{3}i}{10}$ $\frac{\sqrt{5}}{30}$ 0 0 0 0 $\frac{\sqrt{5}}{15}$ $\frac{\sqrt{3}}{30}$ 0 0 0 0 $\frac{\sqrt{3}}{30}$	
	$\frac{\sqrt{3}i}{10}$ 0 0 $-\frac{\sqrt{5}}{30}$ 0 0 $\frac{\sqrt{5}}{15}$ 0 0 $-\frac{\sqrt{3}}{30}$ 0 0 $\frac{\sqrt{3}}{30}$ 0	
	0 0 0 $\frac{\sqrt{5}i}{30}$ 0 $\frac{\sqrt{5}}{30}$ 0 0 0 $\frac{\sqrt{3}i}{15}$ 0 $-\frac{\sqrt{3}}{15}$ 0 0 0	
	0 0 $-\frac{\sqrt{5}i}{30}$ 0 $\frac{\sqrt{5}}{30}$ 0 0 0 $-\frac{\sqrt{3}i}{15}$ 0 $-\frac{\sqrt{3}}{15}$ 0 0 0	
746	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
$\mathbb{T}_5^{(1,0;a)}(A'', 3)$	0 0 $\frac{\sqrt{7}}{112}$ 0 0 0 0 $-\frac{5\sqrt{7}}{112}$ $-\frac{3\sqrt{105}}{560}$ 0 0 0 0 $-\frac{\sqrt{105}}{80}$	
	0 0 0 $-\frac{\sqrt{7}}{112}$ 0 0 $-\frac{5\sqrt{7}}{112}$ 0 0 $\frac{3\sqrt{105}}{560}$ 0 0 $-\frac{\sqrt{105}}{80}$ 0	
	0 0 $\frac{11\sqrt{21}}{336}$ 0 0 0 0 $-\frac{\sqrt{21}}{48}$ $-\frac{17\sqrt{35}}{560}$ 0 0 0 0 $-\frac{13\sqrt{35}}{560}$	
	0 0 0 $-\frac{11\sqrt{21}}{336}$ 0 0 $-\frac{\sqrt{21}}{48}$ 0 0 $\frac{17\sqrt{35}}{560}$ 0 0 $-\frac{13\sqrt{35}}{560}$ 0	
	$-\frac{\sqrt{35}}{70}$ 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}}{70}$ 0 0	
	0 $\frac{\sqrt{35}}{70}$ 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}}{70}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{21}}{168}$ 0 0 $\frac{\sqrt{21}}{168}$ 0 0 $\frac{3\sqrt{35}}{280}$ 0 0 $\frac{3\sqrt{35}}{280}$ 0	
	0 0 $-\frac{\sqrt{21}}{168}$ 0 0 0 0 $-\frac{\sqrt{21}}{168}$ $\frac{3\sqrt{35}}{280}$ 0 0 0 0 $-\frac{3\sqrt{35}}{280}$	
	0 $\frac{\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $\frac{\sqrt{35}}{70}$ 0 0 0	
	$\frac{\sqrt{35}}{70}$ 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 0	
747	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$
$\mathbb{T}_5^{(1,0;a)}(A'', 4)$	0 $\frac{\sqrt{3}i}{10}$ $-\frac{3\sqrt{5}}{80}$ 0 0 0 0 $-\frac{\sqrt{5}}{16}$ $\frac{\sqrt{3}}{80}$ 0 0 0 0 $\frac{\sqrt{3}}{80}$	
	$-\frac{\sqrt{3}i}{10}$ 0 0 $\frac{3\sqrt{5}}{80}$ 0 0 $-\frac{\sqrt{5}}{16}$ 0 0 $-\frac{\sqrt{3}}{80}$ 0 0 $\frac{\sqrt{3}}{80}$ 0	
	0 $-\frac{i}{10}$ $\frac{7\sqrt{15}}{240}$ 0 0 0 0 $\frac{\sqrt{15}}{240}$ $\frac{3}{80}$ 0 0 0 0 $\frac{3}{80}$	
	$\frac{i}{10}$ 0 0 $-\frac{7\sqrt{15}}{240}$ 0 0 $\frac{\sqrt{15}}{240}$ 0 0 $-\frac{3}{80}$ 0 0 0 $\frac{3}{80}$ 0	
	$\frac{1}{10}$ 0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 $-\frac{i}{10}$ 0 $\frac{1}{10}$ 0 0 0	
	0 $-\frac{1}{10}$ $\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 $\frac{i}{10}$ 0 $\frac{1}{10}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{15}}{120}$ 0 0 $\frac{\sqrt{15}}{120}$ 0 0 $-\frac{1}{8}$ 0 $\frac{i}{5}$ $-\frac{1}{8}$ 0	
	0 0 $-\frac{\sqrt{15}}{120}$ 0 0 0 0 $-\frac{\sqrt{15}}{120}$ $-\frac{1}{8}$ 0 $-\frac{i}{5}$ 0 0 $\frac{1}{8}$	
	0 $-\frac{1}{10}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{30}$ 0 0 $\frac{1}{10}$ 0 0 $-\frac{i}{10}$	
	$-\frac{1}{10}$ 0 0 0 0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 $-\frac{1}{10}$ $\frac{i}{10}$ 0	
748	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2 - 2y^2 + z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(A'', 5)$	0	$-\frac{i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24} \quad \frac{1}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{8}$
	$\frac{i}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0 \quad \frac{1}{8} \quad 0$
	0	$-\frac{\sqrt{3}i}{20} \quad \frac{\sqrt{5}}{12} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{24} \quad -\frac{\sqrt{3}}{15} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{120}$
	$\frac{\sqrt{3}i}{20}$	$0 \quad 0 \quad -\frac{\sqrt{5}}{12} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{15} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{120} \quad 0$
	$\frac{\sqrt{3}}{30}$	$0 \quad 0 \quad -\frac{\sqrt{5}i}{60} \quad 0 \quad \frac{\sqrt{5}}{15} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{20} \quad 0 \quad -\frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{3}}{30} \quad \frac{\sqrt{5}i}{60} \quad 0 \quad \frac{\sqrt{5}}{15} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad -\frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{5}}{60} \quad 0 \quad \frac{\sqrt{5}i}{30} \quad -\frac{\sqrt{5}}{60} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{60} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{5}}{60} \quad 0 \quad -\frac{\sqrt{5}i}{30} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{60} \quad \frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{60}$
	0	$\frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{15} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0$
	$\frac{\sqrt{3}}{30}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{15} \quad \frac{\sqrt{5}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{10} \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0$
749	symmetry	$x$
$\mathbb{T}_1^{(1,1;a)}(A', 1)$	0	$-\frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad \frac{3\sqrt{35}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{28}$
	$-\frac{\sqrt{21}}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{35}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{56} \quad \frac{\sqrt{21}i}{28} \quad 0$
	0	$-\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{7}}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{280} \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad \frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad \frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0$
750	symmetry	$z$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_1^{(1,1;a)}(A', 2)$	0 0 0 $\frac{3\sqrt{35}i}{280}$ 0 $\frac{3\sqrt{35}}{280}$ 0 0 0 0 $\frac{\sqrt{21}i}{56}$ 0 $-\frac{\sqrt{21}}{56}$ 0 0	
	0 0 $-\frac{3\sqrt{35}i}{280}$ 0 $\frac{3\sqrt{35}}{280}$ 0 0 0 $-\frac{\sqrt{21}i}{56}$ 0 $-\frac{\sqrt{21}}{56}$ 0 0 0	
	$\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{105}i}{280}$ 0 $-\frac{\sqrt{105}}{280}$ 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0	
	0 $-\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{105}i}{280}$ 0 $-\frac{\sqrt{105}}{280}$ 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0	
	0 0 $\frac{\sqrt{105}}{140}$ 0 0 0 0 $\frac{\sqrt{105}}{70}$ $\frac{\sqrt{7}}{28}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{105}}{140}$ 0 0 $\frac{\sqrt{105}}{70}$ 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{105}}{140}$ 0 0 $\frac{\sqrt{105}i}{70}$ 0 0 $\frac{\sqrt{7}}{28}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{105}}{140}$ $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 0	
	0 0 0 $-\frac{\sqrt{105}}{70}$ 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0	
	0 0 $-\frac{\sqrt{105}}{70}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 0 $\frac{\sqrt{7}}{14}$	
751	symmetry	$y$
$\mathbb{T}_1^{(1,1;a)}(A'')$	0 $-\frac{\sqrt{21}i}{28}$ $-\frac{3\sqrt{35}}{280}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{56}$ 0 0 0 0 $\frac{\sqrt{21}}{28}$	
	$\frac{\sqrt{21}i}{28}$ 0 0 $\frac{3\sqrt{35}}{280}$ 0 0 0 0 0 $\frac{\sqrt{21}}{56}$ 0 0 0 $\frac{\sqrt{21}}{28}$ 0	
	0 $\frac{\sqrt{7}i}{28}$ $-\frac{\sqrt{105}}{280}$ 0 0 0 0 $\frac{\sqrt{105}}{140}$ $\frac{3\sqrt{7}}{56}$ 0 0 0 0 0	
	$-\frac{\sqrt{7}i}{28}$ 0 0 $\frac{\sqrt{105}}{280}$ 0 0 $\frac{\sqrt{105}}{140}$ 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 0	
	0 0 0 $\frac{\sqrt{105}i}{140}$ 0 $-\frac{\sqrt{105}}{70}$ 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0 0	
	0 0 $-\frac{\sqrt{105}i}{140}$ 0 $-\frac{\sqrt{105}}{70}$ 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0	
	0 0 0 $\frac{\sqrt{105}}{70}$ 0 0 $-\frac{\sqrt{105}}{70}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0	
	0 0 $\frac{\sqrt{105}}{70}$ 0 0 0 $\frac{\sqrt{105}}{70}$ 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0	
	0 0 0 0 $\frac{\sqrt{105}}{70}$ 0 0 $-\frac{\sqrt{105}i}{140}$ 0 0 0 0 $-\frac{\sqrt{7}i}{28}$	
	0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ $\frac{\sqrt{105}i}{140}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0	
752	symmetry	$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,1;a)}(A', 1)$	0	$\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{21}}{112} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{84}$
	$\frac{\sqrt{21}}{42}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{21}}{112} \quad -\frac{\sqrt{21}i}{84} \quad 0$
	0	$\frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{336} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{336} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{24}$
	$\frac{\sqrt{7}}{42}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{336} \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{336} \quad -\frac{\sqrt{7}i}{24} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{112} \quad -\frac{\sqrt{105}}{112} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{21} \quad 0 \quad -\frac{\sqrt{7}i}{48} \quad \frac{\sqrt{7}}{48} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{112} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{112} \quad \frac{\sqrt{7}}{21} \quad 0 \quad \frac{\sqrt{7}i}{48} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{48}$
	$-\frac{\sqrt{7}}{24}$	$0 \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad \frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{24} \quad 0 \quad \frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{7}}{24} \quad \frac{\sqrt{105}i}{84} \quad 0 \quad \frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{24} \quad 0 \quad \frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{7}i}{24} \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{84} \quad -\frac{\sqrt{7}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{84}$	
	$\frac{\sqrt{7}i}{24}$	$0 \quad 0 \quad \frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{24} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{84} \quad 0$
753	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{T}_3^{(1,1;a)}(A', 2)$	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{112} \quad 0 \quad \frac{\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{21}i}{336} \quad 0 \quad -\frac{5\sqrt{21}}{336} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{35}i}{112} \quad 0 \quad \frac{\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{21}i}{336} \quad 0 \quad -\frac{5\sqrt{21}}{336} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{7}}{21}$	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{336} \quad 0 \quad -\frac{\sqrt{105}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{7}i}{336} \quad 0 \quad \frac{13\sqrt{7}}{336} \quad 0 \quad 0$
	0	$\frac{\sqrt{7}}{21} \quad -\frac{\sqrt{105}i}{336} \quad 0 \quad -\frac{\sqrt{105}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{7}i}{336} \quad 0 \quad \frac{13\sqrt{7}}{336} \quad 0 \quad 0 \quad 0$
	0	$0 \quad \frac{\sqrt{7}i}{24} \quad \frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84} \quad \frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{24}$
	$-\frac{\sqrt{7}i}{24}$	$0 \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{24} \quad 0$
	0	$0 \quad \frac{\sqrt{7}}{24} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{24}$
	$\frac{\sqrt{7}}{24}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84} \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{84} \quad -\frac{\sqrt{7}i}{24} \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{112} \quad 0 \quad \frac{\sqrt{105}i}{112} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{48} \quad 0 \quad -\frac{\sqrt{7}i}{48} \quad \frac{\sqrt{7}}{21} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}}{112} \quad 0 \quad -\frac{\sqrt{105}i}{112} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{48} \quad 0 \quad \frac{\sqrt{7}i}{48} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{21}$
754	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,1;a)}(A', 3)$	0	$\frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad -\frac{3\sqrt{21}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{560} \quad 0 \quad 0 \quad \frac{3\sqrt{35}i}{140}$
	$\frac{\sqrt{35}}{70}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{21}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{560} \quad -\frac{3\sqrt{35}i}{140} \quad 0$
	0	$- \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}}{112} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{7}i}{56} \quad 0 \quad 0 \quad -\frac{5\sqrt{105}}{336} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{120}$
	$-\frac{\sqrt{105}}{70}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{7}}{112} \quad \frac{3\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{105}}{336} \quad \frac{\sqrt{105}i}{120} \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad \frac{5\sqrt{7}i}{112} \quad -\frac{5\sqrt{7}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{80} \quad \frac{\sqrt{105}}{80} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad -\frac{5\sqrt{7}i}{112} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{112} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{80}$
	$-\frac{\sqrt{105}}{120}$	$0 \quad 0 \quad \frac{\sqrt{7}i}{56} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{420} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{105}}{120} \quad -\frac{\sqrt{7}i}{56} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{420} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{105}i}{120} \quad -\frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{420}$
	$-\frac{\sqrt{105}i}{120}$	$0 \quad 0 \quad \frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{420} \quad 0 \quad 0$
755	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
$\mathbb{T}_3^{(1,1;a)}(A', 4)$	$-\frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad -\frac{3\sqrt{21}i}{112} \quad 0 \quad \frac{3\sqrt{21}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{35}i}{560} \quad 0 \quad \frac{13\sqrt{35}}{560} \quad 0 \quad 0$	
	0	$\frac{\sqrt{35}}{35} \quad 0 \quad \frac{3\sqrt{21}i}{112} \quad 0 \quad \frac{3\sqrt{21}}{112} \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{35}i}{560} \quad 0 \quad \frac{13\sqrt{35}}{560} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{7}i}{112} \quad 0 \quad -\frac{3\sqrt{7}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{11\sqrt{105}i}{1680} \quad 0 \quad \frac{11\sqrt{105}}{1680} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{3\sqrt{7}i}{112} \quad 0 \quad -\frac{3\sqrt{7}}{112} \quad 0 \quad 0 \quad 0 \quad \frac{11\sqrt{105}i}{1680} \quad 0 \quad \frac{11\sqrt{105}}{1680} \quad 0 \quad 0 \quad 0$
	0	$0 \quad \frac{\sqrt{105}i}{120} \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{56} \quad \frac{\sqrt{105}}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{105}i}{120}$	$0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{105}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{420} \quad 0 \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{105}}{120}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{28} \quad -\frac{\sqrt{7}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{420} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{112} \quad 0 \quad \frac{5\sqrt{7}i}{112} \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{5\sqrt{7}}{112} \quad 0 \quad -\frac{5\sqrt{7}i}{112} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad -\frac{\sqrt{105}}{80} \quad 0 \quad \frac{\sqrt{105}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
756	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,1;a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 & \frac{\sqrt{35}i}{70} & \frac{\sqrt{35}}{35} & 0 \\ 0 & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & -\frac{\sqrt{35}}{35} \\ 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & -\frac{\sqrt{7}}{14} & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{7}}{14} & \frac{\sqrt{105}}{70} & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{105}}{120} & 0 & 0 & -\frac{\sqrt{105}i}{120} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{56} & -\frac{\sqrt{7}i}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}}{120} & \frac{\sqrt{105}i}{120} & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{56} & \frac{\sqrt{105}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{120} \\ 0 & 0 & 0 & \frac{\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{105}}{120} & 0 & 0 & \frac{\sqrt{105}}{120} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{120} & 0 & \frac{\sqrt{105}}{120} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & 0 & \frac{\sqrt{105}i}{120} & 0 & \frac{\sqrt{105}}{120} & 0 & 0 & 0 \end{bmatrix}$	
		$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
		$\begin{bmatrix} 0 & \frac{\sqrt{21}i}{42} & -\frac{\sqrt{35}}{112} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} \\ -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{35}}{112} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{112} & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} \\ 0 & -\frac{\sqrt{7}i}{42} & -\frac{\sqrt{105}}{336} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & \frac{\sqrt{7}}{336} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{24} \\ \frac{\sqrt{7}i}{42} & 0 & 0 & \frac{\sqrt{105}}{336} & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{7}}{336} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{24} \\ \frac{\sqrt{7}}{24} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{24} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{24} & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & \frac{5\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{105}}{112} & 0 & 0 & \frac{\sqrt{105}}{112} & 0 & 0 & \frac{\sqrt{7}}{48} & 0 & -\frac{\sqrt{7}i}{21} & \frac{\sqrt{7}}{48} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{112} & \frac{\sqrt{7}}{48} & 0 & \frac{\sqrt{7}i}{21} & 0 & 0 & 0 & -\frac{\sqrt{7}}{48} \\ 0 & -\frac{\sqrt{7}}{24} & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{7}}{24} & 0 & 0 & 0 & -\frac{5\sqrt{7}i}{84} \\ -\frac{\sqrt{7}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{24} & \frac{5\sqrt{7}i}{84} & 0 & 0 \end{bmatrix}$
		$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
757	symmetry	
758	symmetry	

continued ...

Table 9

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{\sqrt{35}i}{70} & -\frac{3\sqrt{21}}{112} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{560} & 0 & 0 & 0 & 0 & \frac{3\sqrt{35}}{140} \\ \frac{\sqrt{35}i}{70} & 0 & 0 & \frac{3\sqrt{21}}{112} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{560} & 0 & 0 & \frac{3\sqrt{35}}{140} & 0 \\ 0 & -\frac{\sqrt{105}i}{70} & -\frac{3\sqrt{7}}{112} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} & -\frac{5\sqrt{105}}{336} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{120} \\ \frac{\sqrt{105}i}{70} & 0 & 0 & \frac{3\sqrt{7}}{112} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{5\sqrt{105}}{336} & 0 & 0 & \frac{\sqrt{105}}{120} & 0 \\ -\frac{\sqrt{105}}{120} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & 0 & \frac{\sqrt{105}i}{420} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}}{120} & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{420} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{7}}{112} & 0 & -\frac{\sqrt{7}i}{14} & -\frac{5\sqrt{7}}{112} & 0 & 0 & \frac{\sqrt{105}}{80} & 0 & 0 & -\frac{\sqrt{105}}{80} & 0 \\ 0 & 0 & -\frac{5\sqrt{7}}{112} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{5\sqrt{7}}{112} & \frac{\sqrt{105}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{80} \\ 0 & -\frac{\sqrt{105}}{120} & 0 & 0 & -\frac{\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{420} \\ -\frac{\sqrt{105}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{56} & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{420} \end{bmatrix}$
759	symmetry	$\sqrt{3}yz$
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
760	symmetry	$\sqrt{3}xy$

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 0	$-\frac{\sqrt{70}i}{28}$ 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 $-\frac{\sqrt{70}i}{28}$
	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 $-\frac{\sqrt{14}i}{28}$ 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 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 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	0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
761	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{M}_2^{(a)}(A'', 1)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	$-\frac{\sqrt{70}i}{28}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	0 $-\frac{\sqrt{70}i}{28}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
	0 0 $-\frac{\sqrt{42}i}{56}$ 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 0 0 $-\frac{\sqrt{42}i}{56}$ 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 0 0 $\frac{\sqrt{42}i}{56}$ 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 0 0 $\frac{\sqrt{42}i}{56}$ 0 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 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 0 0 0 $\frac{\sqrt{70}i}{28}$	0 0 0 0 0 0 0
762	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(a)}(A'', 2)$	$\sqrt{\frac{70i}{28}}$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	$\sqrt{\frac{70i}{28}}$ 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 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{56}$ 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 $\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 0 0
763	symmetry	$\sqrt{3}xz$
$\mathbb{M}_2^{(a)}(A'', 3)$	0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 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 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 0 0 0 0 0 0 0 0 0 0 0 0	
764	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(a)}(A', 1)$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 0 0 0 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 0 0 0 $-\frac{\sqrt{5}i}{20}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{20}$ 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 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 0 $-\frac{3\sqrt{5}i}{40}$ 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 0 $-\frac{3\sqrt{5}i}{40}$	
	0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 $\frac{3\sqrt{5}i}{40}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 0 $\frac{3\sqrt{5}i}{40}$ 0 0	
765	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{M}_4^{(a)}(A', 2)$	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 $\frac{\sqrt{5}i}{10}$ 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 $-\frac{\sqrt{3}i}{8}$ 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 $-\frac{3\sqrt{5}i}{40}$ 0 0	
	0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 $\frac{3\sqrt{5}i}{40}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 0 $\frac{3\sqrt{5}i}{40}$ 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	
766	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(a)}(A', 3)$	$0 \ 0 \ -\frac{3\sqrt{7}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}i}{70} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ -\frac{3\sqrt{7}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}i}{70} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ -\frac{\sqrt{21}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{3\sqrt{35}i}{70} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{3\sqrt{35}i}{70} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{56} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{40} \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{56} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{40}$	
	$0 \ 0 \ 0 \ 0 \ \frac{\sqrt{21}i}{56} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{21}i}{56} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
767 symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}i}{35} \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}i}{35}$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{21}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{21}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{56} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{21}i}{56} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{40} \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ \frac{\sqrt{21}i}{56} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ \frac{\sqrt{21}i}{56} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{35}i}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
$\mathbb{M}_4^{(a)}(A', 4)$	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
768 symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_4^{(a)}(A'', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$
769	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{420} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{420} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{420} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{420} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{210} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{210} & 0 \end{bmatrix}$
770	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(a)}(A'', 3)$	$-\frac{\sqrt{105}i}{35}$	0 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 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{140}$ 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{140}$ 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 $-\frac{\sqrt{35}i}{140}$ 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 $-\frac{\sqrt{35}i}{140}$ 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 0
771	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{M}_4^{(a)}(A'', 4)$	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 0 0 0 0 0 $\frac{\sqrt{15}i}{20}$ 0 0 0
	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 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{20}$ 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 0 $\frac{3\sqrt{5}i}{40}$ 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 0 $\frac{3\sqrt{5}i}{40}$
	$-\frac{\sqrt{5}i}{10}$	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 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 0 $-\frac{3\sqrt{5}i}{40}$ 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0 $-\frac{3\sqrt{5}i}{40}$ 0 0 0 0 0
772	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 0 0 0 $\frac{3\sqrt{7}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{70}$ 0 0 0	
	0 0 0 0 0 $\frac{3\sqrt{7}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{70}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 $\frac{3\sqrt{35}i}{70}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 $\frac{3\sqrt{35}i}{70}$ 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{21}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{35}i}{40}$ 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{35}i}{40}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{21}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{40}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{21}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{40}$ 0 0 0 0 0	
773	symmetry	$\sqrt{3}yz$
$\mathbb{M}_2^{(1,-1;a)}(A', 1)$	0 0 0 0 $-\frac{3\sqrt{70}}{280}$ 0 0 $-\frac{3\sqrt{70}i}{140}$ 0 0 $\frac{\sqrt{42}}{56}$ 0 0 0	
	0 0 0 0 0 $\frac{3\sqrt{70}}{280}$ $\frac{3\sqrt{70}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{42}}{56}$ 0 0 0	
	0 0 0 0 $-\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 $-\frac{\sqrt{14}i}{28}$	
	0 0 0 0 0 $\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ $\frac{\sqrt{14}i}{28}$ 0	
	0 0 0 0 0 $\frac{\sqrt{210}i}{140}$ $-\frac{\sqrt{210}}{140}$ 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ $-\frac{\sqrt{14}}{28}$ 0	
	0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 $\frac{\sqrt{210}}{140}$ 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 $\frac{\sqrt{14}}{28}$	
	$\frac{\sqrt{14}}{28}$ 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0	
	0 $-\frac{\sqrt{14}}{28}$ $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0 0	
	0 $-\frac{\sqrt{14}i}{28}$ $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 0 0 0	
	$\frac{\sqrt{14}i}{28}$ 0 0 $\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 0 0 0	
774	symmetry	$\sqrt{3}xy$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,-1;a)}(A', 2)$	0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 $-\frac{3\sqrt{70}}{280}$ 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{56}$ 0 0	
	0 0 $-\frac{3\sqrt{70}i}{280}$ 0 $-\frac{3\sqrt{70}}{280}$ 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{56}$ 0 0 0	
	0 0 0 $-\frac{3\sqrt{210}i}{280}$ 0 $-\frac{3\sqrt{210}}{280}$ 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 $-\frac{\sqrt{14}}{56}$ 0 0 0	
	0 0 $\frac{3\sqrt{210}i}{280}$ 0 $-\frac{3\sqrt{210}}{280}$ 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 $-\frac{\sqrt{14}}{56}$ 0 0 0	
	0 $-\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$	
	$\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0	
	$\frac{\sqrt{14}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0	
	0 0 0 $-\frac{\sqrt{210}}{140}$ 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 $\frac{\sqrt{14}}{28}$ 0 $\frac{\sqrt{14}i}{28}$ 0 0	
	0 0 $-\frac{\sqrt{210}}{140}$ 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 $\frac{\sqrt{14}}{28}$ 0 $-\frac{\sqrt{14}i}{28}$ 0 0 0	
775	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{M}_2^{(1,-1;a)}(A'', 1)$	0 0 0 $\frac{\sqrt{210}}{280}$ 0 $-\frac{\sqrt{210}i}{280}$ $\frac{\sqrt{210}}{70}$ 0 0 $\frac{\sqrt{14}}{56}$ 0 $\frac{\sqrt{14}i}{56}$ 0 0	
	0 0 $\frac{\sqrt{210}}{280}$ 0 $\frac{\sqrt{210}i}{280}$ 0 0 $-\frac{\sqrt{210}}{70}$ $\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0	
	0 0 0 $-\frac{3\sqrt{70}}{280}$ 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 $\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ $\frac{\sqrt{42}}{42}$ 0	
	0 0 $-\frac{3\sqrt{70}}{280}$ 0 $\frac{3\sqrt{70}i}{280}$ 0 0 0 $\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ 0 0 $-\frac{\sqrt{42}}{42}$	
	0 $-\frac{\sqrt{42}}{84}$ 0 0 $-\frac{\sqrt{70}}{70}$ 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 $\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}i}{84}$	
	$-\frac{\sqrt{42}}{84}$ 0 0 0 $\frac{\sqrt{70}}{70}$ $\frac{\sqrt{70}i}{140}$ 0 0 0 0 $-\frac{\sqrt{42}}{42}$ $\frac{\sqrt{42}i}{84}$ 0	
	0 $\frac{\sqrt{42}i}{84}$ $-\frac{\sqrt{70}}{70}$ 0 0 0 0 $\frac{\sqrt{70}}{140}$ $-\frac{\sqrt{42}}{42}$ 0 0 0 0 $-\frac{\sqrt{42}}{84}$	
	$-\frac{\sqrt{42}i}{84}$ 0 0 $\frac{\sqrt{70}}{70}$ 0 0 $\frac{\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}}{84}$ 0	
	$\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{70}i}{140}$ 0 $\frac{\sqrt{70}}{140}$ 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{84}$ 0 0	
776	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,-1;a)}(A'', 2)$	0 0 0 $-\frac{3\sqrt{70}}{280}$ 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 0 $-\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0	
	0 0 $-\frac{3\sqrt{70}}{280}$ 0 $\frac{3\sqrt{70}i}{280}$ 0 0 0 0 $-\frac{\sqrt{42}}{56}$ 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{210}}{280}$ 0 $-\frac{3\sqrt{210}i}{280}$ 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0	
	0 0 $\frac{3\sqrt{210}}{280}$ 0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 $\frac{\sqrt{14}i}{56}$ 0 0 0	
	0 $\frac{\sqrt{14}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{28}$	
	$\frac{\sqrt{14}}{28}$ 0 0 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{28}$ 0	
	0 $\frac{\sqrt{14}i}{28}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$	
	$-\frac{\sqrt{14}i}{28}$ 0 0 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0	
	0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 $\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0	
	0 0 $\frac{\sqrt{210}i}{140}$ 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 $-\frac{\sqrt{14}i}{28}$ 0 $-\frac{\sqrt{14}}{28}$ 0 0 0	
777	symmetry	$\sqrt{3}xz$
$\mathbb{M}_2^{(1,-1;a)}(A'', 3)$	0 0 $-\frac{3\sqrt{70}}{280}$ 0 0 0 0 $\frac{3\sqrt{70}}{140}$ $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0	
	0 0 0 $\frac{3\sqrt{70}}{280}$ 0 0 0 $\frac{3\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{42}}{56}$ 0 0 0 0	
	0 0 $\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$	
	0 0 0 $-\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 0 0 $\frac{\sqrt{14}}{28}$ 0	
	$\frac{\sqrt{14}}{28}$ 0 0 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 0 0	
	0 $-\frac{\sqrt{14}}{28}$ 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 $-\frac{\sqrt{14}}{28}$ 0 0 0 $\frac{\sqrt{14}}{28}$ 0	
	0 0 $-\frac{\sqrt{210}}{140}$ 0 0 0 0 $\frac{\sqrt{210}}{140}$ $-\frac{\sqrt{14}}{28}$ 0 0 0 0 $-\frac{\sqrt{14}}{28}$	
	$\frac{\sqrt{14}}{28}$ 0 0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 0 0 0 $\frac{\sqrt{14}}{28}$ 0 0 0	
778	symmetry	$\sqrt{35}yz(y-z)(y+z)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,-1;a)}(A', 1)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{48} & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{\sqrt{5}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{48} & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3}{16} & 0 & 0 & -\frac{i}{8} & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & 0 & -\frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & \frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{48} & \frac{\sqrt{15}i}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{16} & -\frac{1}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{48} & \frac{\sqrt{15}}{48} & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{16} & 0 & 0 & \frac{1}{16} & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & -\frac{\sqrt{15}}{48} \\ -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 \end{bmatrix}$
779	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{M}_4^{(1,-1;a)}(A', 2)$		$\begin{bmatrix} 0 & 0 & 0 & \frac{5\sqrt{3}i}{48} & 0 & \frac{5\sqrt{3}}{48} & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & \frac{\sqrt{5}}{16} & 0 & 0 \\ 0 & 0 & -\frac{5\sqrt{3}i}{48} & 0 & \frac{5\sqrt{3}}{48} & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & \frac{\sqrt{5}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{16} & 0 & \frac{1}{16} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{48} & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 \\ 0 & 0 & \frac{i}{16} & 0 & \frac{1}{16} & 0 & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} \\ -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 \\ 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} \\ \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{16} & 0 & \frac{i}{16} & 0 & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & -\frac{\sqrt{15}i}{48} & 0 & 0 \\ 0 & 0 & \frac{1}{16} & 0 & -\frac{i}{16} & 0 & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & 0 \end{bmatrix}$
780	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,-1;a)}(A', 3)$	0 0 0 0 $\frac{11\sqrt{21}}{336}$ 0 0 $\frac{\sqrt{21}i}{84}$ 0 0 $\frac{\sqrt{35}}{112}$ 0 0 0	
	0 0 0 0 0 $-\frac{11\sqrt{21}}{336}$ $-\frac{\sqrt{21}i}{84}$ 0 0 0 0 $-\frac{\sqrt{35}}{112}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{7}}{112}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{105}}{336}$ 0 0 $-\frac{\sqrt{105}i}{168}$	
	0 0 0 0 0 $\frac{\sqrt{7}}{112}$ $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{105}}{336}$ $\frac{\sqrt{105}i}{168}$ 0	
	0 0 0 $-\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{112}$ $-\frac{\sqrt{7}}{112}$ 0 0 0 0 $\frac{5\sqrt{105}i}{336}$ $\frac{5\sqrt{105}}{336}$ 0	
	0 0 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{\sqrt{7}i}{112}$ 0 0 $\frac{\sqrt{7}}{112}$ 0 0 $-\frac{5\sqrt{105}i}{336}$ 0 0 $-\frac{5\sqrt{105}}{336}$	
	$\frac{\sqrt{105}}{168}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{14}$ 0 0 0 $\frac{\sqrt{105}i}{84}$ 0 0 0	
	0 $-\frac{\sqrt{105}}{168}$ $\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{14}$ 0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 0 0	
	0 $-\frac{\sqrt{105}i}{168}$ $\frac{\sqrt{7}}{56}$ 0 0 0 0 $-\frac{\sqrt{7}}{14}$ $\frac{\sqrt{105}}{84}$ 0 0 0 0	
	$\frac{\sqrt{105}i}{168}$ 0 0 $-\frac{\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{105}}{84}$ 0 0 0	
781	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{M}_4^{(1,-1;a)}(A', 4)$	0 0 0 $\frac{\sqrt{21}i}{48}$ 0 $-\frac{\sqrt{21}}{48}$ 0 0 0 $\frac{\sqrt{35}i}{112}$ 0 $\frac{\sqrt{35}}{112}$ 0 0	
	0 0 $-\frac{\sqrt{21}i}{48}$ 0 $-\frac{\sqrt{21}}{48}$ 0 0 0 $-\frac{\sqrt{35}i}{112}$ 0 $\frac{\sqrt{35}}{112}$ 0 0 0	
	0 0 0 $\frac{5\sqrt{7}i}{112}$ 0 $\frac{5\sqrt{7}}{112}$ 0 0 0 $\frac{\sqrt{105}i}{336}$ 0 $-\frac{\sqrt{105}}{336}$ 0 0	
	0 0 $-\frac{5\sqrt{7}i}{112}$ 0 $\frac{5\sqrt{7}}{112}$ 0 0 0 $-\frac{\sqrt{105}i}{336}$ 0 $-\frac{\sqrt{105}}{336}$ 0 0 0	
	0 $-\frac{\sqrt{105}i}{168}$ $-\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{84}$	
	$\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{84}$ 0	
	0 $\frac{\sqrt{105}}{168}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{84}$	
	$\frac{\sqrt{105}}{168}$ 0 0 0 0 $\frac{\sqrt{7}}{14}$ $\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{84}$ 0	
	0 0 0 $-\frac{\sqrt{7}}{112}$ 0 $\frac{\sqrt{7}i}{112}$ $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{5\sqrt{105}}{336}$ 0 $-\frac{5\sqrt{105}i}{336}$ 0 0	
	0 0 $-\frac{\sqrt{7}}{112}$ 0 $-\frac{\sqrt{7}i}{112}$ 0 0 0 $\frac{\sqrt{7}}{14}$ $-\frac{5\sqrt{105}}{336}$ 0 $\frac{5\sqrt{105}i}{336}$ 0 0	
782	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,-1;a)}(A'', 1)$	0 0 0 $-\frac{\sqrt{5}}{30}$ 0 $\frac{\sqrt{5}i}{30}$ $\frac{\sqrt{5}}{15}$ 0 0 $\frac{\sqrt{3}}{12}$ 0 $\frac{\sqrt{3}i}{12}$ 0 0	
	0 0 $-\frac{\sqrt{5}}{30}$ 0 $-\frac{\sqrt{5}i}{30}$ 0 0 $-\frac{\sqrt{5}}{15}$ $\frac{\sqrt{3}}{12}$ 0 $-\frac{\sqrt{3}i}{12}$ 0 0 0	
	0 0 0 $\frac{\sqrt{15}}{30}$ 0 $\frac{\sqrt{15}i}{30}$ 0 0 0 0 $\frac{1}{12}$ 0 $-\frac{i}{12}$ $-\frac{1}{6}$ 0	
	0 0 $\frac{\sqrt{15}}{30}$ 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 $\frac{1}{12}$ 0 $\frac{i}{12}$ 0 0 $\frac{1}{6}$	
	0 $-\frac{1}{6}$ 0 0 $-\frac{\sqrt{15}}{120}$ 0 0 $\frac{\sqrt{15}i}{120}$ 0 0 $\frac{1}{24}$ 0 0 $\frac{i}{24}$	
	$-\frac{1}{6}$ 0 0 0 0 $\frac{\sqrt{15}}{120}$ $-\frac{\sqrt{15}i}{120}$ 0 0 0 0 $-\frac{1}{24}$ $-\frac{i}{24}$ 0	
	0 $\frac{i}{6}$ $-\frac{\sqrt{15}}{120}$ 0 0 0 0 $-\frac{\sqrt{15}}{120}$ $-\frac{1}{24}$ 0 0 0 0 $\frac{1}{24}$	
	$-\frac{i}{6}$ 0 0 $\frac{\sqrt{15}}{120}$ 0 0 $-\frac{\sqrt{15}}{120}$ 0 0 $\frac{1}{24}$ 0 0 0 $\frac{1}{24}$ 0	
	$-\frac{1}{6}$ 0 0 $\frac{\sqrt{15}i}{120}$ 0 $-\frac{\sqrt{15}}{120}$ 0 0 0 $-\frac{i}{24}$ 0 $-\frac{1}{24}$ 0 0	
	0 $\frac{1}{6}$ $-\frac{\sqrt{15}i}{120}$ 0 $-\frac{\sqrt{15}}{120}$ 0 0 0 $\frac{i}{24}$ 0 $-\frac{1}{24}$ 0 0 0	
783	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 0 0 $\frac{11\sqrt{7}}{168}$ 0 $-\frac{11\sqrt{7}i}{168}$ $\frac{\sqrt{7}}{21}$ 0 0 $-\frac{\sqrt{105}}{168}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0	
	0 0 $\frac{11\sqrt{7}}{168}$ 0 $\frac{11\sqrt{7}i}{168}$ 0 0 $-\frac{\sqrt{7}}{21}$ $-\frac{\sqrt{105}}{168}$ 0 $\frac{\sqrt{105}i}{168}$ 0 0 0	
	0 0 0 $\frac{\sqrt{21}}{168}$ 0 $\frac{\sqrt{21}i}{168}$ 0 0 0 $-\frac{\sqrt{35}}{168}$ 0 $\frac{\sqrt{35}i}{168}$ $-\frac{\sqrt{35}}{42}$ 0	
	0 0 $\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0 0 $-\frac{\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{168}$ 0 0 $\frac{\sqrt{35}}{42}$	
	0 $\frac{\sqrt{35}}{84}$ 0 0 $-\frac{\sqrt{21}}{168}$ 0 0 $\frac{\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{35}}{168}$ 0 0 $-\frac{5\sqrt{35}i}{168}$	
	$\frac{\sqrt{35}}{84}$ 0 0 0 0 $\frac{\sqrt{21}}{168}$ $-\frac{\sqrt{21}i}{168}$ 0 0 0 0 $-\frac{\sqrt{35}}{168}$ $\frac{5\sqrt{35}i}{168}$ 0	
	0 $-\frac{\sqrt{35}i}{84}$ $-\frac{\sqrt{21}}{168}$ 0 0 0 0 $-\frac{\sqrt{21}}{168}$ $-\frac{\sqrt{35}}{168}$ 0 0 0 0 $-\frac{5\sqrt{35}}{168}$	
	$\frac{\sqrt{35}i}{84}$ 0 0 $\frac{\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}}{168}$ 0 0 $\frac{\sqrt{35}}{168}$ 0 0 $-\frac{5\sqrt{35}}{168}$ 0	
	$-\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{21}i}{84}$ 0 $\frac{\sqrt{21}}{84}$ 0 0 0 $-\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{42}$ 0 0	
	0 $\frac{\sqrt{35}}{42}$ $\frac{\sqrt{21}i}{84}$ 0 $\frac{\sqrt{21}}{84}$ 0 0 0 $\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{42}$ 0 0 0	
784	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 0 0 $\frac{\sqrt{21}}{168}$ 0 $\frac{\sqrt{21}i}{168}$ 0 0 0 $\frac{\sqrt{35}}{56}$ 0 $-\frac{\sqrt{35}i}{56}$ 0 0	
	0 0 $\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0 0 $\frac{\sqrt{35}}{56}$ 0 $\frac{\sqrt{35}i}{56}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{7}}{56}$ 0 $-\frac{3\sqrt{7}i}{56}$ $\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{105}}{168}$ 0 $\frac{\sqrt{105}i}{168}$ 0 0 0	
	0 0 $\frac{3\sqrt{7}}{56}$ 0 $\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{7}}{14}$ $\frac{\sqrt{105}}{168}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0	
	0 $-\frac{\sqrt{105}}{84}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 $\frac{\sqrt{105}}{56}$ 0 0 $\frac{\sqrt{105}i}{168}$	
	$-\frac{\sqrt{105}}{84}$ 0 0 0 $-\frac{\sqrt{7}}{56}$ $\frac{\sqrt{7}i}{56}$ 0 0 0 0 $-\frac{\sqrt{105}}{56}$ $-\frac{\sqrt{105}i}{168}$ 0	
	0 $-\frac{\sqrt{105}i}{84}$ $-\frac{\sqrt{7}}{56}$ 0 0 0 0 $-\frac{\sqrt{7}}{56}$ $\frac{\sqrt{105}}{56}$ 0 0 0 0 $-\frac{\sqrt{105}}{168}$	
	$\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 $-\frac{\sqrt{105}}{168}$ 0	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{84}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0	
785	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{M}_4^{(1,-1;a)}(A'', 4)$	0 0 $-\frac{\sqrt{3}}{48}$ 0 0 0 0 $\frac{\sqrt{3}}{12}$ $-\frac{\sqrt{5}}{16}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{3}}{48}$ 0 0 $\frac{\sqrt{3}}{12}$ 0 0 $\frac{\sqrt{5}}{16}$ 0 0 0 0 0	
	0 0 $-\frac{3}{16}$ 0 0 0 0 $\frac{1}{8}$ $-\frac{\sqrt{15}}{48}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$	
	0 0 0 $\frac{3}{16}$ 0 0 $\frac{1}{8}$ 0 0 $\frac{\sqrt{15}}{48}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0	
	$\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0	
	0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0	
	0 0 0 $-\frac{1}{16}$ 0 0 $\frac{1}{16}$ 0 0 $\frac{\sqrt{15}}{48}$ 0 0 $\frac{\sqrt{15}}{48}$ 0	
	0 0 $-\frac{1}{16}$ 0 0 0 0 $-\frac{1}{16}$ $\frac{\sqrt{15}}{48}$ 0 0 0 0 $-\frac{\sqrt{15}}{48}$	
	0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0	
	$-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0	
786	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,-1;a)}(A'', 5)$	0 0 $\frac{11\sqrt{21}}{336}$ 0 0 0 0 $-\frac{\sqrt{21}}{84}$ $-\frac{\sqrt{35}}{112}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{11\sqrt{21}}{336}$ 0 0 $-\frac{\sqrt{21}}{84}$ 0 0 $\frac{\sqrt{35}}{112}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{7}}{112}$ 0 0 0 0 $\frac{3\sqrt{7}}{56}$ $-\frac{\sqrt{105}}{336}$ 0 0 0 0 0 $\frac{\sqrt{105}}{168}$	
	0 0 0 $-\frac{\sqrt{7}}{112}$ 0 0 $\frac{3\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{105}}{336}$ 0 0 0 $\frac{\sqrt{105}}{168}$ 0	
	$\frac{\sqrt{105}}{168}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 0 0	
	0 $-\frac{\sqrt{105}}{168}$ $-\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{7}}{112}$ 0 $\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{7}}{112}$ 0 0 $\frac{5\sqrt{105}}{336}$ 0 0 0 $-\frac{5\sqrt{105}}{336}$ 0	
	0 0 $-\frac{\sqrt{7}}{112}$ 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{7}}{112}$ $\frac{5\sqrt{105}}{336}$ 0 0 0 0 $\frac{5\sqrt{105}}{336}$	
	0 $\frac{\sqrt{105}}{168}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{105}}{84}$ 0 0 0	
	$\frac{\sqrt{105}}{168}$ 0 0 0 0 $-\frac{\sqrt{7}}{56}$ $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 0	
787	symmetry	$\frac{3\sqrt{7}yz(z-y)(y+z)(10x^2-y^2-z^2)}{4}$
$\mathbb{M}_6^{(1,-1;a)}(A', 1)$	0 $-\frac{\sqrt{33}}{44}$ 0 0 0 0 0 $-\frac{\sqrt{55}i}{88}$ 0 0 $\frac{\sqrt{33}}{44}$ 0 0 $\frac{\sqrt{33}i}{88}$	
	$-\frac{\sqrt{33}}{44}$ 0 0 0 0 0 $\frac{\sqrt{55}i}{88}$ 0 0 0 0 0 $-\frac{\sqrt{33}}{44}$ $-\frac{\sqrt{33}i}{88}$ 0	
	0 $-\frac{\sqrt{11}}{44}$ 0 0 $\frac{\sqrt{165}}{132}$ 0 0 $\frac{\sqrt{165}i}{264}$ 0 0 0 0 0 0 $\frac{3\sqrt{11}i}{88}$	
	$-\frac{\sqrt{11}}{44}$ 0 0 0 0 $-\frac{\sqrt{165}}{132}$ $-\frac{\sqrt{165}i}{264}$ 0 0 0 0 0 $-\frac{3\sqrt{11}i}{88}$ 0	
	0 0 0 0 0 $\frac{\sqrt{165}i}{132}$ $\frac{\sqrt{165}}{132}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 $\frac{\sqrt{11}i}{44}$ $-\frac{\sqrt{11}}{44}$ 0	
	0 0 0 0 $-\frac{\sqrt{165}i}{132}$ 0 0 $-\frac{\sqrt{165}}{132}$ $\frac{\sqrt{11}}{22}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0 $\frac{\sqrt{11}}{44}$	
	$-\frac{\sqrt{11}}{22}$ 0 0 0 0 $\frac{\sqrt{165}}{132}$ 0 0 0 $-\frac{\sqrt{11}i}{22}$ 0 $-\frac{\sqrt{11}}{44}$ 0 0	
	0 $\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{165}}{132}$ 0 0 0 $\frac{\sqrt{11}i}{22}$ 0 $-\frac{\sqrt{11}}{44}$ 0 0 0	
	0 $-\frac{\sqrt{11}i}{22}$ 0 0 0 0 0 $-\frac{\sqrt{165}}{132}$ $\frac{\sqrt{11}}{22}$ 0 0 0 0 $-\frac{\sqrt{11}}{44}$	
	$\frac{\sqrt{11}i}{22}$ 0 0 0 0 0 $-\frac{\sqrt{165}}{132}$ 0 0 $-\frac{\sqrt{11}}{22}$ 0 0 0 $-\frac{\sqrt{11}}{44}$	
788	symmetry	$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_6^{(1,-1;a)}(A', 2)$	0 0 0 $-\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{88}$ 0 0 0 $\frac{\sqrt{33}i}{88}$ 0 $-\frac{\sqrt{33}}{88}$ 0 0	
	0 0 $\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{88}$ 0 0 0 $-\frac{\sqrt{33}i}{88}$ 0 $-\frac{\sqrt{33}}{88}$ 0 0 0	
	$\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{165}i}{264}$ 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 $\frac{3\sqrt{11}i}{88}$ 0 $\frac{3\sqrt{11}}{88}$ 0 0	
	0 $-\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{165}i}{264}$ 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 $-\frac{3\sqrt{11}i}{88}$ 0 $\frac{3\sqrt{11}}{88}$ 0 0 0	
	0 $\frac{\sqrt{11}i}{22}$ $\frac{\sqrt{165}}{132}$ 0 0 0 0 0 $-\frac{\sqrt{11}}{44}$ 0 0 0 0 $\frac{\sqrt{11}}{22}$	
	$-\frac{\sqrt{11}i}{22}$ 0 0 $-\frac{\sqrt{165}}{132}$ 0 0 0 0 0 $\frac{\sqrt{11}}{44}$ 0 0 0 $\frac{\sqrt{11}}{22}$ 0	
	0 $\frac{\sqrt{11}}{22}$ 0 0 $-\frac{\sqrt{165}}{132}$ 0 0 0 0 0 $-\frac{\sqrt{11}}{44}$ 0 0 0 $-\frac{\sqrt{11}i}{22}$	
	$\frac{\sqrt{11}}{22}$ 0 0 0 0 $\frac{\sqrt{165}}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{11}}{44}$ $\frac{\sqrt{11}i}{22}$ 0	
	0 0 0 $-\frac{\sqrt{165}}{132}$ 0 $-\frac{\sqrt{165}i}{132}$ 0 0 0 $-\frac{\sqrt{11}}{44}$ 0 $\frac{\sqrt{11}i}{44}$ $\frac{\sqrt{11}}{22}$ 0	
	0 0 $-\frac{\sqrt{165}}{132}$ 0 $\frac{\sqrt{165}i}{132}$ 0 0 0 $-\frac{\sqrt{11}}{44}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{11}}{22}$	
789	symmetry	$\frac{\sqrt{462}yz(y^2-3z^2)(3y^2-z^2)}{16}$
$\mathbb{M}_6^{(1,-1;a)}(A', 3)$	0 0 0 0 $-\frac{\sqrt{30}}{32}$ 0 0 $-\frac{\sqrt{30}i}{32}$ 0 0 $\frac{3\sqrt{2}}{32}$ 0 0 $-\frac{3\sqrt{2}i}{32}$	
	0 0 0 0 0 $\frac{\sqrt{30}}{32}$ $\frac{\sqrt{30}i}{32}$ 0 0 0 0 $-\frac{3\sqrt{2}}{32}$ $\frac{3\sqrt{2}i}{32}$ 0	
	0 0 0 0 $-\frac{\sqrt{10}}{32}$ 0 0 $-\frac{\sqrt{10}i}{32}$ 0 0 $\frac{\sqrt{6}}{32}$ 0 0 $-\frac{\sqrt{6}i}{32}$	
	0 0 0 0 0 $\frac{\sqrt{10}}{32}$ $\frac{\sqrt{10}i}{32}$ 0 0 0 0 $-\frac{\sqrt{6}}{32}$ $\frac{\sqrt{6}i}{32}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{10}i}{16}$ $\frac{\sqrt{10}}{16}$ 0 0 0 0 $\frac{\sqrt{6}i}{16}$ $\frac{\sqrt{6}}{16}$ 0	
	0 0 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 $-\frac{\sqrt{10}}{16}$ 0 0 $-\frac{\sqrt{6}i}{16}$ 0 0 $-\frac{\sqrt{6}}{16}$	
	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	
790	symmetry	$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_6^{(1,-1;a)}(A', 4)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & -\frac{\sqrt{10}i}{16} & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & 0 \end{bmatrix}$
791	symmetry	$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$ $\begin{bmatrix} 0 & -\frac{\sqrt{110}}{110} & 0 & 0 & \frac{\sqrt{66}}{352} & 0 & 0 & -\frac{5\sqrt{66}i}{1056} & 0 & 0 & \frac{13\sqrt{110}}{1760} & 0 & 0 & \frac{\sqrt{110}i}{160} \\ -\frac{\sqrt{110}}{110} & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}}{352} & \frac{5\sqrt{66}i}{1056} & 0 & 0 & 0 & 0 & -\frac{13\sqrt{110}}{1760} & -\frac{\sqrt{110}i}{160} & 0 \\ 0 & \frac{\sqrt{330}}{110} & 0 & 0 & -\frac{13\sqrt{22}}{1056} & 0 & 0 & \frac{\sqrt{22}i}{96} & 0 & 0 & -\frac{7\sqrt{330}}{1056} & 0 & 0 & -\frac{37\sqrt{330}i}{5280} \\ \frac{\sqrt{330}}{110} & 0 & 0 & 0 & 0 & \frac{13\sqrt{22}}{1056} & -\frac{\sqrt{22}i}{96} & 0 & 0 & 0 & 0 & \frac{7\sqrt{330}}{1056} & \frac{37\sqrt{330}i}{5280} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{22}}{33} & 0 & -\frac{5\sqrt{22}i}{528} & \frac{5\sqrt{22}}{528} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{240} & -\frac{\sqrt{330}}{240} & 0 \\ 0 & 0 & \frac{\sqrt{22}}{33} & 0 & \frac{5\sqrt{22}i}{528} & 0 & 0 & -\frac{5\sqrt{22}}{528} & 0 & 0 & \frac{\sqrt{330}i}{240} & 0 & 0 & \frac{\sqrt{330}}{240} \\ -\frac{\sqrt{330}}{165} & 0 & 0 & -\frac{\sqrt{22}i}{33} & 0 & -\frac{\sqrt{22}}{66} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{110} & 0 & 0 \\ 0 & \frac{\sqrt{330}}{165} & \frac{\sqrt{22}i}{33} & 0 & -\frac{\sqrt{22}}{66} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{110} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{330}i}{165} & \frac{\sqrt{22}}{33} & 0 & 0 & 0 & 0 & -\frac{\sqrt{22}}{66} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}}{110} \\ -\frac{\sqrt{330}i}{165} & 0 & 0 & -\frac{\sqrt{22}}{33} & 0 & 0 & 0 & -\frac{\sqrt{22}}{66} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}}{110} \end{bmatrix}$
792	symmetry	$\frac{\sqrt{210}xy(x^4 + 2x^2y^2 - 16x^2z^2 + y^4 - 16y^2z^2 + 16z^4)}{16}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_6^{(1,-1;a)}(A', 6)$	$\frac{\sqrt{110}}{55} 0 0 \frac{\sqrt{66}i}{132} 0 -\frac{\sqrt{66}}{132} 0 0 0 \frac{3\sqrt{110}i}{220} 0 \frac{3\sqrt{110}}{220} 0 0$	
	$0 -\frac{\sqrt{110}}{55} -\frac{\sqrt{66}i}{132} 0 -\frac{\sqrt{66}}{132} 0 0 0 -\frac{3\sqrt{110}i}{220} 0 \frac{3\sqrt{110}}{220} 0 0 0$	
	$0 0 0 -\frac{\sqrt{22}i}{528} 0 -\frac{\sqrt{22}}{528} 0 0 0 0 \frac{\sqrt{330}i}{2640} 0 -\frac{\sqrt{330}}{2640} 0 0 0$	
	$0 0 \frac{\sqrt{22}i}{528} 0 -\frac{\sqrt{22}}{528} 0 0 0 -\frac{\sqrt{330}i}{2640} 0 -\frac{\sqrt{330}}{2640} 0 0 0 0$	
	$0 \frac{\sqrt{330}i}{165} -\frac{\sqrt{22}}{66} 0 0 0 0 \frac{\sqrt{22}}{33} -\frac{\sqrt{330}}{110} 0 0 0 0 0 0$	
	$-\frac{\sqrt{330}i}{165} 0 0 \frac{\sqrt{22}}{66} 0 0 \frac{\sqrt{22}}{33} 0 0 \frac{\sqrt{330}}{110} 0 0 0 0 0$	
	$0 -\frac{\sqrt{330}}{165} 0 0 -\frac{\sqrt{22}}{66} 0 0 -\frac{\sqrt{22}i}{33} 0 0 0 \frac{\sqrt{330}}{110} 0 0 0 0$	
	$-\frac{\sqrt{330}}{165} 0 0 0 0 \frac{\sqrt{22}}{66} \frac{\sqrt{22}i}{33} 0 0 0 0 0 -\frac{\sqrt{330}}{110} 0 0 0$	
	$0 0 0 \frac{5\sqrt{22}}{528} 0 -\frac{5\sqrt{22}i}{528} \frac{\sqrt{22}}{33} 0 0 \frac{\sqrt{330}}{240} 0 \frac{\sqrt{330}i}{240} 0 0 0$	
	$0 0 \frac{5\sqrt{22}}{528} 0 \frac{5\sqrt{22}i}{528} 0 0 -\frac{\sqrt{22}}{33} \frac{\sqrt{330}}{240} 0 -\frac{\sqrt{330}i}{240} 0 0 0 0$	
793	symmetry	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$
$\mathbb{M}_6^{(1,-1;a)}(A'', 1)$	$0 0 0 -\frac{\sqrt{770}}{616} 0 \frac{\sqrt{770}i}{616} \frac{\sqrt{770}}{308} 0 0 \frac{3\sqrt{462}}{616} 0 \frac{3\sqrt{462}i}{616} 0 0 0$	
	$0 0 -\frac{\sqrt{770}}{616} 0 -\frac{\sqrt{770}i}{616} 0 0 -\frac{\sqrt{770}}{308} \frac{3\sqrt{462}}{616} 0 -\frac{3\sqrt{462}i}{616} 0 0 0 0$	
	$0 0 0 \frac{\sqrt{2310}}{616} 0 \frac{\sqrt{2310}i}{616} 0 0 0 0 \frac{3\sqrt{154}}{616} 0 -\frac{3\sqrt{154}i}{616} -\frac{3\sqrt{154}}{308} 0$	
	$0 0 \frac{\sqrt{2310}}{616} 0 -\frac{\sqrt{2310}i}{616} 0 0 0 0 \frac{3\sqrt{154}}{616} 0 \frac{3\sqrt{154}i}{616} 0 0 \frac{3\sqrt{154}}{308}$	
	$0 \frac{\sqrt{154}}{77} 0 0 -\frac{\sqrt{2310}}{924} 0 0 \frac{\sqrt{2310}i}{924} 0 0 -\frac{3\sqrt{154}}{308} 0 0 -\frac{3\sqrt{154}i}{308}$	
	$\frac{\sqrt{154}}{77} 0 0 0 \frac{\sqrt{2310}}{924} -\frac{\sqrt{2310}i}{924} 0 0 0 0 0 \frac{3\sqrt{154}}{308} \frac{3\sqrt{154}i}{308} 0$	
	$0 -\frac{\sqrt{154}i}{77} -\frac{\sqrt{2310}}{924} 0 0 0 0 -\frac{\sqrt{2310}}{924} \frac{3\sqrt{154}}{308} 0 0 0 0 -\frac{3\sqrt{154}}{308}$	
	$\frac{\sqrt{154}i}{77} 0 0 \frac{\sqrt{2310}}{924} 0 0 -\frac{\sqrt{2310}}{924} 0 0 -\frac{3\sqrt{154}}{308} 0 0 -\frac{3\sqrt{154}i}{308} 0$	
	$\frac{\sqrt{154}}{77} 0 0 \frac{\sqrt{2310}i}{924} 0 -\frac{\sqrt{2310}}{924} 0 0 0 \frac{3\sqrt{154}i}{308} 0 \frac{3\sqrt{154}}{308} 0 0$	
	$0 -\frac{\sqrt{154}}{77} -\frac{\sqrt{2310}i}{924} 0 -\frac{\sqrt{2310}}{924} 0 0 0 -\frac{3\sqrt{154}i}{308} 0 \frac{3\sqrt{154}}{308} 0 0 0$	
794	symmetry	$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_6^{(1,-1;a)}(A'', 2)$	0 0 0 $\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 0 $\frac{\sqrt{10}}{40}$ 0 $-\frac{\sqrt{10}i}{40}$ $-\frac{\sqrt{10}}{20}$ 0	
	0 0 $\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0 $\frac{\sqrt{10}}{40}$ 0 $-\frac{\sqrt{10}i}{40}$ 0 0 $\frac{\sqrt{10}}{20}$	
	0 0 0 $\frac{\sqrt{2}}{24}$ 0 $-\frac{\sqrt{2}i}{24}$ $-\frac{\sqrt{2}}{12}$ 0 0 $-\frac{\sqrt{30}}{40}$ 0 $-\frac{\sqrt{30}i}{40}$ 0 0 0	
	0 0 $\frac{\sqrt{2}}{24}$ 0 $\frac{\sqrt{2}i}{24}$ 0 0 $\frac{\sqrt{2}}{12}$ $-\frac{\sqrt{30}}{40}$ 0 $-\frac{\sqrt{30}i}{40}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{2}}{12}$ 0 0 $-\frac{\sqrt{2}i}{12}$ 0 0 $\frac{\sqrt{30}}{60}$ 0 0 0 $-\frac{\sqrt{30}i}{60}$	
	0 0 0 0 0 $\frac{\sqrt{2}}{12}$ $\frac{\sqrt{2}i}{12}$ 0 0 0 0 $-\frac{\sqrt{30}}{60}$ $\frac{\sqrt{30}i}{60}$ 0 0	
	0 0 $\frac{\sqrt{2}}{12}$ 0 0 0 0 $-\frac{\sqrt{2}}{12}$ $\frac{\sqrt{30}}{60}$ 0 0 0 0 $\frac{\sqrt{30}}{60}$	
	0 0 0 $-\frac{\sqrt{2}}{12}$ 0 0 $-\frac{\sqrt{2}}{12}$ 0 0 $-\frac{\sqrt{30}}{60}$ 0 0 0 $\frac{\sqrt{30}}{60}$	
	0 0 0 $\frac{\sqrt{2}i}{12}$ 0 $\frac{\sqrt{2}}{12}$ 0 0 0 $-\frac{\sqrt{30}i}{60}$ 0 $\frac{\sqrt{30}}{60}$ 0 0	
	0 0 $-\frac{\sqrt{2}i}{12}$ 0 $\frac{\sqrt{2}}{12}$ 0 0 0 $-\frac{\sqrt{30}i}{60}$ 0 $\frac{\sqrt{30}}{60}$ 0 0	
795	symmetry	$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$
$\mathbb{M}_6^{(1,-1;a)}(A'', 3)$	0 0 0 $\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ $\frac{\sqrt{110}}{44}$ 0 0 $\frac{\sqrt{66}}{88}$ 0 $\frac{\sqrt{66}i}{88}$ 0 0	
	0 0 $\frac{\sqrt{110}}{88}$ 0 $\frac{\sqrt{110}i}{88}$ 0 0 $-\frac{\sqrt{110}}{44}$ $\frac{\sqrt{66}}{88}$ 0 $-\frac{\sqrt{66}i}{88}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{330}}{264}$ 0 $-\frac{\sqrt{330}i}{264}$ 0 0 0 0 $-\frac{\sqrt{22}}{88}$ 0 $\frac{\sqrt{22}i}{88}$ $\frac{\sqrt{22}}{44}$ 0	
	0 0 $-\frac{\sqrt{330}}{264}$ 0 $\frac{\sqrt{330}i}{264}$ 0 0 0 $-\frac{\sqrt{22}}{88}$ 0 $-\frac{\sqrt{22}i}{88}$ 0 0 $-\frac{\sqrt{22}}{44}$	
	0 0 0 0 $\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{330}i}{132}$ 0 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 $\frac{\sqrt{22}i}{44}$	
	0 0 0 0 0 $-\frac{\sqrt{330}}{132}$ $-\frac{\sqrt{330}i}{132}$ 0 0 0 0 $-\frac{\sqrt{22}}{44}$ $-\frac{\sqrt{22}i}{44}$ 0	
	0 0 0 $\frac{\sqrt{330}}{132}$ 0 0 0 0 $-\frac{\sqrt{330}}{132}$ $\frac{\sqrt{22}}{44}$ 0 0 0 0 $\frac{\sqrt{22}}{44}$	
	0 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 $\frac{\sqrt{22}}{44}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
796	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 0 0 $-\frac{\sqrt{330}}{264}$ 0 $-\frac{\sqrt{330}i}{264}$ 0 0 0 $-\frac{\sqrt{22}}{88}$ 0 $\frac{\sqrt{22}i}{88}$ $\frac{\sqrt{22}}{44}$ 0	
	0 0 $-\frac{\sqrt{330}}{264}$ 0 $\frac{\sqrt{330}i}{264}$ 0 0 0 $-\frac{\sqrt{22}}{88}$ 0 $-\frac{\sqrt{22}i}{88}$ 0 0 $-\frac{\sqrt{22}}{44}$	
	0 0 0 $\frac{5\sqrt{110}}{264}$ 0 $-\frac{5\sqrt{110}i}{264}$ $\frac{\sqrt{110}}{132}$ 0 0 $-\frac{\sqrt{66}}{88}$ 0 $-\frac{\sqrt{66}i}{88}$ 0 0 0	
	0 0 $\frac{5\sqrt{110}}{264}$ 0 $\frac{5\sqrt{110}i}{264}$ 0 0 $-\frac{\sqrt{110}}{132}$ $-\frac{\sqrt{66}}{88}$ 0 $\frac{\sqrt{66}i}{88}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{110}}{132}$ 0 0 $\frac{\sqrt{110}i}{132}$ 0 0 $-\frac{\sqrt{66}}{132}$ 0 0 $-\frac{\sqrt{66}i}{132}$ 0 0 $\frac{\sqrt{66}i}{132}$	
	0 0 0 0 0 $-\frac{\sqrt{110}}{132}$ $-\frac{\sqrt{110}i}{132}$ 0 0 0 0 $\frac{\sqrt{66}}{132}$ $-\frac{\sqrt{66}i}{132}$ 0 0 0	
	0 0 $-\frac{\sqrt{110}}{132}$ 0 0 0 0 $\frac{\sqrt{110}}{132}$ $-\frac{\sqrt{66}}{132}$ 0 0 0 0 0 $-\frac{\sqrt{66}}{132}$	
	0 0 0 $\frac{\sqrt{110}}{132}$ 0 0 $\frac{\sqrt{110}}{132}$ 0 0 0 $\frac{\sqrt{66}}{132}$ 0 0 0 $-\frac{\sqrt{66}}{132}$ 0	
	0 0 0 $\frac{\sqrt{110}i}{66}$ 0 $\frac{\sqrt{110}}{66}$ 0 0 0 $-\frac{\sqrt{66}i}{66}$ 0 $\frac{\sqrt{66}}{66}$ 0 0 0	
	0 0 $-\frac{\sqrt{110}i}{66}$ 0 $\frac{\sqrt{110}}{66}$ 0 0 0 $\frac{\sqrt{66}i}{66}$ 0 $\frac{\sqrt{66}}{66}$ 0 0 0	
797	symmetry	$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$
$\mathbb{M}_6^{(1,-1;a)}(A'', 5)$	0 $-\frac{\sqrt{33}i}{44}$ 0 0 0 0 0 $-\frac{\sqrt{55}}{88}$ $\frac{\sqrt{33}}{44}$ 0 0 0 0 $-\frac{\sqrt{33}}{88}$	
	$\frac{\sqrt{33}i}{44}$ 0 0 0 0 0 $-\frac{\sqrt{55}}{88}$ 0 0 0 $-\frac{\sqrt{33}}{44}$ 0 0 0 $-\frac{\sqrt{33}}{88}$ 0	
	0 $\frac{\sqrt{11}i}{44}$ $\frac{\sqrt{165}}{132}$ 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0 0 $\frac{3\sqrt{11}}{88}$	
	$-\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{165}}{132}$ 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0 0 $\frac{3\sqrt{11}}{88}$ 0	
	$\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $\frac{\sqrt{11}i}{44}$ 0 $\frac{\sqrt{11}}{22}$ 0 0 0	
	0 $-\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 $\frac{\sqrt{11}}{22}$ 0 0 0	
	0 0 0 $\frac{\sqrt{165}}{132}$ 0 0 $-\frac{\sqrt{165}}{132}$ 0 0 $-\frac{\sqrt{11}}{44}$ 0 $-\frac{\sqrt{11}i}{22}$ $-\frac{\sqrt{11}}{44}$ 0	
	0 0 $\frac{\sqrt{165}}{132}$ 0 0 0 0 $\frac{\sqrt{165}}{132}$ $-\frac{\sqrt{11}}{44}$ 0 $\frac{\sqrt{11}i}{22}$ 0 0 $\frac{\sqrt{11}}{44}$	
	0 $-\frac{\sqrt{11}}{22}$ 0 0 0 0 0 $-\frac{\sqrt{165}i}{132}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{11}i}{44}$	
	$-\frac{\sqrt{11}}{22}$ 0 0 0 0 0 $\frac{\sqrt{165}i}{132}$ 0 0 0 0 $-\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{11}i}{44}$ 0	
798	symmetry	$\frac{\sqrt{462}xz(x^2-3z^2)(3x^2-z^2)}{16}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_6^{(1,-1;a)}(A'', 6)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{32} & -\frac{3\sqrt{2}}{32} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{32} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{32} & 0 & 0 & \frac{\sqrt{30}}{32} & 0 & 0 & \frac{3\sqrt{2}}{32} & 0 & 0 & -\frac{3\sqrt{2}}{32} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{32} & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{32} \\ 0 & 0 & 0 & -\frac{\sqrt{10}}{32} & 0 & 0 & -\frac{\sqrt{10}}{32} & 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & \frac{\sqrt{6}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} & \frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
799	symmetry	$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$ $\begin{bmatrix} 0 & \frac{\sqrt{110}i}{110} & \frac{\sqrt{66}}{352} & 0 & 0 & 0 & 0 & \frac{5\sqrt{66}}{1056} & -\frac{13\sqrt{110}}{1760} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{160} \\ -\frac{\sqrt{110}i}{110} & 0 & 0 & -\frac{\sqrt{66}}{352} & 0 & 0 & 0 & \frac{5\sqrt{66}}{1056} & 0 & 0 & \frac{13\sqrt{110}}{1760} & 0 & 0 & \frac{\sqrt{110}}{160} & 0 \\ 0 & \frac{\sqrt{330}i}{110} & \frac{13\sqrt{22}}{1056} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}}{96} & -\frac{7\sqrt{330}}{1056} & 0 & 0 & 0 & 0 & \frac{37\sqrt{330}}{5280} & \\ -\frac{\sqrt{330}i}{110} & 0 & 0 & -\frac{13\sqrt{22}}{1056} & 0 & 0 & \frac{\sqrt{22}}{96} & 0 & 0 & \frac{7\sqrt{330}}{1056} & 0 & 0 & \frac{37\sqrt{330}}{5280} & 0 \\ -\frac{\sqrt{330}}{165} & 0 & 0 & \frac{\sqrt{22}i}{66} & 0 & \frac{\sqrt{22}}{33} & 0 & 0 & 0 & -\frac{\sqrt{330}i}{110} & 0 & 0 & 0 & 0 & \\ 0 & \frac{\sqrt{330}}{165} & -\frac{\sqrt{22}i}{66} & 0 & \frac{\sqrt{22}}{33} & 0 & 0 & 0 & \frac{\sqrt{330}i}{110} & 0 & 0 & 0 & 0 & 0 & \\ 0 & 0 & 0 & \frac{5\sqrt{22}}{528} & 0 & -\frac{\sqrt{22}i}{33} & \frac{5\sqrt{22}}{528} & 0 & 0 & -\frac{\sqrt{330}}{240} & 0 & 0 & \frac{\sqrt{330}}{240} & 0 & \\ 0 & 0 & \frac{5\sqrt{22}}{528} & 0 & \frac{\sqrt{22}i}{33} & 0 & 0 & -\frac{5\sqrt{22}}{528} & -\frac{\sqrt{330}}{240} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{240} & \\ 0 & -\frac{\sqrt{330}}{165} & 0 & 0 & \frac{\sqrt{22}}{33} & 0 & 0 & \frac{\sqrt{22}i}{66} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{110} & \\ -\frac{\sqrt{330}}{165} & 0 & 0 & 0 & 0 & -\frac{\sqrt{22}}{33} & -\frac{\sqrt{22}i}{66} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{110} & 0 \end{bmatrix}$
800	symmetry	$\sqrt{3}yz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,0;a)}(A', 1)$	0	$\frac{\sqrt{105}}{84} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{84}$
	$\frac{\sqrt{105}}{84}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad -\frac{\sqrt{105}i}{84} \quad 0$
	0	$-\frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{168} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{56} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{35}}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{168} \quad -\frac{\sqrt{21}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{28}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{28} \quad 0$
801	symmetry	$\sqrt{3}xy$
$\mathbb{M}_2^{(1,0;a)}(A', 2)$	$-\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{56} \quad 0 \quad -\frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0$	
	0	$\frac{\sqrt{105}}{42} \quad -\frac{\sqrt{7}i}{56} \quad 0 \quad -\frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{168} \quad 0 \quad \frac{\sqrt{21}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{56} \quad 0 \quad \frac{\sqrt{35}}{56} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{21}i}{168} \quad 0 \quad \frac{\sqrt{21}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{56} \quad 0 \quad \frac{\sqrt{35}}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad -\frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{84} \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{28} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{28} \quad 0$
802	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,0;a)}(A'', 1)$	0 0 0 $-\frac{\sqrt{21}}{56}$ 0 $\frac{\sqrt{21}i}{56}$ 0 0 0 $-\frac{\sqrt{35}}{56}$ 0 $-\frac{\sqrt{35}i}{56}$ 0 0	
	0 0 $-\frac{\sqrt{21}}{56}$ 0 $-\frac{\sqrt{21}i}{56}$ 0 0 0 $-\frac{\sqrt{35}}{56}$ 0 $\frac{\sqrt{35}i}{56}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0 $\frac{\sqrt{105}}{56}$ 0 $-\frac{\sqrt{105}i}{56}$ 0 0	
	0 0 $-\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 $\frac{\sqrt{105}}{56}$ 0 $\frac{\sqrt{105}i}{56}$ 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 $-\frac{\sqrt{7}}{14}$ 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 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 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	
803	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
$\mathbb{M}_2^{(1,0;a)}(A'', 2)$	0 0 0 $-\frac{\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 $\frac{\sqrt{105}i}{168}$ $-\frac{\sqrt{105}}{42}$ 0	
	0 0 $-\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{105}}{42}$	
	0 0 0 $-\frac{\sqrt{21}}{168}$ 0 $\frac{\sqrt{21}i}{168}$ $-\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{35}}{56}$ 0 $\frac{\sqrt{35}i}{56}$ 0 0	
	0 0 $-\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{21}}{42}$ $\frac{\sqrt{35}}{56}$ 0 $-\frac{\sqrt{35}i}{56}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{21}}{21}$ 0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{21}}{21}$ $\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{21}}{21}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0 0 0	
804	symmetry	$\sqrt{3}xz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,0;a)}(A'', 3)$	0	$-\frac{\sqrt{105}i}{84} \quad \frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84}$
	$\frac{\sqrt{105}i}{84}$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84} \quad 0$
	0	$-\frac{\sqrt{35}i}{28} \quad \frac{\sqrt{21}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84} \quad -\frac{\sqrt{35}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{35}i}{28}$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{84} \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{21}i}{84} \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad \frac{\sqrt{21}i}{42} \quad \frac{\sqrt{21}}{42} \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad 0 \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{28}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{42} \quad \frac{\sqrt{21}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{28} \quad 0$
805	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{M}_4^{(1,0;a)}(A', 1)$	0	$-\frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad -\frac{3\sqrt{5}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{80} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20}$
	$-\frac{\sqrt{3}}{10}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{5}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{80} \quad \frac{\sqrt{3}i}{20} \quad 0$
	0	$-\frac{1}{10} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad -\frac{7}{80} \quad 0 \quad 0 \quad \frac{i}{40}$
	$-\frac{1}{10}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{80} \quad -\frac{\sqrt{15}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{7}{80} \quad -\frac{i}{40} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{80} \quad -\frac{\sqrt{15}}{80} \quad 0 \quad 0 \quad \frac{1}{5} \quad 0 \quad -\frac{i}{16} \quad \frac{1}{16} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{80} \quad \frac{1}{5} \quad 0 \quad \frac{i}{16} \quad 0 \quad 0 \quad -\frac{1}{16}$
	$-\frac{1}{40}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad 0 \quad -\frac{i}{40} \quad 0 \quad \frac{3}{20} \quad 0 \quad 0 \quad 0$
	0	$\frac{1}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad 0 \quad \frac{i}{40} \quad 0 \quad \frac{3}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20} \quad \frac{1}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3}{20}$
	$\frac{i}{40}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad -\frac{1}{40} \quad 0 \quad 0 \quad 0 \quad \frac{3}{20} \quad 0$
806	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,0;a)}(A', 2)$	0 0 0 $-\frac{3\sqrt{5}i}{80}$ 0 $-\frac{3\sqrt{5}}{80}$ 0 0 0 $\frac{3\sqrt{3}i}{80}$ 0 $-\frac{3\sqrt{3}}{80}$ 0 0	
	0 0 $\frac{3\sqrt{5}i}{80}$ 0 $-\frac{3\sqrt{5}}{80}$ 0 0 0 $-\frac{3\sqrt{3}i}{80}$ 0 $-\frac{3\sqrt{3}}{80}$ 0 0 0	
	$\frac{1}{5}$ 0 0 $-\frac{\sqrt{15}i}{80}$ 0 $\frac{\sqrt{15}}{80}$ 0 0 0 $-\frac{i}{16}$ 0 $-\frac{1}{16}$ 0 0 0	
	0 $-\frac{1}{5}$ $\frac{\sqrt{15}i}{80}$ 0 $\frac{\sqrt{15}}{80}$ 0 0 0 $\frac{i}{16}$ 0 $-\frac{1}{16}$ 0 0 0	
	0 $\frac{i}{40}$ $-\frac{\sqrt{15}}{20}$ 0 0 0 0 0 $\frac{3}{20}$ 0 0 0 0 $\frac{1}{40}$	
	$-\frac{i}{40}$ 0 0 $\frac{\sqrt{15}}{20}$ 0 0 0 0 0 $-\frac{3}{20}$ 0 0 0 $\frac{1}{40}$ 0	
	0 $\frac{1}{40}$ 0 0 $\frac{\sqrt{15}}{20}$ 0 0 0 0 0 $\frac{3}{20}$ 0 0 0 $-\frac{i}{40}$	
	$\frac{1}{40}$ 0 0 0 0 $-\frac{\sqrt{15}}{20}$ 0 0 0 0 0 $-\frac{3}{20}$ $\frac{i}{40}$ 0	
	0 0 0 $\frac{\sqrt{15}}{80}$ 0 $\frac{\sqrt{15}i}{80}$ 0 0 0 $\frac{1}{16}$ 0 $-\frac{i}{16}$ $\frac{1}{5}$ 0	
	0 0 $\frac{\sqrt{15}}{80}$ 0 $-\frac{\sqrt{15}i}{80}$ 0 0 0 $\frac{1}{16}$ 0 $\frac{i}{16}$ 0 0 $-\frac{1}{5}$	
807	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
$\mathbb{M}_4^{(1,0;a)}(A', 3)$	0 $\frac{\sqrt{21}}{70}$ 0 0 $\frac{3\sqrt{35}}{112}$ 0 0 0 0 0 $\frac{17\sqrt{21}}{560}$ 0 0 $-\frac{\sqrt{21}i}{28}$	
	$\frac{\sqrt{21}}{70}$ 0 0 0 0 $-\frac{3\sqrt{35}}{112}$ 0 0 0 0 0 $-\frac{17\sqrt{21}}{560}$ $\frac{\sqrt{21}i}{28}$ 0	
	0 $-\frac{3\sqrt{7}}{70}$ 0 0 $-\frac{\sqrt{105}}{112}$ 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 $\frac{23\sqrt{7}}{560}$ 0 0 $-\frac{\sqrt{7}i}{40}$	
	$-\frac{3\sqrt{7}}{70}$ 0 0 0 0 $\frac{\sqrt{105}}{112}$ $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 $-\frac{23\sqrt{7}}{560}$ $\frac{\sqrt{7}i}{40}$ 0	
	0 0 0 $\frac{\sqrt{105}}{70}$ 0 $\frac{\sqrt{105}i}{560}$ $-\frac{\sqrt{105}}{560}$ 0 0 0 0 $-\frac{\sqrt{7}i}{80}$ $-\frac{\sqrt{7}}{80}$ 0	
	0 0 $\frac{\sqrt{105}}{70}$ 0 $-\frac{\sqrt{105}i}{560}$ 0 0 $\frac{\sqrt{105}}{560}$ 0 0 $\frac{\sqrt{7}i}{80}$ 0 0 $\frac{\sqrt{7}}{80}$	
	$-\frac{\sqrt{7}}{40}$ 0 0 $\frac{3\sqrt{105}i}{280}$ 0 $-\frac{\sqrt{105}}{140}$ 0 0 0 $-\frac{\sqrt{7}i}{20}$ 0 $\frac{\sqrt{7}}{140}$ 0 0	
	0 $\frac{\sqrt{7}}{40}$ $-\frac{3\sqrt{105}i}{280}$ 0 $-\frac{\sqrt{105}}{140}$ 0 0 0 $\frac{\sqrt{7}i}{20}$ 0 $\frac{\sqrt{7}}{140}$ 0 0 0	
	0 $\frac{\sqrt{7}i}{40}$ $-\frac{3\sqrt{105}}{280}$ 0 0 0 0 $-\frac{\sqrt{105}}{140}$ $-\frac{\sqrt{7}}{20}$ 0 0 0 0 $-\frac{\sqrt{7}}{140}$	
	$-\frac{\sqrt{7}i}{40}$ 0 0 $\frac{3\sqrt{105}}{280}$ 0 0 0 $-\frac{\sqrt{105}}{140}$ 0 0 $\frac{\sqrt{7}}{20}$ 0 0 $-\frac{\sqrt{7}}{140}$ 0	
808	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,0;a)}(A', 4)$	$-\frac{\sqrt{21}}{35} \ 0 \ 0 \ \frac{3\sqrt{35}i}{112} \ 0 \ -\frac{3\sqrt{35}}{112} \ 0 \ 0 \ 0 \ 0 \ -\frac{3\sqrt{21}i}{560} \ 0 \ -\frac{3\sqrt{21}}{560} \ 0 \ 0$	
	$0 \ \frac{\sqrt{21}}{35} \ -\frac{3\sqrt{35}i}{112} \ 0 \ -\frac{3\sqrt{35}}{112} \ 0 \ 0 \ 0 \ 0 \ \frac{3\sqrt{21}i}{560} \ 0 \ -\frac{3\sqrt{21}}{560} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ \frac{\sqrt{105}i}{112} \ 0 \ \frac{\sqrt{105}}{112} \ 0 \ 0 \ 0 \ 0 \ \frac{37\sqrt{7}i}{560} \ 0 \ -\frac{37\sqrt{7}}{560} \ 0 \ 0 \ 0$	
	$0 \ 0 \ -\frac{\sqrt{105}i}{112} \ 0 \ \frac{\sqrt{105}}{112} \ 0 \ 0 \ 0 \ 0 \ -\frac{37\sqrt{7}i}{560} \ 0 \ -\frac{37\sqrt{7}}{560} \ 0 \ 0 \ 0$	
	$0 \ \frac{\sqrt{7}i}{40} \ -\frac{\sqrt{105}}{140} \ 0 \ 0 \ 0 \ 0 \ -\frac{3\sqrt{105}}{280} \ \frac{\sqrt{7}}{140} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}}{20}$	
	$-\frac{\sqrt{7}i}{40} \ 0 \ 0 \ \frac{\sqrt{105}}{140} \ 0 \ 0 \ -\frac{3\sqrt{105}}{280} \ 0 \ 0 \ -\frac{\sqrt{7}}{140} \ 0 \ 0 \ 0 \ \frac{\sqrt{7}}{20} \ 0$	
	$0 \ -\frac{\sqrt{7}}{40} \ 0 \ 0 \ -\frac{\sqrt{105}}{140} \ 0 \ 0 \ \frac{3\sqrt{105}i}{280} \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}}{140} \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{20}$	
	$-\frac{\sqrt{7}}{40} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}}{140} \ -\frac{3\sqrt{105}i}{280} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}}{140} \ -\frac{\sqrt{7}i}{20} \ 0$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{105}}{560} \ 0 \ \frac{\sqrt{105}i}{560} \ \frac{\sqrt{105}}{70} \ 0 \ 0 \ 0 \ \frac{\sqrt{7}}{80} \ 0 \ \frac{\sqrt{7}i}{80} \ 0 \ 0 \ 0$	
	$0 \ 0 \ -\frac{\sqrt{105}}{560} \ 0 \ -\frac{\sqrt{105}i}{560} \ 0 \ 0 \ -\frac{\sqrt{105}}{70} \ \frac{\sqrt{7}}{80} \ 0 \ -\frac{\sqrt{7}i}{80} \ 0 \ 0 \ 0 \ 0$	
809	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{M}_4^{(1,0;a)}(A'', 1)$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{5}}{20} \ 0 \ -\frac{\sqrt{5}i}{20} \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{5}}{20} \ 0 \ \frac{\sqrt{5}i}{20} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}}{60} \ 0 \ \frac{\sqrt{15}i}{60} \ \frac{\sqrt{15}}{30} \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}}{60} \ 0 \ -\frac{\sqrt{15}i}{60} \ 0 \ 0 \ -\frac{\sqrt{15}}{30}$	
	$0 \ -\frac{\sqrt{15}}{30} \ 0 \ 0 \ -\frac{1}{8} \ 0 \ 0 \ \frac{i}{8} \ 0 \ 0 \ -\frac{\sqrt{15}}{40} \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}i}{40}$	
	$-\frac{\sqrt{15}}{30} \ 0 \ 0 \ 0 \ 0 \ \frac{1}{8} \ -\frac{i}{8} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{15}}{40} \ \frac{\sqrt{15}i}{40} \ 0$	
	$0 \ \frac{\sqrt{15}i}{30} \ -\frac{1}{8} \ 0 \ 0 \ 0 \ 0 \ -\frac{1}{8} \ \frac{\sqrt{15}}{40} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}}{40}$	
	$-\frac{\sqrt{15}i}{30} \ 0 \ 0 \ \frac{1}{8} \ 0 \ 0 \ -\frac{1}{8} \ 0 \ 0 \ -\frac{\sqrt{15}}{40} \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}}{40} \ 0$	
	$-\frac{\sqrt{15}}{30} \ 0 \ 0 \ \frac{i}{8} \ 0 \ -\frac{1}{8} \ 0 \ 0 \ 0 \ \frac{\sqrt{15}i}{40} \ 0 \ \frac{\sqrt{15}}{40} \ 0 \ 0$	
	$0 \ \frac{\sqrt{15}}{30} \ -\frac{i}{8} \ 0 \ -\frac{1}{8} \ 0 \ 0 \ 0 \ -\frac{\sqrt{15}i}{40} \ 0 \ \frac{\sqrt{15}}{40} \ 0 \ 0 \ 0$	
810	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 0 0 $-\frac{3\sqrt{105}}{280}$ 0 $\frac{3\sqrt{105}i}{280}$ 0 0 0 0 $-\frac{\sqrt{7}}{280}$ 0 $-\frac{\sqrt{7}i}{280}$ 0 0 0	
	0 0 $-\frac{3\sqrt{105}}{280}$ 0 $-\frac{3\sqrt{105}i}{280}$ 0 0 0 0 $-\frac{\sqrt{7}}{280}$ 0 $\frac{\sqrt{7}i}{280}$ 0 0 0 0	
	0 0 0 $-\frac{3\sqrt{35}}{280}$ 0 $-\frac{3\sqrt{35}i}{280}$ 0 0 0 0 $-\frac{5\sqrt{21}}{168}$ 0 $\frac{5\sqrt{21}i}{168}$ $-\frac{\sqrt{21}}{30}$ 0 0	
	0 0 $-\frac{3\sqrt{35}}{280}$ 0 $\frac{3\sqrt{35}i}{280}$ 0 0 0 0 $-\frac{5\sqrt{21}}{168}$ 0 $-\frac{5\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{21}}{30}$	
	0 $-\frac{\sqrt{21}}{60}$ 0 0 $\frac{\sqrt{35}}{40}$ 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 $\frac{\sqrt{21}}{40}$ 0 0 $-\frac{\sqrt{21}}{40}$	
	$-\frac{\sqrt{21}}{60}$ 0 0 0 0 $-\frac{\sqrt{35}}{40}$ $-\frac{\sqrt{35}i}{56}$ 0 0 0 0 $-\frac{\sqrt{21}}{40}$ $\frac{\sqrt{21}i}{40}$ 0 0	
	0 $\frac{\sqrt{21}i}{60}$ $\frac{\sqrt{35}}{40}$ 0 0 0 0 $-\frac{\sqrt{35}}{56}$ $-\frac{\sqrt{21}}{40}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{40}$	
	$-\frac{\sqrt{21}i}{60}$ 0 0 $-\frac{\sqrt{35}}{40}$ 0 0 $-\frac{\sqrt{35}}{56}$ 0 0 $\frac{\sqrt{21}}{40}$ 0 0 0 $-\frac{\sqrt{21}}{40}$ 0	
	$\frac{\sqrt{21}}{30}$ 0 0 $\frac{\sqrt{35}i}{140}$ 0 $-\frac{\sqrt{35}}{140}$ 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{21}}{30}$ $-\frac{\sqrt{35}i}{140}$ 0 $-\frac{\sqrt{35}}{140}$ 0 0 0 0 0 0 0 0 0 0	
811	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
$\mathbb{M}_4^{(1,0;a)}(A'', 3)$	0 0 0 $-\frac{3\sqrt{35}}{280}$ 0 $-\frac{3\sqrt{35}i}{280}$ 0 0 0 0 $\frac{9\sqrt{21}}{280}$ 0 $-\frac{9\sqrt{21}i}{280}$ $\frac{\sqrt{21}}{35}$ 0	
	0 0 $-\frac{3\sqrt{35}}{280}$ 0 $\frac{3\sqrt{35}i}{280}$ 0 0 0 0 $\frac{9\sqrt{21}}{280}$ 0 $\frac{9\sqrt{21}i}{280}$ 0 0 $-\frac{\sqrt{21}}{35}$	
	0 0 0 $-\frac{\sqrt{105}}{280}$ 0 $\frac{\sqrt{105}i}{280}$ $-\frac{\sqrt{105}}{70}$ 0 0 $\frac{\sqrt{7}}{280}$ 0 $\frac{\sqrt{7}i}{280}$ 0 0 0	
	0 0 $-\frac{\sqrt{105}}{280}$ 0 $-\frac{\sqrt{105}i}{280}$ 0 0 $\frac{\sqrt{105}}{70}$ $\frac{\sqrt{7}}{280}$ 0 $-\frac{\sqrt{7}i}{280}$ 0 0 0	
	0 $\frac{\sqrt{7}}{20}$ 0 0 $\frac{\sqrt{105}}{280}$ 0 0 $\frac{3\sqrt{105}i}{280}$ 0 0 $\frac{\sqrt{7}}{40}$ 0 0 $-\frac{\sqrt{7}i}{40}$	
	$\frac{\sqrt{7}}{20}$ 0 0 0 0 $-\frac{\sqrt{105}}{280}$ $-\frac{3\sqrt{105}i}{280}$ 0 0 0 0 $-\frac{\sqrt{7}}{40}$ $\frac{\sqrt{7}i}{40}$ 0	
	0 $\frac{\sqrt{7}i}{20}$ $-\frac{\sqrt{105}}{280}$ 0 0 0 0 $\frac{3\sqrt{105}}{280}$ $\frac{\sqrt{7}}{40}$ 0 0 0 0 $\frac{\sqrt{7}}{40}$	
	$-\frac{\sqrt{7}i}{20}$ 0 0 $\frac{\sqrt{105}}{280}$ 0 0 $\frac{3\sqrt{105}}{280}$ 0 0 $-\frac{\sqrt{7}}{40}$ 0 0 $\frac{\sqrt{7}}{40}$ 0	
	0 0 0 $\frac{\sqrt{105}i}{70}$ 0 $\frac{\sqrt{105}}{70}$ 0 0 0 $\frac{\sqrt{7}i}{20}$ 0 $-\frac{\sqrt{7}}{20}$ 0 0 0	
	0 0 $-\frac{\sqrt{105}i}{70}$ 0 $\frac{\sqrt{105}}{70}$ 0 0 0 $-\frac{\sqrt{7}i}{20}$ 0 $-\frac{\sqrt{7}}{20}$ 0 0 0	
812	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,0;a)}(A'', 4)$	0	$-\frac{\sqrt{3}i}{10} \quad \frac{3\sqrt{5}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{20}$
	$\frac{\sqrt{3}i}{10}$	$0 \quad 0 \quad -\frac{3\sqrt{5}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{20} \quad 0$
	$0 \quad \frac{i}{10} \quad \frac{\sqrt{15}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad \frac{7}{80} \quad 0 \quad 0 \quad 0 \quad \frac{1}{40}$	
	$-\frac{i}{10}$	$0 \quad 0 \quad -\frac{\sqrt{15}}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad 0 \quad 0 \quad -\frac{7}{80} \quad 0 \quad 0 \quad \frac{1}{40} \quad 0$
	$\frac{1}{40}$	$0 \quad 0 \quad -\frac{\sqrt{15}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3i}{20} \quad 0 \quad \frac{1}{40} \quad 0 \quad 0$
	$0 \quad -\frac{1}{40} \quad \frac{\sqrt{15}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3i}{20} \quad 0 \quad \frac{1}{40} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{80} \quad 0 \quad 0 \quad \frac{1}{16} \quad 0 \quad -\frac{i}{5} \quad \frac{1}{16} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{15}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{80} \quad \frac{1}{16} \quad 0 \quad \frac{i}{5} \quad 0 \quad 0 \quad -\frac{1}{16}$	
	$0 \quad -\frac{1}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{20} \quad 0 \quad 0 \quad \frac{1}{40} \quad 0 \quad 0 \quad -\frac{3i}{20}$	
	$-\frac{1}{40}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{40} \quad \frac{3i}{20} \quad 0$
813	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
$\mathbb{M}_4^{(1,0;a)}(A'', 5)$	0	$-\frac{\sqrt{21}i}{70} \quad \frac{3\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{17\sqrt{21}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28}$
	$\frac{\sqrt{21}i}{70}$	$0 \quad 0 \quad -\frac{3\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{17\sqrt{21}}{560} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad 0$
	$0 \quad -\frac{3\sqrt{7}i}{70} \quad \frac{\sqrt{105}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{56} \quad \frac{23\sqrt{7}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{40}$	
	$\frac{3\sqrt{7}i}{70}$	$0 \quad 0 \quad -\frac{\sqrt{105}}{112} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{56} \quad 0 \quad 0 \quad -\frac{23\sqrt{7}}{560} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{40} \quad 0$
	$-\frac{\sqrt{7}}{40}$	$0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad -\frac{3\sqrt{105}}{280} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{140} \quad 0 \quad -\frac{\sqrt{7}}{20} \quad 0 \quad 0$
	$0 \quad \frac{\sqrt{7}}{40} \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad -\frac{3\sqrt{105}}{280} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{140} \quad 0 \quad -\frac{\sqrt{7}}{20} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{560} \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad -\frac{\sqrt{105}}{560} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{80} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{105}}{560} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{560} \quad -\frac{\sqrt{7}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{80}$	
	$0 \quad -\frac{\sqrt{7}}{40} \quad 0 \quad 0 \quad -\frac{3\sqrt{105}}{280} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{140}$	
	$-\frac{\sqrt{7}}{40}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{105}}{280} \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{20} \quad \frac{\sqrt{7}i}{140} \quad 0$
814	symmetry	1

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_0^{(1,1;a)}(A'')$	0 0 0 $-\frac{\sqrt{105}}{140}$ 0 $\frac{\sqrt{105}i}{140}$ $\frac{\sqrt{105}}{70}$ 0 0 $-\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 $-\frac{\sqrt{105}}{140}$ 0 $-\frac{\sqrt{105}i}{140}$ 0 0 $-\frac{\sqrt{105}}{70}$ $-\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{35}}{140}$ 0 $\frac{3\sqrt{35}i}{140}$ 0 0 0 0 $-\frac{\sqrt{21}}{84}$ 0 $\frac{\sqrt{21}i}{84}$ $\frac{\sqrt{21}}{42}$ 0	
	0 0 $\frac{3\sqrt{35}}{140}$ 0 $-\frac{3\sqrt{35}i}{140}$ 0 0 0 $-\frac{\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $-\frac{\sqrt{21}}{42}$	
	0 $\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{35}i}{70}$ 0 0 $\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{21}i}{42}$	
	$\frac{\sqrt{21}}{42}$ 0 0 0 $\frac{\sqrt{35}}{70}$ $-\frac{\sqrt{35}i}{70}$ 0 0 0 $-\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{21}i}{42}$ 0 0	
	0 $-\frac{\sqrt{21}i}{42}$ $-\frac{\sqrt{35}}{70}$ 0 0 0 0 $-\frac{\sqrt{35}}{70}$ $-\frac{\sqrt{21}}{42}$ 0 0 0 0 $\frac{\sqrt{21}}{42}$	
	$\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{35}}{70}$ 0 0 $-\frac{\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{21}}{42}$ 0	
	$\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{35}i}{70}$ 0 $-\frac{\sqrt{35}}{70}$ 0 0 0 $-\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0	
	0 $-\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{35}i}{70}$ 0 $-\frac{\sqrt{35}}{70}$ 0 0 0 $\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0 0	
815	symmetry	$\sqrt{3}yz$
$\mathbb{M}_2^{(1,1;a)}(A', 1)$	0 0 0 0 $-\frac{\sqrt{105}}{140}$ 0 0 $\frac{\sqrt{105}i}{105}$ 0 0 $\frac{\sqrt{7}}{28}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{105}}{140}$ $-\frac{\sqrt{105}i}{105}$ 0 0 0 0 $0$ $-\frac{\sqrt{7}}{28}$ 0 0	
	0 0 0 0 $\frac{11\sqrt{35}}{420}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 0 $-\frac{\sqrt{21}}{84}$ 0 0 $-\frac{\sqrt{21}i}{42}$	
	0 0 0 0 0 $-\frac{11\sqrt{35}}{420}$ $\frac{\sqrt{35}i}{42}$ 0 0 0 0 $\frac{\sqrt{21}}{84}$ $\frac{\sqrt{21}i}{42}$ 0	
	0 0 0 $-\frac{\sqrt{35}}{42}$ 0 $-\frac{\sqrt{35}i}{105}$ $\frac{\sqrt{35}}{105}$ 0 0 0 0 $-\frac{\sqrt{21}i}{42}$ $-\frac{\sqrt{21}}{42}$ 0	
	0 0 $-\frac{\sqrt{35}}{42}$ 0 $\frac{\sqrt{35}i}{105}$ 0 0 $-\frac{\sqrt{35}}{105}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{21}}{42}$	
	$\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{35}i}{420}$ 0 $-\frac{\sqrt{35}}{42}$ 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0	
	0 $-\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{35}i}{420}$ 0 $-\frac{\sqrt{35}}{42}$ 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0	
	0 $-\frac{\sqrt{21}i}{42}$ $-\frac{\sqrt{35}}{420}$ 0 0 0 0 $-\frac{\sqrt{35}}{42}$ $-\frac{\sqrt{21}}{28}$ 0 0 0 0	
	$\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{35}}{420}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0	
816	symmetry	$\sqrt{3}xy$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,1;a)}(A', 2)$	0 0 0 $-\frac{\sqrt{105}i}{60}$ 0 $\frac{\sqrt{105}}{60}$ 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 $\frac{\sqrt{7}}{28}$ 0 0	
	0 0 $\frac{\sqrt{105}i}{60}$ 0 $\frac{\sqrt{105}}{60}$ 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 $\frac{\sqrt{7}}{28}$ 0 0 0	
	0 0 0 $\frac{\sqrt{35}i}{420}$ 0 $\frac{\sqrt{35}}{420}$ 0 0 0 $\frac{\sqrt{21}i}{84}$ 0 $-\frac{\sqrt{21}}{84}$ 0 0 0	
	0 0 $-\frac{\sqrt{35}i}{420}$ 0 $\frac{\sqrt{35}}{420}$ 0 0 0 $-\frac{\sqrt{21}i}{84}$ 0 $-\frac{\sqrt{21}}{84}$ 0 0 0	
	0 $-\frac{\sqrt{21}i}{42}$ $-\frac{\sqrt{35}}{42}$ 0 0 0 0 $-\frac{\sqrt{35}}{420}$ 0 0 0 0 0 $\frac{\sqrt{21}}{28}$	
	$\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{35}}{420}$ 0 0 0 0 0 $\frac{\sqrt{21}}{28}$ 0	
	0 $\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{35}i}{420}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$	
	$\frac{\sqrt{21}}{42}$ 0 0 0 0 $\frac{\sqrt{35}}{42}$ $-\frac{\sqrt{35}i}{420}$ 0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0	
	0 0 0 $\frac{\sqrt{35}}{105}$ 0 $-\frac{\sqrt{35}i}{105}$ $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{21}}{42}$ 0 $\frac{\sqrt{21}i}{42}$ 0 0	
	0 0 $\frac{\sqrt{35}}{105}$ 0 $\frac{\sqrt{35}i}{105}$ 0 0 $\frac{\sqrt{35}}{42}$ $\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0	
817	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{M}_2^{(1,1;a)}(A'', 1)$	0 0 0 $-\frac{3\sqrt{35}}{280}$ 0 $\frac{3\sqrt{35}i}{280}$ $\frac{\sqrt{35}}{35}$ 0 0 $-\frac{\sqrt{21}}{56}$ 0 $-\frac{\sqrt{21}i}{56}$ 0 0	
	0 0 $-\frac{3\sqrt{35}}{280}$ 0 $-\frac{3\sqrt{35}i}{280}$ 0 0 $-\frac{\sqrt{35}}{35}$ $-\frac{\sqrt{21}}{56}$ 0 $\frac{\sqrt{21}i}{56}$ 0 0 0	
	0 0 0 $-\frac{11\sqrt{105}}{840}$ 0 $-\frac{11\sqrt{105}i}{840}$ 0 0 0 $-\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{14}$ 0	
	0 0 $-\frac{11\sqrt{105}}{840}$ 0 $\frac{11\sqrt{105}i}{840}$ 0 0 0 $-\frac{\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{56}$ 0 0 $\frac{\sqrt{7}}{14}$	
	0 $\frac{\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{105}}{280}$ 0 0 $-\frac{\sqrt{105}i}{210}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{7}i}{28}$	
	$\frac{\sqrt{7}}{28}$ 0 0 0 0 $\frac{\sqrt{105}}{280}$ $\frac{\sqrt{105}i}{210}$ 0 0 0 0 $-\frac{\sqrt{7}}{56}$ $-\frac{\sqrt{7}i}{28}$ 0	
	0 $-\frac{\sqrt{7}i}{28}$ $-\frac{\sqrt{105}}{280}$ 0 0 0 0 $\frac{\sqrt{105}}{210}$ $-\frac{\sqrt{7}}{56}$ 0 0 0 0 $\frac{\sqrt{7}}{28}$	
	$\frac{\sqrt{7}i}{28}$ 0 0 $\frac{\sqrt{105}}{280}$ 0 0 $\frac{\sqrt{105}}{210}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{7}}{28}$	
	$-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{105}i}{840}$ 0 $-\frac{\sqrt{105}}{840}$ 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ 0 0	
	0 $\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{105}i}{840}$ 0 $-\frac{\sqrt{105}}{840}$ 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ 0 0 0	
818	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(1,1;a)}(A'', 2)$	0 0 0 $-\frac{11\sqrt{105}}{840}$ 0 $-\frac{11\sqrt{105}i}{840}$ 0 0 0 $\frac{3\sqrt{7}}{56}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0	
	0 0 $-\frac{11\sqrt{105}}{840}$ 0 $\frac{11\sqrt{105}i}{840}$ 0 0 0 $\frac{3\sqrt{7}}{56}$ 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0	
	0 0 0 $\frac{13\sqrt{35}}{840}$ 0 $-\frac{13\sqrt{35}i}{840}$ $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{21}}{56}$ 0 $\frac{\sqrt{21}i}{56}$ 0 0 0	
	0 0 $\frac{13\sqrt{35}}{840}$ 0 $\frac{13\sqrt{35}i}{840}$ 0 0 $\frac{\sqrt{35}}{42}$ $\frac{\sqrt{21}}{56}$ 0 $-\frac{\sqrt{21}i}{56}$ 0 0 0	
	0 $-\frac{\sqrt{21}}{28}$ 0 0 $-\frac{\sqrt{35}}{168}$ 0 0 $-\frac{\sqrt{35}i}{420}$ 0 0 $-\frac{5\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}i}{42}$	
	$-\frac{\sqrt{21}}{28}$ 0 0 0 0 $\frac{\sqrt{35}}{168}$ $\frac{\sqrt{35}i}{420}$ 0 0 0 0 $\frac{5\sqrt{21}}{168}$ $\frac{\sqrt{21}i}{42}$ 0	
	0 $-\frac{\sqrt{21}i}{28}$ $\frac{\sqrt{35}}{168}$ 0 0 0 0 $-\frac{\sqrt{35}}{420}$ $-\frac{5\sqrt{21}}{168}$ 0 0 0 0 $\frac{\sqrt{21}}{42}$	
	$\frac{\sqrt{21}i}{28}$ 0 0 $-\frac{\sqrt{35}}{168}$ 0 0 $-\frac{\sqrt{35}}{420}$ 0 0 $\frac{5\sqrt{21}}{168}$ 0 0 $\frac{\sqrt{21}}{42}$ 0	
	0 0 0 $-\frac{\sqrt{35}i}{120}$ 0 $-\frac{\sqrt{35}}{120}$ 0 0 0 $-\frac{\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{168}$ 0 0 0	
	0 0 $\frac{\sqrt{35}i}{120}$ 0 $-\frac{\sqrt{35}}{120}$ 0 0 0 $\frac{\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{168}$ 0 0 0	
819	symmetry	$\sqrt{3}xz$
$\mathbb{M}_2^{(1,1;a)}(A'', 3)$	0 0 $-\frac{\sqrt{105}}{140}$ 0 0 0 0 $-\frac{\sqrt{105}}{105}$ $-\frac{\sqrt{7}}{28}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{105}}{140}$ 0 0 $-\frac{\sqrt{105}}{105}$ 0 0 $\frac{\sqrt{7}}{28}$ 0 0 0 0 0	
	0 0 $-\frac{11\sqrt{35}}{420}$ 0 0 0 0 $-\frac{\sqrt{35}}{42}$ $-\frac{\sqrt{21}}{84}$ 0 0 0 0 $\frac{\sqrt{21}}{42}$	
	0 0 0 $\frac{11\sqrt{35}}{420}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{21}}{84}$ 0 0 0 0 $\frac{\sqrt{21}}{42}$	
	$\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{420}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0 0	
	0 $-\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{420}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0 0	
	0 0 0 $\frac{\sqrt{35}}{105}$ 0 $\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{35}}{105}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 0 $\frac{\sqrt{21}}{42}$ 0	
	0 0 $\frac{\sqrt{35}}{105}$ 0 $-\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{35}}{105}$ $-\frac{\sqrt{21}}{42}$ 0 0 0 0 $-\frac{\sqrt{21}}{42}$	
	0 $\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{35}}{420}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 0 $\frac{\sqrt{21}}{28}$ 0 0 0	
	$\frac{\sqrt{21}}{42}$ 0 0 0 0 $\frac{\sqrt{35}}{420}$ $-\frac{\sqrt{35}i}{42}$ 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0 0	
820	symmetry	$\sqrt{35}yz(y-z)(y+z)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(A', 1)$	0	$\begin{bmatrix} 0 & -\frac{9\sqrt{22}}{440} & 0 & 0 & \frac{\sqrt{330}}{120} & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 & 0 & -\frac{13\sqrt{22}}{440} & 0 & 0 & -\frac{3\sqrt{22}i}{110} \\ -\frac{9\sqrt{22}}{440} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{120} & \frac{\sqrt{330}i}{132} & 0 & 0 & 0 & 0 & \frac{13\sqrt{22}}{440} & \frac{3\sqrt{22}i}{110} & 0 \\ 0 & -\frac{3\sqrt{66}}{440} & 0 & 0 & \frac{3\sqrt{110}}{440} & 0 & 0 & -\frac{\sqrt{110}i}{110} & 0 & 0 & -\frac{\sqrt{66}}{120} & 0 & 0 & -\frac{7\sqrt{66}i}{660} \\ -\frac{3\sqrt{66}}{440} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{110}}{440} & \frac{\sqrt{110}i}{110} & 0 & 0 & 0 & 0 & \frac{\sqrt{66}}{120} & \frac{7\sqrt{66}i}{660} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}i}{55} & -\frac{\sqrt{110}}{55} & 0 & 0 & \frac{3\sqrt{66}}{220} & 0 & \frac{\sqrt{66}i}{66} & -\frac{\sqrt{66}}{66} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{110}i}{55} & 0 & 0 & \frac{\sqrt{110}}{55} & \frac{3\sqrt{66}}{220} & 0 & -\frac{\sqrt{66}i}{66} & 0 & 0 & \frac{\sqrt{66}}{66} \\ \frac{\sqrt{66}}{330} & 0 & 0 & 0 & 0 & \frac{3\sqrt{110}}{440} & 0 & 0 & 0 & \frac{\sqrt{66}i}{330} & 0 & -\frac{3\sqrt{66}}{440} & 0 & 0 \\ 0 & -\frac{\sqrt{66}}{330} & 0 & 0 & \frac{3\sqrt{110}}{440} & 0 & 0 & 0 & -\frac{\sqrt{66}i}{330} & 0 & -\frac{3\sqrt{66}}{440} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{66}i}{330} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{110}}{440} & -\frac{\sqrt{66}}{330} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{66}}{440} \\ -\frac{\sqrt{66}i}{330} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{110}}{440} & 0 & 0 & \frac{\sqrt{66}}{330} & 0 & 0 & -\frac{3\sqrt{66}}{440} & 0 \end{bmatrix}$
	821	symmetry
		$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
	$\mathbb{M}_4^{(1,1;a)}(A', 2)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{330}i}{1320} & 0 & \frac{\sqrt{330}}{1320} & 0 & 0 & 0 & -\frac{\sqrt{22}i}{440} & 0 & \frac{\sqrt{22}}{440} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{330}i}{1320} & 0 & \frac{\sqrt{330}}{1320} & 0 & 0 & 0 & \frac{\sqrt{22}i}{440} & 0 & \frac{\sqrt{22}}{440} & 0 & 0 & 0 \\ \frac{3\sqrt{66}}{220} & 0 & 0 & \frac{7\sqrt{110}i}{440} & 0 & -\frac{7\sqrt{110}}{440} & 0 & 0 & 0 & -\frac{5\sqrt{66}i}{264} & 0 & -\frac{5\sqrt{66}}{264} & 0 & 0 \\ 0 & -\frac{3\sqrt{66}}{220} & -\frac{7\sqrt{110}i}{440} & 0 & -\frac{7\sqrt{110}}{440} & 0 & 0 & 0 & \frac{5\sqrt{66}i}{264} & 0 & -\frac{5\sqrt{66}}{264} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{66}i}{330} & \frac{3\sqrt{110}}{440} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{66}}{440} & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}}{330} \\ \frac{\sqrt{66}i}{330} & 0 & 0 & -\frac{3\sqrt{110}}{440} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{66}}{440} & 0 & 0 & 0 & -\frac{\sqrt{66}}{330} & 0 \\ 0 & -\frac{\sqrt{66}}{330} & 0 & 0 & -\frac{3\sqrt{110}}{440} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{66}}{440} & 0 & 0 & 0 & \frac{\sqrt{66}i}{330} \\ -\frac{\sqrt{66}}{330} & 0 & 0 & 0 & 0 & \frac{3\sqrt{110}}{440} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{66}}{440} & -\frac{\sqrt{66}i}{330} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{110}}{55} & 0 & \frac{\sqrt{110}i}{55} & 0 & 0 & 0 & -\frac{\sqrt{66}}{66} & 0 & \frac{\sqrt{66}i}{66} & \frac{3\sqrt{66}}{220} & 0 \\ 0 & 0 & \frac{\sqrt{110}}{55} & 0 & -\frac{\sqrt{110}i}{55} & 0 & 0 & 0 & -\frac{\sqrt{66}}{66} & 0 & -\frac{\sqrt{66}i}{66} & 0 & 0 & -\frac{3\sqrt{66}}{220} \end{bmatrix}$
	822	symmetry
		$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(A', 3)$	0	$-\frac{3\sqrt{154}}{440}$
	$-\frac{3\sqrt{154}}{440}$	0
	0	$\frac{3\sqrt{462}}{440}$
	$\frac{3\sqrt{462}}{440}$	0
	0	$\frac{\sqrt{770}}{220}$
	$\frac{17\sqrt{462}}{2310}$	0
	0	$-\frac{17\sqrt{462}}{2310}$
	0	$-\frac{17\sqrt{462}}{2310}$
	$-\frac{17\sqrt{462}}{2310}$	0
	0	$\frac{\sqrt{770}}{385}$
823	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{M}_4^{(1,1;a)}(A', 4)$	$\frac{3\sqrt{154}}{220}$	0
	0	$-\frac{3\sqrt{154}}{220}$
	0	$-\frac{\sqrt{2310}}{1848}$
	$-\frac{\sqrt{2310}}{1848}$	0
	0	$-\frac{\sqrt{770}}{616}$
	$-\frac{\sqrt{770}}{616}$	0
	0	$-\frac{\sqrt{770}}{616}$
	$-\frac{17\sqrt{462}}{2310}$	0
	$-\frac{17\sqrt{462}}{2310}$	$-\frac{\sqrt{770}}{440}$
	$-\frac{17\sqrt{462}}{2310}$	0
824	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(A'', 1)$	0 0 0 $-\frac{5\sqrt{22}}{264}$ 0 $\frac{5\sqrt{22}i}{264}$ $\frac{5\sqrt{22}}{132}$ 0 0 $-\frac{7\sqrt{330}}{1320}$ 0 $-\frac{7\sqrt{330}i}{1320}$ 0 0	
	0 0 $-\frac{5\sqrt{22}}{264}$ 0 $-\frac{5\sqrt{22}i}{264}$ 0 0 $-\frac{5\sqrt{22}}{132}$ $-\frac{7\sqrt{330}}{1320}$ 0 $\frac{7\sqrt{330}i}{1320}$ 0 0 0	
	0 0 0 $\frac{5\sqrt{66}}{264}$ 0 $\frac{5\sqrt{66}i}{264}$ 0 0 0 $-\frac{7\sqrt{110}}{1320}$ 0 $\frac{7\sqrt{110}i}{1320}$ $\frac{7\sqrt{110}}{660}$ 0	
	0 0 $\frac{5\sqrt{66}}{264}$ 0 $-\frac{5\sqrt{66}i}{264}$ 0 0 0 $-\frac{7\sqrt{110}}{1320}$ 0 $-\frac{7\sqrt{110}i}{1320}$ 0 0 $-\frac{7\sqrt{110}}{660}$	
	0 $-\frac{\sqrt{110}}{330}$ 0 0 $\frac{\sqrt{66}}{66}$ 0 0 $-\frac{\sqrt{66}i}{66}$ 0 0 $-\frac{\sqrt{110}}{165}$ 0 0 $-\frac{\sqrt{110}i}{165}$	
	$-\frac{\sqrt{110}}{330}$ 0 0 0 0 $-\frac{\sqrt{66}}{66}$ $\frac{\sqrt{66}i}{66}$ 0 0 0 0 $\frac{\sqrt{110}}{165}$ $\frac{\sqrt{110}i}{165}$ 0	
	0 $\frac{\sqrt{110}i}{330}$ $\frac{\sqrt{66}}{66}$ 0 0 0 0 $\frac{\sqrt{66}}{66}$ $\frac{\sqrt{110}}{165}$ 0 0 0 0 $-\frac{\sqrt{110}}{165}$	
	$-\frac{\sqrt{110}i}{330}$ 0 0 $-\frac{\sqrt{66}}{66}$ 0 0 $\frac{\sqrt{66}}{66}$ 0 0 $-\frac{\sqrt{110}}{165}$ 0 0 0 $-\frac{\sqrt{110}}{165}$	
	$-\frac{\sqrt{110}}{330}$ 0 0 $-\frac{\sqrt{66}i}{66}$ 0 $\frac{\sqrt{66}}{66}$ 0 0 0 $\frac{\sqrt{110}i}{165}$ 0 $\frac{\sqrt{110}}{165}$ 0 0	
	0 $\frac{\sqrt{110}}{330}$ $\frac{\sqrt{66}i}{66}$ 0 $\frac{\sqrt{66}}{66}$ 0 0 0 $-\frac{\sqrt{110}i}{165}$ 0 $\frac{\sqrt{110}}{165}$ 0 0 0	
825	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 0 0 $-\frac{19\sqrt{770}}{9240}$ 0 $\frac{19\sqrt{770}i}{9240}$ $\frac{5\sqrt{770}}{924}$ 0 0 $-\frac{41\sqrt{462}}{9240}$ 0 $-\frac{41\sqrt{462}i}{9240}$ 0 0	
	0 0 $-\frac{19\sqrt{770}}{9240}$ 0 $-\frac{19\sqrt{770}i}{9240}$ 0 0 $-\frac{5\sqrt{770}}{924}$ $-\frac{41\sqrt{462}}{9240}$ 0 $\frac{41\sqrt{462}i}{9240}$ 0 0 0	
	0 0 0 $-\frac{23\sqrt{2310}}{9240}$ 0 $-\frac{23\sqrt{2310}i}{9240}$ 0 0 0 $\frac{17\sqrt{154}}{1848}$ 0 $-\frac{17\sqrt{154}i}{1848}$ $-\frac{19\sqrt{154}}{4620}$ 0	
	0 0 $-\frac{23\sqrt{2310}}{9240}$ 0 $\frac{23\sqrt{2310}i}{9240}$ 0 0 0 $\frac{17\sqrt{154}}{1848}$ 0 $\frac{17\sqrt{154}i}{1848}$ 0 0 $\frac{19\sqrt{154}}{4620}$	
	0 $-\frac{\sqrt{154}}{210}$ 0 0 $\frac{\sqrt{2310}}{4620}$ 0 0 $-\frac{\sqrt{2310}i}{462}$ 0 0 $-\frac{47\sqrt{154}}{4620}$ 0 0 $-\frac{2\sqrt{154}i}{1155}$	
	$-\frac{\sqrt{154}}{210}$ 0 0 0 0 $-\frac{\sqrt{2310}}{4620}$ $\frac{\sqrt{2310}i}{462}$ 0 0 0 0 $\frac{47\sqrt{154}}{4620}$ $\frac{2\sqrt{154}i}{1155}$ 0	
	0 $\frac{\sqrt{154}i}{210}$ $\frac{\sqrt{2310}}{4620}$ 0 0 0 0 $\frac{\sqrt{2310}}{462}$ $\frac{47\sqrt{154}}{4620}$ 0 0 0 0 $-\frac{2\sqrt{154}}{1155}$	
	$-\frac{\sqrt{154}i}{210}$ 0 0 $-\frac{\sqrt{2310}}{4620}$ 0 0 $\frac{\sqrt{2310}}{462}$ 0 0 $-\frac{47\sqrt{154}}{4620}$ 0 0 $-\frac{2\sqrt{154}}{1155}$ 0	
	$\frac{\sqrt{154}}{105}$ 0 0 $\frac{\sqrt{2310}i}{420}$ 0 $-\frac{\sqrt{2310}}{420}$ 0 0 0 $-\frac{\sqrt{154}i}{84}$ 0 $-\frac{\sqrt{154}}{84}$ 0 0	
	0 $-\frac{\sqrt{154}}{105}$ $-\frac{\sqrt{2310}i}{420}$ 0 $-\frac{\sqrt{2310}}{420}$ 0 0 0 $\frac{\sqrt{154}i}{84}$ 0 $-\frac{\sqrt{154}}{84}$ 0 0 0	
826	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 0 0 $-\frac{23\sqrt{2310}}{9240}$ 0 $-\frac{23\sqrt{2310}i}{9240}$ 0 0 0 $-\frac{\sqrt{154}}{3080}$ 0 $\frac{\sqrt{154}i}{3080}$ $-\frac{3\sqrt{154}}{220}$ 0	
	0 0 $-\frac{23\sqrt{2310}}{9240}$ 0 $\frac{23\sqrt{2310}i}{9240}$ 0 0 0 $-\frac{\sqrt{154}}{3080}$ 0 $-\frac{\sqrt{154}i}{3080}$ 0 0 $\frac{3\sqrt{154}}{220}$	
	0 0 0 $\frac{9\sqrt{770}}{3080}$ 0 $-\frac{9\sqrt{770}i}{3080}$ $-\frac{\sqrt{770}}{220}$ 0 0 $\frac{41\sqrt{462}}{9240}$ 0 $\frac{41\sqrt{462}i}{9240}$ 0 0	
	0 0 $\frac{9\sqrt{770}}{3080}$ 0 $\frac{9\sqrt{770}i}{3080}$ 0 0 $\frac{\sqrt{770}}{220}$ $\frac{41\sqrt{462}}{9240}$ 0 $-\frac{41\sqrt{462}i}{9240}$ 0 0 0	
	0 $\frac{\sqrt{462}}{210}$ 0 0 $-\frac{\sqrt{770}}{220}$ 0 0 $\frac{\sqrt{770}i}{385}$ 0 0 $\frac{\sqrt{462}}{220}$ 0 0 $\frac{17\sqrt{462}i}{2310}$	
	$\frac{\sqrt{462}}{210}$ 0 0 0 $\frac{\sqrt{770}}{220}$ $-\frac{\sqrt{770}i}{385}$ 0 0 0 0 $-\frac{\sqrt{462}}{220}$ $-\frac{17\sqrt{462}i}{2310}$ 0	
	0 $\frac{\sqrt{462}i}{210}$ $\frac{\sqrt{770}}{220}$ 0 0 0 0 $\frac{\sqrt{770}}{385}$ $\frac{\sqrt{462}}{220}$ 0 0 0 0 $-\frac{17\sqrt{462}}{2310}$	
	$-\frac{\sqrt{462}i}{210}$ 0 0 $-\frac{\sqrt{770}}{220}$ 0 0 $\frac{\sqrt{770}}{385}$ 0 0 $-\frac{\sqrt{462}}{220}$ 0 0 $-\frac{17\sqrt{462}}{2310}$ 0	
	0 0 0 $-\frac{3\sqrt{770}i}{1540}$ 0 $-\frac{3\sqrt{770}}{1540}$ 0 0 0 $-\frac{13\sqrt{462}i}{4620}$ 0 $\frac{13\sqrt{462}}{4620}$ 0 0	
	0 0 $\frac{3\sqrt{770}i}{1540}$ 0 $-\frac{3\sqrt{770}}{1540}$ 0 0 0 $\frac{13\sqrt{462}i}{4620}$ 0 $\frac{13\sqrt{462}}{4620}$ 0 0	
827	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{M}_4^{(1,1;a)}(A'', 4)$	0 $-\frac{9\sqrt{22}i}{440}$ $-\frac{\sqrt{330}}{120}$ 0 0 0 0 $-\frac{\sqrt{330}}{132}$ $-\frac{13\sqrt{22}}{440}$ 0 0 0 0 $\frac{3\sqrt{22}}{110}$	
	$\frac{9\sqrt{22}i}{440}$ 0 0 $\frac{\sqrt{330}}{120}$ 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 $\frac{13\sqrt{22}}{440}$ 0 0 0 $\frac{3\sqrt{22}}{110}$ 0	
	0 $\frac{3\sqrt{66}i}{440}$ $\frac{3\sqrt{110}}{440}$ 0 0 0 0 $\frac{\sqrt{110}}{110}$ $\frac{\sqrt{66}}{120}$ 0 0 0 0 $-\frac{7\sqrt{66}}{660}$	
	$-\frac{3\sqrt{66}i}{440}$ 0 0 $-\frac{3\sqrt{110}}{440}$ 0 0 $\frac{\sqrt{110}}{110}$ 0 0 $-\frac{\sqrt{66}}{120}$ 0 0 0 $-\frac{7\sqrt{66}}{660}$ 0	
	$-\frac{\sqrt{66}}{330}$ 0 0 $\frac{3\sqrt{110}i}{440}$ 0 0 0 0 0 $\frac{3\sqrt{66}i}{440}$ 0 $-\frac{\sqrt{66}}{330}$ 0 0 0	
	0 $\frac{\sqrt{66}}{330}$ $-\frac{3\sqrt{110}i}{440}$ 0 0 0 0 0 $-\frac{3\sqrt{66}i}{440}$ 0 $-\frac{\sqrt{66}}{330}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{110}}{55}$ 0 0 $\frac{\sqrt{110}}{55}$ 0 0 $-\frac{\sqrt{66}}{66}$ 0 $-\frac{3\sqrt{66}i}{220}$ $-\frac{\sqrt{66}}{66}$ 0	
	0 0 $-\frac{\sqrt{110}}{55}$ 0 0 0 0 $-\frac{\sqrt{110}}{55}$ $-\frac{\sqrt{66}}{66}$ 0 $\frac{3\sqrt{66}i}{220}$ 0 0 $\frac{\sqrt{66}}{66}$	
	0 $\frac{\sqrt{66}}{330}$ 0 0 0 0 $-\frac{3\sqrt{110}i}{440}$ 0 0 0 $-\frac{\sqrt{66}}{330}$ 0 0 $\frac{3\sqrt{66}i}{440}$	
	$\frac{\sqrt{66}}{330}$ 0 0 0 0 0 $\frac{3\sqrt{110}i}{440}$ 0 0 0 $\frac{\sqrt{66}}{330}$ $-\frac{3\sqrt{66}i}{440}$ 0	
828	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix											
$\mathbb{M}_4^{(1,1;a)}(A'', 5)$	0	$\frac{3\sqrt{154}i}{440}$	$-\frac{\sqrt{2310}}{1848}$	0	0	0	0	$\frac{\sqrt{2310}}{924}$	$\frac{29\sqrt{154}}{3080}$	0	0	0	0
	$-\frac{3\sqrt{154}i}{440}$	0	0	$\frac{\sqrt{2310}}{1848}$	0	0	$\frac{\sqrt{2310}}{924}$	0	0	$-\frac{29\sqrt{154}}{3080}$	0	0	0
	0	$\frac{3\sqrt{462}i}{440}$	$\frac{\sqrt{770}}{616}$	0	0	0	0	0	$\frac{29\sqrt{462}}{9240}$	0	0	0	$-\frac{29\sqrt{462}}{4620}$
	$-\frac{3\sqrt{462}i}{440}$	0	0	$-\frac{\sqrt{770}}{616}$	0	0	0	0	$-\frac{29\sqrt{462}}{9240}$	0	0	$-\frac{29\sqrt{462}}{4620}$	0
	$\frac{17\sqrt{462}}{2310}$	0	0	$\frac{\sqrt{770}i}{440}$	0	$-\frac{\sqrt{770}}{385}$	0	0	0	$-\frac{3\sqrt{462}i}{440}$	0	$-\frac{\sqrt{462}}{210}$	0
	0	$-\frac{17\sqrt{462}}{2310}$	$-\frac{\sqrt{770}i}{440}$	0	$-\frac{\sqrt{770}}{385}$	0	0	0	$\frac{3\sqrt{462}i}{440}$	0	$-\frac{\sqrt{462}}{210}$	0	0
	0	0	0	$-\frac{\sqrt{770}}{385}$	0	$-\frac{\sqrt{770}i}{220}$	$-\frac{\sqrt{770}}{385}$	0	0	$\frac{\sqrt{462}}{210}$	0	0	$-\frac{\sqrt{462}}{210}$
	0	0	$-\frac{\sqrt{770}}{385}$	0	$\frac{\sqrt{770}i}{220}$	0	0	$\frac{\sqrt{770}}{385}$	$\frac{\sqrt{462}}{210}$	0	0	0	$\frac{\sqrt{462}}{210}$
	0	$\frac{17\sqrt{462}}{2310}$	0	0	$-\frac{\sqrt{770}}{385}$	0	0	$\frac{\sqrt{770}i}{440}$	0	0	$\frac{\sqrt{462}}{210}$	0	$\frac{3\sqrt{462}i}{440}$
	$\frac{17\sqrt{462}}{2310}$	0	0	0	0	$\frac{\sqrt{770}}{385}$	$-\frac{\sqrt{770}i}{440}$	0	0	0	$-\frac{\sqrt{462}}{210}$	$-\frac{3\sqrt{462}i}{440}$	0

bra:  $= \langle f_3, \uparrow |, \langle f_3, \downarrow |, \langle f_{ax}, \uparrow |, \langle f_{ax}, \downarrow |, \langle f_{ay}, \uparrow |, \langle f_{ay}, \downarrow |, \langle f_{az}, \uparrow |, \langle f_{az}, \downarrow |, \langle f_{bx}, \uparrow |, \langle f_{bx}, \downarrow |, \langle f_{by}, \uparrow |, \langle f_{by}, \downarrow |, \langle f_{bz}, \uparrow |, \langle f_{bz}, \downarrow |$ ket:  $= |f_3, \uparrow \rangle, |f_3, \downarrow \rangle, |f_{ax}, \uparrow \rangle, |f_{ax}, \downarrow \rangle, |f_{ay}, \uparrow \rangle, |f_{ay}, \downarrow \rangle, |f_{az}, \uparrow \rangle, |f_{az}, \downarrow \rangle, |f_{bx}, \uparrow \rangle, |f_{bx}, \downarrow \rangle, |f_{by}, \uparrow \rangle, |f_{by}, \downarrow \rangle, |f_{bz}, \uparrow \rangle, |f_{bz}, \downarrow \rangle$ 

Table 10: (f,f) block.

No.	multipole	matrix											
829	symmetry												1

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(A', 1)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	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 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 $\frac{\sqrt{210}}{84}$ 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{14}}{14}$ 0 0 0 0 0 $\frac{\sqrt{210}}{84}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{14}}{14}$ 0 0 0 0 0 $\frac{\sqrt{210}}{84}$ 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{14}}{14}$ 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 $-\frac{\sqrt{210}}{42}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{42}$	
	0 0 $\frac{\sqrt{210}}{84}$ 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 0 $-\frac{\sqrt{210}}{84}$ 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 0 0 $-\frac{\sqrt{210}}{42}$ 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 0 $-\frac{\sqrt{210}}{42}$ 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 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 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 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0 0 0 0 0 0

833 symmetry

 $\sqrt{3}yz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(A'', 1)$	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
	$-\frac{\sqrt{210}}{42}$	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 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$
	0	0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 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 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$
	0	0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0 0 0

834 symmetry

 $\sqrt{3}xy$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(A'', 2)$	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 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0
	0	0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0
	$-\frac{\sqrt{210}}{42}$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{210}}{42}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0 0
	0	0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{14}}{56}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$		
835	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(a)}(A', 1)$	$-\frac{\sqrt{33}}{11} \quad 0 \quad 0$														
	$0 \quad -\frac{\sqrt{33}}{11} \quad 0 \quad 0$														
	$0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$														
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$														
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$														
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$														
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$														
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$														
	$0 \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$														
	$0 \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$														
	$0 \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$														
	$0 \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0 \quad 0$														
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
$\mathbb{Q}_4^{(a)}(A', 2)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{1155}}{308} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}}{308} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{1155}}{308} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{77}}{308} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{308} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{77}}{308} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{308} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{77}}{308} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{3\sqrt{77}}{308} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{132} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{77}}{308} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{132} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{77}}{308} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{132} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{77}}{308} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{132} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{66} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{66} & 0 \end{bmatrix}$
	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 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{385}}{308} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{308} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{385}}{308} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{308} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{385}}{308} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{308} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{385}}{308} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{308} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{308} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{231}}{154} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{231}}{154} & 0 \\ 0 & 0 & -\frac{\sqrt{231}}{308} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{44} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{231}}{308} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{44} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{308} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{44} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{231}}{308} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{385}}{44} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{231}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{231}}{154} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	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 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 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 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{33}}{22}$ 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 $-\frac{\sqrt{33}}{22}$ 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	
	0 $\frac{\sqrt{55}}{22}$ 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 $-\frac{\sqrt{33}}{22}$ 0 0 0 0 0 0 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 $-\frac{\sqrt{231}}{154}$ 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 0 $\frac{3\sqrt{385}}{154}$ 0 0 0 0 0 0 $\frac{\sqrt{231}}{77}$ 0	
	0 0 0 0 0 0 0 $\frac{3\sqrt{385}}{154}$ 0 0 0 0 0 $\frac{\sqrt{231}}{77}$ 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 0 0 0 0 0	
	0 0 $\frac{3\sqrt{385}}{154}$ 0 0 0 0 0 0 $-\frac{\sqrt{231}}{77}$ 0 0 0 0 0	
	0 0 0 $\frac{3\sqrt{385}}{154}$ 0 0 0 0 0 0 $-\frac{\sqrt{231}}{77}$ 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{231}}{77}$ 0 0 0 0 0 0 $\frac{\sqrt{385}}{154}$ 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{231}}{77}$ 0 0 0 0 0 $\frac{\sqrt{385}}{154}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{231}}{77}$ 0 0 0 0 0 $\frac{\sqrt{385}}{154}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{231}}{77}$ 0 0 0 0 0 0 $\frac{\sqrt{385}}{154}$ 0 0 0 0 0	
$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$		

840 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A'', 1)$	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 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{33}}{22}$ 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 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	
	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 $-\frac{\sqrt{33}}{22}$ 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	

841 symmetry

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

continued ...

Table 10

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

842 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A'', 3)$	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	
	$-\frac{\sqrt{231}}{154}$ 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 $\frac{3\sqrt{385}}{154}$ 0 0 0 0 0 $-\frac{\sqrt{231}}{77}$ 0	
	0 0 0 0 0 0 0 $\frac{3\sqrt{385}}{154}$ 0 0 0 0 0 $-\frac{\sqrt{231}}{77}$	
	0 0 0 0 0 $\frac{3\sqrt{385}}{154}$ 0 0 0 0 $\frac{\sqrt{231}}{77}$ 0 0 0	
	0 0 0 0 0 0 $\frac{3\sqrt{385}}{154}$ 0 0 0 0 0 $\frac{\sqrt{231}}{77}$ 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{231}}{77}$ 0 0 0 0 0 $\frac{\sqrt{385}}{154}$ 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{231}}{77}$ 0 0 0 0 0 $\frac{\sqrt{385}}{154}$ 0	
	0 0 0 0 $-\frac{\sqrt{231}}{77}$ 0 0 0 0 0 $\frac{\sqrt{385}}{154}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{231}}{77}$ 0 0 0 0 0 $\frac{\sqrt{385}}{154}$ 0 0 0	
843	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 10

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

844 symmetry

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A', 2)$	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 $-\frac{\sqrt{3}}{6}$ 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 $-\frac{\sqrt{3}}{6}$ 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 $-\frac{\sqrt{3}}{6}$ 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 $-\frac{\sqrt{3}}{6}$ 0 0 0 0 0 0 0 0	

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A', 3)$	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 $-\frac{5\sqrt{33}}{132}$ 0 0 0 0 0 0 $-\frac{\sqrt{55}}{44}$ 0 0 0 0 0	
	0 0 0 $-\frac{5\sqrt{33}}{132}$ 0 0 0 0 0 0 $-\frac{\sqrt{55}}{44}$ 0 0 0 0	
	0 0 0 0 $-\frac{5\sqrt{33}}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{55}}{44}$ 0 0 0 0	
	0 0 0 0 0 $-\frac{5\sqrt{33}}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{55}}{44}$ 0 0 0	
	0 0 0 0 0 0 $-\frac{5\sqrt{33}}{66}$ 0 0 0 0 0 0 $\frac{\sqrt{55}}{44}$ 0 0 0	
	0 0 0 0 0 0 0 $\frac{5\sqrt{33}}{66}$ 0 0 0 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 0 $-\frac{\sqrt{55}}{44}$ 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 $-\frac{\sqrt{33}}{44}$ 0 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 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 $\frac{\sqrt{33}}{22}$	
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
$\mathbb{Q}_6^{(a)}(A', 4)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{5\sqrt{11}}{44} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{5\sqrt{11}}{44} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}}{44} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}}{44} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{11}}{44} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{66} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{66} \\ 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{11}}{44} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{11}}{44} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}}{44} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{11}}{44} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{66} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{66} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	848 symmetry	$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A', 5)$	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 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 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 0 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 $\frac{\sqrt{110}}{44}$ 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	
	0 $\frac{\sqrt{66}}{22}$ 0 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	
	0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 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 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{5}{16}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{16}$ 0	
	0 0 0 0 0 0 0 0 $-\frac{5}{16}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{16}$	
	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 $-\frac{5}{16}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}}{16}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{5}{16}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}}{16}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{15}}{16}$ 0 0 0 0 0 0 $\frac{3}{16}$ 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{15}}{16}$ 0 0 0 0 0 0 $\frac{3}{16}$	
	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 $\frac{\sqrt{15}}{16}$ 0 0 0 0 0 0 $\frac{3}{16}$ 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{15}}{16}$ 0 0 0 0 0 0 $\frac{3}{16}$ 0 0 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 $\frac{2\sqrt{33}}{33}$ 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 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 0 0 $\frac{13\sqrt{33}}{528}$ 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 0 $\frac{13\sqrt{33}}{528}$	
	$\frac{2\sqrt{33}}{33}$ 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 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 0 $-\frac{13\sqrt{33}}{528}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 0 $-\frac{13\sqrt{33}}{528}$ 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 0	
	0 0 0 0 0 0 0 $-\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 $\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 0 0 0 0 0	
	0 0 0 $\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 0 0 0 0 0	
851	symmetry	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A'', 1)$	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 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 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 0 $\frac{\sqrt{110}}{44}$ 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 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 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 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0	
852	symmetry	$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A'', 3)$	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 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{5}{16}$ 0 0 0 0 0 $-\frac{\sqrt{15}}{16}$ 0	
	0 0 0 0 0 0 0 0 $-\frac{5}{16}$ 0 0 0 0 0 $-\frac{\sqrt{15}}{16}$	
	0 0 0 0 $-\frac{5}{16}$ 0 0 0 0 0 $\frac{\sqrt{15}}{16}$ 0 0 0	
	0 0 0 0 0 $-\frac{5}{16}$ 0 0 0 0 0 $\frac{\sqrt{15}}{16}$ 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 $\frac{\sqrt{15}}{16}$ 0 0 0 0 0 $\frac{3}{16}$ 0	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{15}}{16}$ 0 0 0 0 0 $\frac{3}{16}$	
	0 0 0 0 $-\frac{\sqrt{15}}{16}$ 0 0 0 0 0 $\frac{3}{16}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{15}}{16}$ 0 0 0 0 0 $\frac{3}{16}$ 0 0 0	
$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$		

854 symmetry

continued ...

Table 10

No.	multipole	matrix
		$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{5}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{5}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{16} & 0 & 0 \\ 0 & 0 & -\frac{5}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 \\ 0 & 0 & -\frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{16} & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$
855	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
$\mathbb{Q}_6^{(a)}(A'', 5)$	0 0 $\frac{2\sqrt{33}}{33}$ 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	
	$\frac{2\sqrt{33}}{33}$ 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 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 $-\frac{13\sqrt{33}}{528}$ 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 $-\frac{13\sqrt{33}}{528}$	
	0 0 0 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 $\frac{13\sqrt{33}}{528}$ 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 $\frac{13\sqrt{33}}{528}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 0	
	0 0 0 0 0 0 0 $\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$	
	0 0 0 0 $-\frac{13\sqrt{33}}{528}$ 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 0 0 0	
	0 0 0 0 0 $-\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 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
$\mathbb{Q}_6^{(a)}(A'', 6)$	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 $\frac{2\sqrt{33}}{33}$ 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 $-\frac{13\sqrt{33}}{528}$ 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 $-\frac{13\sqrt{33}}{528}$ 0 0	
	0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 $\frac{13\sqrt{33}}{528}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{55}}{176}$ 0 0 0 0 0 $\frac{13\sqrt{33}}{528}$ 0 0 0 0	
	$\frac{2\sqrt{33}}{33}$ 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 $\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 0 0 0	
	0 0 0 0 0 $\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 0 0 0	
	0 0 $-\frac{13\sqrt{33}}{528}$ 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 0 0 0 0 0	
	0 0 0 $-\frac{13\sqrt{33}}{528}$ 0 0 0 0 0 $-\frac{7\sqrt{55}}{176}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 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 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ $\frac{\sqrt{21}i}{21}$ 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{21}i}{21}$	
	0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 $\frac{\sqrt{21}}{56}$ 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 $-\frac{\sqrt{35}}{56}$	
	0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ $-\frac{\sqrt{21}}{56}$ 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ $\frac{\sqrt{35}}{56}$ 0	
	0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 $-\frac{\sqrt{21}i}{56}$ $\frac{\sqrt{35}i}{28}$ 0 0 0 0 $-\frac{\sqrt{35}i}{56}$	
	0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 $-\frac{\sqrt{21}i}{56}$ 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 $-\frac{\sqrt{35}i}{56}$	
	0 0 0 $-\frac{\sqrt{21}}{56}$ 0 $\frac{\sqrt{21}i}{56}$ 0 0 0 $-\frac{\sqrt{35}}{56}$ 0 $-\frac{\sqrt{35}i}{56}$ 0 0	
	0 0 $\frac{\sqrt{21}}{56}$ 0 $\frac{\sqrt{21}i}{56}$ 0 0 0 $\frac{\sqrt{35}}{56}$ 0 $-\frac{\sqrt{35}i}{56}$ 0 0 0	
	0 $\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 $\frac{\sqrt{35}}{56}$ 0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $-\frac{\sqrt{21}}{168}$	
	$\frac{\sqrt{21}i}{42}$ 0 0 0 0 $\frac{\sqrt{35}i}{28}$ $-\frac{\sqrt{35}}{56}$ 0 0 0 0 $\frac{\sqrt{21}i}{84}$ $\frac{\sqrt{21}}{168}$ 0	
	0 $\frac{\sqrt{21}}{42}$ $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{56}$ $\frac{\sqrt{21}i}{84}$ 0 0 0 0 $\frac{\sqrt{21}i}{168}$	
	$-\frac{\sqrt{21}}{42}$ 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 $\frac{\sqrt{21}i}{168}$	
	$-\frac{\sqrt{21}i}{21}$ 0 0 $\frac{\sqrt{35}}{56}$ 0 $\frac{\sqrt{35}i}{56}$ 0 0 0 $\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0	
	0 $\frac{\sqrt{21}i}{21}$ $-\frac{\sqrt{35}}{56}$ 0 $\frac{\sqrt{35}i}{56}$ 0 0 0 $-\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 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 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{14}$ 0 0	
	0 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 0 $\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$	
	0 0 0 0 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{56}$ 0	
	0 0 0 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $0$ $\frac{\sqrt{105}i}{56}$	
	0 0 0 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $0$ $\frac{\sqrt{105}i}{56}$ 0	
	0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 $\frac{\sqrt{105}i}{56}$ 0 0	
	0 0 $\frac{3\sqrt{7}}{56}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 $\frac{\sqrt{105}}{56}$ 0 $\frac{\sqrt{105}i}{56}$ 0 0 0	
	0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $\frac{\sqrt{105}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{56}$	
	$-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}}{56}$ 0	
	0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{56}$	
	$-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0	
	0 0 0 $\frac{\sqrt{105}}{56}$ 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 $\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0	
	0 0 $-\frac{\sqrt{105}}{56}$ 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 $-\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 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 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 $\frac{\sqrt{7}i}{14}$ 0	
	0 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 0	
	0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0	
	0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 $\frac{\sqrt{105}i}{56}$ 0	
	0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 $-\frac{3\sqrt{7}i}{56}$ $\frac{\sqrt{105}i}{56}$ 0 0 0 0 $-\frac{\sqrt{105}i}{56}$	
	0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0	
	0 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0	
	$-\frac{\sqrt{7}i}{14}$ 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0	
	0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0	
	0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 $\frac{\sqrt{105}i}{56}$ $\frac{\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{56}$	
	0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0	
	$-\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0	
860 symmetry		$\sqrt{3}yz$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(A'', 1)$	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{7}}{14}$	
	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{7}}{14}$ 0	
	0 0 0 0 0 $\frac{3\sqrt{7}}{56}$ $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{56}$ $\frac{\sqrt{105}i}{56}$ 0	
	0 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 $-\frac{\sqrt{105}i}{56}$	
	0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{56}$ 0 0 0 0	
	0 0 $\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 0 0 0	
	0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}}{56}$ $\frac{\sqrt{7}i}{56}$ 0	
	0 0 0 0 $\frac{\sqrt{105}}{56}$ 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0 $\frac{\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{7}i}{56}$	
	$-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}}{56}$ 0 0 0 0	
	0 $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{105}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0 0 0	
	$\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0	
$\sqrt{3}xy$		

861 symmetry

 $\sqrt{3}xy$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(A'', 2)$	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{7}}{14}$ 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 0 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{56}$	
	0 0 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0	
	0 0 0 0 0 0 0 $\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{56}$	
	0 0 0 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0	
	0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 $\frac{\sqrt{105}}{56}$ 0 0	
	0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 $-\frac{\sqrt{105}}{56}$ 0 0 0	
	0 $-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{56}$	
	$\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0	
	0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{56}$	
	$-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $\frac{\sqrt{105}}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}}{56}$ 0	
	0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 $-\frac{\sqrt{105}}{56}$ 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{56}$ 0 0	
	0 0 $-\frac{\sqrt{105}i}{56}$ 0 $\frac{\sqrt{105}}{56}$ 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{56}$ 0 0 0	

862 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
	$\mathbb{Q}_4^{(1,-1;a)}(A', 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{6} & \frac{i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & -\frac{i}{6} \\ 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & 0 & 0 & \frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & -\frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{6} & 0 & 0 & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{6} & 0 & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{1}{6} & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & -\frac{1}{6} \\ -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{6} & \frac{1}{6} & 0 \\ 0 & -\frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{6} \\ \frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{i}{6} & 0 \\ -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 \\ 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 \end{bmatrix}$
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	0	$-\frac{\sqrt{21}i}{28}$	0	$\frac{\sqrt{21}}{28}$	0	0	0	$-\frac{\sqrt{35}i}{84}$	0	$-\frac{\sqrt{35}}{84}$	$\frac{\sqrt{35}i}{42}$	0	0
	0	0	$-\frac{\sqrt{21}i}{28}$	0	$-\frac{\sqrt{21}}{28}$	0	0	0	$-\frac{\sqrt{35}i}{84}$	0	$\frac{\sqrt{35}}{84}$	0	0	$-\frac{\sqrt{35}i}{42}$	
	0	$\frac{\sqrt{21}i}{28}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$-\frac{\sqrt{35}}{84}$	0	0	0	0	0	$\frac{\sqrt{21}}{28}$	
	$\frac{\sqrt{21}i}{28}$	0	0	0	0	$\frac{\sqrt{35}i}{42}$	$\frac{\sqrt{35}}{84}$	0	0	0	0	0	$-\frac{\sqrt{21}}{28}$	0	
	0	$-\frac{\sqrt{21}}{28}$	$\frac{\sqrt{35}i}{42}$	0	0	0	0	$\frac{\sqrt{35}i}{84}$	0	0	0	0	0	$\frac{\sqrt{21}i}{28}$	
	$\frac{\sqrt{21}}{28}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{35}i}{84}$	0	0	0	0	0	$\frac{\sqrt{21}i}{28}$	0	
	0	0	0	$\frac{\sqrt{35}}{84}$	0	$-\frac{\sqrt{35}i}{84}$	0	0	0	$-\frac{\sqrt{21}}{28}$	0	$-\frac{\sqrt{21}i}{28}$	0	0	0
	0	0	$-\frac{\sqrt{35}}{84}$	0	$-\frac{\sqrt{35}i}{84}$	0	0	0	$\frac{\sqrt{21}}{28}$	0	$-\frac{\sqrt{21}i}{28}$	0	0	0	
	0	$\frac{\sqrt{35}i}{84}$	0	0	0	0	$\frac{\sqrt{21}}{28}$	0	0	$\frac{\sqrt{35}i}{42}$	0	0	0	$\frac{\sqrt{35}}{84}$	
	$\frac{\sqrt{35}i}{84}$	0	0	0	0	0	$-\frac{\sqrt{21}}{28}$	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	$-\frac{\sqrt{35}}{84}$	0	
	0	$\frac{\sqrt{35}}{84}$	0	0	0	0	0	$\frac{\sqrt{21}i}{28}$	$-\frac{\sqrt{35}i}{42}$	0	0	0	0	$-\frac{\sqrt{35}i}{84}$	
	$-\frac{\sqrt{35}}{84}$	0	0	0	0	0	$\frac{\sqrt{21}i}{28}$	0	0	$\frac{\sqrt{35}i}{42}$	0	0	0	$-\frac{\sqrt{35}i}{84}$	0
	$-\frac{\sqrt{35}i}{42}$	0	0	$-\frac{\sqrt{21}}{28}$	0	$-\frac{\sqrt{21}i}{28}$	0	0	0	$-\frac{\sqrt{35}}{84}$	0	$\frac{\sqrt{35}i}{84}$	0	0	0
	0	$\frac{\sqrt{35}i}{42}$	$\frac{\sqrt{21}}{28}$	0	$-\frac{\sqrt{21}i}{28}$	0	0	0	$\frac{\sqrt{35}}{84}$	0	$\frac{\sqrt{35}i}{84}$	0	0	0	0

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A', 3)$	0	$0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{28} \ 0 \ -\frac{\sqrt{7}}{28} \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ \frac{\sqrt{105}i}{84} \ 0 \ -\frac{\sqrt{105}}{84} \ 0 \ 0$
	0	$0 \ 0 \ -\frac{\sqrt{7}i}{28} \ 0 \ \frac{\sqrt{7}}{28} \ 0 \ 0 \ -\frac{\sqrt{7}i}{14} \ \frac{\sqrt{105}i}{84} \ 0 \ \frac{\sqrt{105}}{84} \ 0 \ 0 \ 0$
	0	$\frac{\sqrt{7}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}}{84} \ 0 \ 0 \ -\frac{\sqrt{7}i}{14} \ 0 \ 0 \ -\frac{\sqrt{7}}{28}$
	$\frac{\sqrt{7}i}{28}$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}}{84} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{14} \ \frac{\sqrt{7}}{28} \ 0$
	0	$\frac{\sqrt{7}}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}i}{84} \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{28}$
	$-\frac{\sqrt{7}}{28}$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}i}{84} \ 0 \ 0 \ -\frac{\sqrt{7}i}{14} \ 0 \ 0 \ \frac{\sqrt{7}i}{28} \ 0$
	$-\frac{\sqrt{7}i}{14}$	$0 \ 0 \ \frac{\sqrt{105}}{84} \ 0 \ \frac{\sqrt{105}i}{84} \ 0 \ 0 \ 0 \ \frac{\sqrt{7}}{28} \ 0 \ -\frac{\sqrt{7}i}{28} \ 0 \ 0$
	0	$\frac{\sqrt{7}i}{14} \ -\frac{\sqrt{105}}{84} \ 0 \ \frac{\sqrt{105}i}{84} \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}}{28} \ 0 \ -\frac{\sqrt{7}i}{28} \ 0 \ 0 \ 0$
	0	$-\frac{\sqrt{105}i}{84} \ 0 \ 0 \ -\frac{\sqrt{7}i}{14} \ 0 \ 0 \ -\frac{\sqrt{7}}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}}{84}$
	$-\frac{\sqrt{105}i}{84}$	$0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{14} \ \frac{\sqrt{7}}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}}{84} \ 0$
	0	$\frac{\sqrt{105}}{84} \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}i}{84}$
	$-\frac{\sqrt{105}}{84}$	$0 \ 0 \ -\frac{\sqrt{7}i}{14} \ 0 \ 0 \ \frac{\sqrt{7}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}i}{84} \ 0$
	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	$0 \ 0 \ -\frac{\sqrt{7}}{28} \ 0 \ -\frac{\sqrt{7}i}{28} \ 0 \ 0 \ 0 \ \frac{\sqrt{105}}{84} \ 0 \ -\frac{\sqrt{105}i}{84} \ 0 \ 0 \ 0$

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 $\frac{i}{8}$ 0 0 0 0 0 $\frac{i}{8}$ $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $\frac{\sqrt{15}i}{24}$
	0	0 0 0 $-\frac{i}{8}$ 0 0 $\frac{i}{8}$ 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 $\frac{\sqrt{15}i}{24}$ 0
	$-\frac{i}{8}$	0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0
	0	$\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0
	0	0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $\frac{i}{8}$ 0 0 $-\frac{i}{8}$ 0
	0	0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ $\frac{i}{8}$ 0 0 0 0 $\frac{i}{8}$
	0	$-\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0
	$-\frac{i}{8}$	0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0
	$\frac{\sqrt{15}i}{24}$	0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0
	0	$-\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{i}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0
	0	0 0 0 $\frac{i}{8}$ 0 0 $-\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0
	0	0 0 $\frac{i}{8}$ 0 0 0 0 $\frac{i}{8}$ $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $\frac{\sqrt{15}i}{24}$
	0	$-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0
	$-\frac{\sqrt{15}i}{24}$	0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0
$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$		

866 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,-1;a)}(A', 5)$	0	0	$-\frac{3\sqrt{7}i}{56}$	0	0	0	0	$\frac{3\sqrt{7}i}{56}$	$-\frac{\sqrt{105}i}{168}$	0	0	0	0	$-\frac{\sqrt{105}i}{168}$	
	0	0	0	$\frac{3\sqrt{7}i}{56}$	0	0	$\frac{3\sqrt{7}i}{56}$	0	0	$\frac{\sqrt{105}i}{168}$	0	0	$-\frac{\sqrt{105}i}{168}$	0	
	$\frac{3\sqrt{7}i}{56}$	0	0	0	0	$\frac{\sqrt{105}i}{168}$	0	0	0	$-\frac{\sqrt{7}}{14}$	0	$-\frac{3\sqrt{7}i}{56}$	0	0	
	0	$-\frac{3\sqrt{7}i}{56}$	0	0	$\frac{\sqrt{105}i}{168}$	0	0	0	$\frac{\sqrt{7}}{14}$	0	$-\frac{3\sqrt{7}i}{56}$	0	0	0	
	0	0	0	$-\frac{\sqrt{105}i}{168}$	0	0	$\frac{\sqrt{105}i}{168}$	0	0	$\frac{3\sqrt{7}i}{56}$	0	$-\frac{\sqrt{7}}{14}$	$\frac{3\sqrt{7}i}{56}$	0	
	0	0	$-\frac{\sqrt{105}i}{168}$	0	0	0	0	$-\frac{\sqrt{105}i}{168}$	$\frac{3\sqrt{7}i}{56}$	0	$\frac{\sqrt{7}}{14}$	0	0	$-\frac{3\sqrt{7}i}{56}$	
	0	$-\frac{3\sqrt{7}i}{56}$	0	0	$-\frac{\sqrt{105}i}{168}$	0	0	0	0	$-\frac{3\sqrt{7}i}{56}$	0	0	$-\frac{\sqrt{7}}{14}$		
	$-\frac{3\sqrt{7}i}{56}$	0	0	0	0	$\frac{\sqrt{105}i}{168}$	0	0	0	0	$\frac{3\sqrt{7}i}{56}$	$\frac{\sqrt{7}}{14}$	0		
	$\frac{\sqrt{105}i}{168}$	0	0	$\frac{\sqrt{7}}{14}$	0	$-\frac{3\sqrt{7}i}{56}$	0	0	0	0	$-\frac{\sqrt{105}i}{168}$	0	0		
	0	$-\frac{\sqrt{105}i}{168}$	$-\frac{\sqrt{7}}{14}$	0	$-\frac{3\sqrt{7}i}{56}$	0	0	0	0	$-\frac{\sqrt{105}i}{168}$	0	0	0		
	0	0	0	$\frac{3\sqrt{7}i}{56}$	0	$\frac{\sqrt{7}}{14}$	$\frac{3\sqrt{7}i}{56}$	0	0	$\frac{\sqrt{105}i}{168}$	0	0	$-\frac{\sqrt{105}i}{168}$		
	0	0	$\frac{3\sqrt{7}i}{56}$	0	$-\frac{\sqrt{7}}{14}$	0	0	$-\frac{3\sqrt{7}i}{56}$	$\frac{\sqrt{105}i}{168}$	0	0	0	0	$\frac{\sqrt{105}i}{168}$	
	0	$\frac{\sqrt{105}i}{168}$	0	0	$-\frac{3\sqrt{7}i}{56}$	0	0	$\frac{\sqrt{7}}{14}$	0	0	$\frac{\sqrt{105}i}{168}$	0	0	0	
	$\frac{\sqrt{105}i}{168}$	0	0	0	0	$\frac{3\sqrt{7}i}{56}$	$-\frac{\sqrt{7}}{14}$	0	0	0	0	$-\frac{\sqrt{105}i}{168}$	0	0	
867	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$													

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A'', 1)$	0 0 0 0 $\frac{i}{8}$ 0 0 $\frac{1}{8}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{15}}{24}$	
	0 0 0 0 0 $-\frac{i}{8}$ $-\frac{1}{8}$ 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ $\frac{\sqrt{15}}{24}$ 0	
	0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{1}{8}$ $\frac{i}{8}$ 0	
	0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $\frac{1}{8}$ 0 0 $-\frac{i}{8}$	
	$-\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $\frac{1}{8}$ 0 0 0 0	
	0 $\frac{i}{8}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 0	
	0 $-\frac{1}{8}$ $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0	
	$\frac{1}{8}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0	
	0 0 0 0 0 $-\frac{1}{8}$ $\frac{i}{8}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{15}i}{24}$ 0	
	0 0 0 0 $\frac{1}{8}$ 0 0 $-\frac{i}{8}$ 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{15}i}{24}$	
	$-\frac{\sqrt{15}i}{24}$ 0 0 $\frac{1}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0 0	
	0 $\frac{\sqrt{15}i}{24}$ $-\frac{1}{8}$ 0 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0	
	0 $\frac{\sqrt{15}}{24}$ $-\frac{i}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0	
	$-\frac{\sqrt{15}}{24}$ 0 0 $\frac{i}{8}$ 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0	
$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$		
868	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A'', 2)$	0	0 0 0 $\frac{1}{8}$ 0 $\frac{i}{8}$ 0 0 0 $\frac{\sqrt{15}}{24}$ 0 $-\frac{\sqrt{15}i}{24}$ 0 0
	0	0 0 $-\frac{1}{8}$ 0 $\frac{i}{8}$ 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0
	0	$-\frac{1}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 $\frac{i}{8}$
	$\frac{1}{8}$	0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 $\frac{i}{8}$ 0
	0	$-\frac{i}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 $-\frac{1}{8}$
	$-\frac{i}{8}$	0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 $\frac{1}{8}$ 0
	0	0 0 0 $\frac{\sqrt{15}i}{24}$ 0 $\frac{\sqrt{15}}{24}$ 0 0 0 $-\frac{i}{8}$ 0 $\frac{1}{8}$ 0 0
	0	0 0 $\frac{\sqrt{15}i}{24}$ 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 $-\frac{i}{8}$ 0 $-\frac{1}{8}$ 0 0 0
	0	$-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$
	$\frac{\sqrt{15}}{24}$	0 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0
	0	$\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$
	$\frac{\sqrt{15}i}{24}$	0 0 0 0 0 0 $\frac{1}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0
	0	0 0 0 $-\frac{i}{8}$ 0 $\frac{1}{8}$ 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 $-\frac{\sqrt{15}}{24}$ 0 0
	0	0 0 $-\frac{i}{8}$ 0 $-\frac{1}{8}$ 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 $\frac{\sqrt{15}}{24}$ 0 0 0

869 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A'', 3)$	0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 $-\frac{\sqrt{105}}{168}$	
	0 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ $\frac{3\sqrt{7}}{56}$ 0 0 0 0 $\frac{\sqrt{105}i}{168}$ $\frac{\sqrt{105}}{168}$ 0	
	0 0 0 0 0 $\frac{\sqrt{105}}{168}$ $-\frac{\sqrt{105}i}{168}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{3\sqrt{7}}{56}$ $\frac{3\sqrt{7}i}{56}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 $\frac{\sqrt{105}i}{168}$ $-\frac{\sqrt{7}i}{14}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{3\sqrt{7}i}{56}$	
	$-\frac{3\sqrt{7}i}{56}$ 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 $\frac{3\sqrt{7}i}{56}$ $\frac{\sqrt{105}}{168}$ 0 0 0 0 0 $\frac{3\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0	
	0 $\frac{3\sqrt{7}}{56}$ $\frac{\sqrt{105}i}{168}$ 0 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{14}$	
	$-\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0	
	0 0 0 $\frac{\sqrt{7}i}{14}$ 0 $\frac{3\sqrt{7}}{56}$ $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 $-\frac{\sqrt{105}}{168}$ $\frac{\sqrt{105}i}{168}$ 0	
	$\frac{\sqrt{105}i}{168}$ 0 0 $-\frac{3\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 $\frac{\sqrt{105}}{168}$ 0 0 0 $-\frac{\sqrt{105}i}{168}$	
	0 $-\frac{\sqrt{105}i}{168}$ $\frac{3\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 0 0 0	
	0 $\frac{\sqrt{105}}{168}$ $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 0	
	$-\frac{\sqrt{105}}{168}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 0 0	
$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$		
870	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(A'', 4)$	0 0 0 $\frac{3\sqrt{7}}{56}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0	
	0 0 $-\frac{3\sqrt{7}}{56}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 $\frac{\sqrt{105}}{168}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0	
	0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{168}$ $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$	
	$\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{3\sqrt{7}i}{56}$ 0	
	0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{168}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{3\sqrt{7}}{56}$	
	$\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ $\frac{3\sqrt{7}}{56}$ 0	
	0 0 0 $\frac{\sqrt{105}i}{168}$ 0 $-\frac{\sqrt{105}}{168}$ 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ $-\frac{\sqrt{7}i}{14}$ 0	
	0 0 $\frac{\sqrt{105}i}{168}$ 0 $\frac{\sqrt{105}}{168}$ 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$	
	0 $\frac{\sqrt{105}}{168}$ $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{168}$	
	$-\frac{\sqrt{105}}{168}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0	
	0 $\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{168}$	
	$\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ $\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{168}$ 0	
	0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0 $\frac{\sqrt{105}}{168}$ 0 0	
	0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{105}i}{168}$ 0 $-\frac{\sqrt{105}}{168}$ 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	0	0	0	0	0	0	0	$-\frac{\sqrt{154}i}{154}$	0	$-\frac{\sqrt{154}}{154}$	$-\frac{\sqrt{154}i}{154}$	0	
	0	0	0	0	0	0	0	0	$-\frac{\sqrt{154}i}{154}$	0	$\frac{\sqrt{154}}{154}$	0	0	$\frac{\sqrt{154}i}{154}$	
	0	0	0	0	$-\frac{5\sqrt{154}i}{308}$	0	0	$\frac{5\sqrt{154}}{308}$	0	0	$\frac{\sqrt{2310}i}{462}$	0	0	$\frac{\sqrt{2310}}{462}$	
	0	0	0	0	0	$\frac{5\sqrt{154}i}{308}$	$-\frac{5\sqrt{154}}{308}$	0	0	0	0	$-\frac{\sqrt{2310}i}{462}$	$-\frac{\sqrt{2310}}{462}$	0	
	0	0	$\frac{5\sqrt{154}i}{308}$	0	0	0	0	$-\frac{5\sqrt{154}i}{308}$	$\frac{\sqrt{2310}i}{462}$	0	0	0	0	$\frac{\sqrt{2310}i}{462}$	
	0	0	0	$-\frac{5\sqrt{154}i}{308}$	0	0	$-\frac{5\sqrt{154}i}{308}$	0	0	$-\frac{\sqrt{2310}i}{462}$	0	0	$\frac{\sqrt{2310}i}{462}$	0	
	0	0	0	$-\frac{5\sqrt{154}}{308}$	0	$\frac{5\sqrt{154}i}{308}$	0	0	0	$\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{462}$	0	0	
	0	0	$\frac{5\sqrt{154}}{308}$	0	$\frac{5\sqrt{154}i}{308}$	0	0	0	$-\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{462}$	0	0	0	
	0	$\frac{\sqrt{154}i}{154}$	0	0	$-\frac{\sqrt{2310}i}{462}$	0	0	$-\frac{\sqrt{2310}}{462}$	0	0	$-\frac{3\sqrt{154}i}{308}$	0	0	$\frac{3\sqrt{154}}{308}$	
	$\frac{\sqrt{154}i}{154}$	0	0	0	0	$\frac{\sqrt{2310}i}{462}$	$\frac{\sqrt{2310}}{462}$	0	0	0	0	$\frac{3\sqrt{154}i}{308}$	$-\frac{3\sqrt{154}}{308}$	0	
	0	$\frac{\sqrt{154}}{154}$	$-\frac{\sqrt{2310}i}{462}$	0	0	0	0	$-\frac{\sqrt{2310}i}{462}$	$\frac{3\sqrt{154}i}{308}$	0	0	0	0	$-\frac{3\sqrt{154}i}{308}$	
	$-\frac{\sqrt{154}}{154}$	0	0	$\frac{\sqrt{2310}i}{462}$	0	0	$-\frac{\sqrt{2310}i}{462}$	0	0	$-\frac{3\sqrt{154}i}{308}$	0	0	$-\frac{3\sqrt{154}}{308}$	0	
	$\frac{\sqrt{154}i}{154}$	0	0	$-\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{462}$	0	0	0	$-\frac{3\sqrt{154}}{308}$	0	$\frac{3\sqrt{154}i}{308}$	0	0	
	0	$-\frac{\sqrt{154}i}{154}$	$\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{462}$	0	0	0	$\frac{3\sqrt{154}}{308}$	0	$\frac{3\sqrt{154}i}{308}$	0	0	0	

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

872 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(A', 2)$	0	0 0 0 $\frac{\sqrt{2}i}{6}$ 0 $\frac{\sqrt{2}}{6}$ $\frac{\sqrt{2}i}{6}$ 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{2}i}{6}$ 0 $-\frac{\sqrt{2}}{6}$ 0 0 $-\frac{\sqrt{2}i}{6}$ 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{2}i}{6}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 0 $-\frac{\sqrt{2}}{12}$
	$-\frac{\sqrt{2}i}{6}$	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{12}$ $\frac{\sqrt{2}}{12}$ 0
	0	$-\frac{\sqrt{2}}{6}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{12}$ 0 0 0 0 $\frac{\sqrt{2}i}{12}$
	$\frac{\sqrt{2}}{6}$	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 0 $\frac{\sqrt{2}i}{12}$ 0
	$-\frac{\sqrt{2}i}{6}$	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{2}}{12}$ 0 $-\frac{\sqrt{2}i}{12}$ 0 0 0
	0	$\frac{\sqrt{2}i}{6}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}}{12}$ 0 $-\frac{\sqrt{2}i}{12}$ 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 $-\frac{\sqrt{2}}{12}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{2}i}{12}$ $\frac{\sqrt{2}}{12}$ 0 0 0 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{2}i}{12}$ 0 0 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{2}}{12}$ 0 $-\frac{\sqrt{2}i}{12}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{2}}{12}$ 0 $-\frac{\sqrt{2}i}{12}$ 0 0 0 0 0 0 0 0 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 0 $\frac{\sqrt{330}i}{132}$ 0 $-\frac{\sqrt{330}}{132}$ 0 0 0 $\frac{\sqrt{22}i}{44}$ 0 $\frac{\sqrt{22}}{44}$ $-\frac{\sqrt{22}i}{22}$ 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 $\frac{\sqrt{22}i}{22}$	
	0 $-\frac{\sqrt{330}i}{132}$ 0 0 0 0 0 0 0 $\frac{\sqrt{330}i}{132}$ 0 0 0 0	
	$-\frac{\sqrt{330}i}{132}$ 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{330}i}{132}$ 0 0 0	
	0 $\frac{\sqrt{330}}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{330}i}{132}$ 0 0 0 0 0	
	$-\frac{\sqrt{330}}{132}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{330}i}{132}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{132}$ 0 $-\frac{\sqrt{330}i}{132}$ 0 0 0	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{132}$ 0 $-\frac{\sqrt{330}i}{132}$ 0 0 0	
	0 $-\frac{\sqrt{22}i}{44}$ 0 0 $-\frac{\sqrt{330}i}{132}$ 0 0 $\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{22}i}{22}$ 0 0 $\frac{\sqrt{22}}{44}$	
	$-\frac{\sqrt{22}i}{44}$ 0 0 0 0 $\frac{\sqrt{330}i}{132}$ $-\frac{\sqrt{330}}{132}$ 0 0 0 0 $-\frac{\sqrt{22}i}{22}$ $-\frac{\sqrt{22}}{44}$ 0	
	0 $-\frac{\sqrt{22}}{44}$ $-\frac{\sqrt{330}i}{132}$ 0 0 0 0 $\frac{\sqrt{330}i}{132}$ $-\frac{\sqrt{22}i}{22}$ 0 0 0 0 $-\frac{\sqrt{22}i}{44}$	
	$\frac{\sqrt{22}}{44}$ 0 0 $\frac{\sqrt{330}i}{132}$ 0 0 $\frac{\sqrt{330}i}{132}$ 0 0 $\frac{\sqrt{22}i}{22}$ 0 0 $-\frac{\sqrt{22}i}{44}$ 0	
	$\frac{\sqrt{22}i}{22}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ 0 0 0	
	0 $-\frac{\sqrt{22}i}{22}$ 0 0 0 0 0 0 $\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ 0 0 0	
874 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
$\mathbb{Q}_6^{(1,-1;a)}(A', 4)$	0	0 0 0 $\frac{\sqrt{110}i}{132}$ 0 $\frac{\sqrt{110}}{132}$ $-\frac{\sqrt{110}i}{66}$ 0 0 $-\frac{\sqrt{66}i}{44}$ 0 $\frac{\sqrt{66}}{44}$ 0 0
	0	0 0 $\frac{\sqrt{110}i}{132}$ 0 $-\frac{\sqrt{110}}{132}$ 0 0 $\frac{\sqrt{110}i}{66}$ $-\frac{\sqrt{66}i}{44}$ 0 $-\frac{\sqrt{66}}{44}$ 0 0 0
	0	$-\frac{\sqrt{110}i}{132}$ 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 $-\frac{\sqrt{110}}{66}$
	$-\frac{\sqrt{110}i}{132}$	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}i}{132}$ $\frac{\sqrt{110}}{66}$ 0
	0	$-\frac{\sqrt{110}}{132}$ 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}i}{66}$
	$\frac{\sqrt{110}}{132}$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 $\frac{\sqrt{110}i}{66}$ 0
	$\frac{\sqrt{110}i}{66}$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{110}}{132}$ 0 $\frac{\sqrt{110}i}{132}$ 0 0
	0	$-\frac{\sqrt{110}i}{66}$ 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{132}$ 0 $\frac{\sqrt{110}i}{132}$ 0 0 0
	0	$\frac{\sqrt{66}i}{44}$ 0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 $\frac{\sqrt{110}}{132}$ 0 0 0 0 0 $\frac{\sqrt{66}}{44}$
	$\frac{\sqrt{66}i}{44}$	0 0 0 0 0 $-\frac{\sqrt{110}i}{132}$ $-\frac{\sqrt{110}}{132}$ 0 0 0 0 0 $-\frac{\sqrt{66}}{44}$ 0
	0	$-\frac{\sqrt{66}}{44}$ $\frac{\sqrt{110}i}{132}$ 0 0 0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 0 0 0 $\frac{\sqrt{66}i}{44}$
	$\frac{\sqrt{66}}{44}$	0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{66}i}{44}$ 0
	0	0 0 0 $\frac{\sqrt{110}}{66}$ 0 $-\frac{\sqrt{110}i}{66}$ 0 0 0 $-\frac{\sqrt{66}}{44}$ 0 $-\frac{\sqrt{66}i}{44}$ 0 0
	0	$-\frac{\sqrt{110}}{66}$ 0 0 $-\frac{\sqrt{110}i}{66}$ 0 0 0 0 $\frac{\sqrt{66}}{44}$ 0 $-\frac{\sqrt{66}i}{44}$ 0 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 $\frac{\sqrt{165}i}{132}$ 0 0 0 0 $\frac{\sqrt{165}i}{132}$ $-\frac{\sqrt{11}i}{44}$ 0 0 0 0 $\frac{\sqrt{11}i}{44}$	
	0 0 0 $-\frac{\sqrt{165}i}{132}$ 0 0 $\frac{\sqrt{165}i}{132}$ 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 $\frac{\sqrt{11}i}{44}$ 0 0	
	$-\frac{\sqrt{165}i}{132}$ 0 0 0 0 $\frac{5\sqrt{11}i}{88}$ 0 0 0 $\frac{\sqrt{165}}{66}$ 0 0 $-\frac{\sqrt{165}i}{264}$ 0 0	
	0 $\frac{\sqrt{165}i}{132}$ 0 0 $\frac{5\sqrt{11}i}{88}$ 0 0 0 $-\frac{\sqrt{165}}{66}$ 0 0 $-\frac{\sqrt{165}i}{264}$ 0 0 0	
	0 0 0 $-\frac{5\sqrt{11}i}{88}$ 0 0 $-\frac{5\sqrt{11}i}{88}$ 0 0 $-\frac{\sqrt{165}i}{88}$ 0 0 $\frac{\sqrt{165}i}{88}$ 0 0	
	0 0 $-\frac{5\sqrt{11}i}{88}$ 0 0 0 0 $\frac{5\sqrt{11}i}{88}$ $-\frac{\sqrt{165}i}{88}$ 0 0 0 0 $-\frac{\sqrt{165}i}{88}$	
	0 $-\frac{\sqrt{165}i}{132}$ 0 0 $\frac{5\sqrt{11}i}{88}$ 0 0 0 0 0 $\frac{\sqrt{165}i}{264}$ 0 0 $-\frac{\sqrt{165}}{66}$	
	$-\frac{\sqrt{165}i}{132}$ 0 0 0 0 $-\frac{5\sqrt{11}i}{88}$ 0 0 0 0 0 $-\frac{\sqrt{165}i}{264}$ $\frac{\sqrt{165}}{66}$ 0	
	$\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{165}}{66}$ 0 $\frac{\sqrt{165}i}{88}$ 0 0 0 0 0 $\frac{3\sqrt{11}i}{88}$ 0 0	
	0 $-\frac{\sqrt{11}i}{44}$ $\frac{\sqrt{165}}{66}$ 0 $\frac{\sqrt{165}i}{88}$ 0 0 0 0 0 $\frac{3\sqrt{11}i}{88}$ 0 0 0	
	0 0 0 $\frac{\sqrt{165}i}{264}$ 0 0 $-\frac{\sqrt{165}i}{264}$ 0 0 $-\frac{3\sqrt{11}i}{88}$ 0 0 $-\frac{3\sqrt{11}i}{88}$ 0 0	
	0 0 $\frac{\sqrt{165}i}{264}$ 0 0 0 0 $\frac{\sqrt{165}i}{264}$ $-\frac{3\sqrt{11}i}{88}$ 0 0 0 0 $\frac{3\sqrt{11}i}{88}$	
	0 $-\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{165}i}{88}$ 0 0 $\frac{\sqrt{165}}{66}$ 0 0 0 $\frac{3\sqrt{11}i}{88}$ 0 0 0	
	$-\frac{\sqrt{11}i}{44}$ 0 0 0 0 $\frac{\sqrt{165}i}{88}$ $-\frac{\sqrt{165}}{66}$ 0 0 0 0 $-\frac{3\sqrt{11}i}{88}$ 0 0	
$\frac{\sqrt{462}xz(x^2-3z^2)(3x^2-z^2)}{16}$		

876 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(A', 6)$	0	0 $-\frac{\sqrt{10}i}{16}$ 0 0 0 0 $\frac{\sqrt{10}i}{16}$ $-\frac{\sqrt{6}i}{16}$ 0 0 0 0 $-\frac{\sqrt{6}i}{16}$
	0	0 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 $-\frac{\sqrt{6}i}{16}$ 0
	$\frac{\sqrt{10}i}{16}$	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{10}i}{16}$ 0 0
	0	$-\frac{\sqrt{10}i}{16}$ 0 0 0 0 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 0 0 0 0 0
	0	$-\frac{\sqrt{10}i}{16}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 0
	$-\frac{\sqrt{10}i}{16}$	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0
	$\frac{\sqrt{6}i}{16}$	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0
	0	$-\frac{\sqrt{6}i}{16}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 $-\frac{\sqrt{6}i}{16}$ 0 0 $\frac{\sqrt{6}i}{16}$ 0
	0	0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 0 0 $\frac{\sqrt{10}i}{16}$ $-\frac{\sqrt{6}i}{16}$ 0 0 0 0 $-\frac{\sqrt{6}i}{16}$
	$\frac{\sqrt{6}i}{16}$	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{16}$ 0 0 0
	$\frac{\sqrt{6}i}{16}$	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0
$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$		
877	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_6^{(1,-1;a)}(A', 7)$	0	0	$\frac{\sqrt{22}i}{48}$	0	0	0	0	$-\frac{\sqrt{22}i}{48}$	$-\frac{\sqrt{330}i}{528}$	0	0	0	0	$-\frac{\sqrt{330}i}{528}$	
	0	0	0	$-\frac{\sqrt{22}i}{48}$	0	0	$-\frac{\sqrt{22}i}{48}$	0	0	$\frac{\sqrt{330}i}{528}$	0	0	$-\frac{\sqrt{330}i}{528}$	0	
	$-\frac{\sqrt{22}i}{48}$	0	0	0	0	$\frac{\sqrt{330}i}{132}$	0	0	0	$\frac{\sqrt{22}}{33}$	0	$-\frac{7\sqrt{22}i}{528}$	0	0	
	0	$\frac{\sqrt{22}i}{48}$	0	0	$\frac{\sqrt{330}i}{132}$	0	0	0	$-\frac{\sqrt{22}}{33}$	0	$-\frac{7\sqrt{22}i}{528}$	0	0	0	
	0	0	0	$-\frac{\sqrt{330}i}{132}$	0	0	$\frac{\sqrt{330}i}{132}$	0	0	$\frac{\sqrt{22}i}{132}$	0	$-\frac{2\sqrt{22}}{33}$	$\frac{\sqrt{22}i}{132}$	0	
	0	0	$-\frac{\sqrt{330}i}{132}$	0	0	0	0	$-\frac{\sqrt{330}i}{132}$	$\frac{\sqrt{22}i}{132}$	0	$\frac{2\sqrt{22}}{33}$	0	0	$-\frac{\sqrt{22}i}{132}$	
	0	$\frac{\sqrt{22}i}{48}$	0	0	$-\frac{\sqrt{330}i}{132}$	0	0	0	0	$-\frac{7\sqrt{22}i}{528}$	0	0	$\frac{\sqrt{22}}{33}$		
	$\frac{\sqrt{22}i}{48}$	0	0	0	0	$\frac{\sqrt{330}i}{132}$	0	0	0	0	$\frac{7\sqrt{22}i}{528}$	$-\frac{\sqrt{22}}{33}$	0		
	$\frac{\sqrt{330}i}{528}$	0	0	$-\frac{\sqrt{22}}{33}$	0	$-\frac{\sqrt{22}i}{132}$	0	0	0	0	$\frac{5\sqrt{330}i}{528}$	0	0		
	0	$-\frac{\sqrt{330}i}{528}$	$\frac{\sqrt{22}}{33}$	0	$-\frac{\sqrt{22}i}{132}$	0	0	0	0	$\frac{5\sqrt{330}i}{528}$	0	0	0		
	0	0	0	$\frac{7\sqrt{22}i}{528}$	0	$\frac{2\sqrt{22}}{33}$	$\frac{7\sqrt{22}i}{528}$	0	0	$-\frac{5\sqrt{330}i}{528}$	0	0	$\frac{5\sqrt{330}i}{528}$	0	
	0	0	$\frac{7\sqrt{22}i}{528}$	0	$-\frac{2\sqrt{22}}{33}$	0	0	$-\frac{7\sqrt{22}i}{528}$	$-\frac{5\sqrt{330}i}{528}$	0	0	0	$-\frac{5\sqrt{330}i}{528}$		
	0	$\frac{\sqrt{330}i}{528}$	0	0	$-\frac{\sqrt{22}i}{132}$	0	0	$-\frac{\sqrt{22}}{33}$	0	0	$-\frac{5\sqrt{330}i}{528}$	0	0	0	
	$\frac{\sqrt{330}i}{528}$	0	0	0	0	$\frac{\sqrt{22}i}{132}$	$\frac{\sqrt{22}}{33}$	0	0	0	0	$\frac{5\sqrt{330}i}{528}$	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													
$\mathbb{Q}_6^{(1,-1;a)}(A'', 1)$	0	0	0	0	$\frac{\sqrt{165}i}{132}$	0	0	$\frac{\sqrt{165}}{132}$	0	0	$\frac{\sqrt{11}i}{44}$	0	0	$-\frac{\sqrt{11}}{44}$	
	0	0	0	0	0	$-\frac{\sqrt{165}i}{132}$	$-\frac{\sqrt{165}}{132}$	0	0	0	$-\frac{\sqrt{11}i}{44}$	$\frac{\sqrt{11}}{44}$	0		
	0	0	0	0	0	$-\frac{5\sqrt{11}}{88}$	$-\frac{5\sqrt{11}i}{88}$	0	0	0	$\frac{\sqrt{165}}{88}$	$-\frac{\sqrt{165}i}{88}$	0		
	0	0	0	0	$\frac{5\sqrt{11}}{88}$	0	0	$\frac{5\sqrt{11}i}{88}$	0	0	$-\frac{\sqrt{165}}{88}$	0	0	$\frac{\sqrt{165}i}{88}$	
	$-\frac{\sqrt{165}i}{132}$	0	0	$\frac{5\sqrt{11}}{88}$	0	0	0	0	0	$\frac{\sqrt{165}}{264}$	0	$-\frac{\sqrt{165}i}{66}$	0	0	
	0	$\frac{\sqrt{165}i}{132}$	$-\frac{5\sqrt{11}}{88}$	0	0	0	0	0	$-\frac{\sqrt{165}}{264}$	0	$-\frac{\sqrt{165}i}{66}$	0	0	0	
	0	$-\frac{\sqrt{165}}{132}$	$\frac{5\sqrt{11}i}{88}$	0	0	0	0	0	$-\frac{\sqrt{165}i}{264}$	0	0	0	0	$\frac{\sqrt{165}i}{66}$	
	$\frac{\sqrt{165}}{132}$	0	0	$-\frac{5\sqrt{11}i}{88}$	0	0	0	0	0	$\frac{\sqrt{165}i}{264}$	0	0	$\frac{\sqrt{165}i}{66}$	0	
	0	0	0	0	0	$-\frac{\sqrt{165}}{264}$	$\frac{\sqrt{165}i}{264}$	0	0	0	0	$-\frac{3\sqrt{11}}{88}$	$-\frac{3\sqrt{11}i}{88}$	0	
	0	0	0	0	$\frac{\sqrt{165}}{264}$	0	0	$-\frac{\sqrt{165}i}{264}$	0	0	$\frac{3\sqrt{11}}{88}$	0	0	$\frac{3\sqrt{11}i}{88}$	
	$-\frac{\sqrt{11}i}{44}$	0	0	$-\frac{\sqrt{165}}{88}$	0	$\frac{\sqrt{165}i}{66}$	0	0	0	$\frac{3\sqrt{11}}{88}$	0	0	0	0	
	0	$\frac{\sqrt{11}i}{44}$	$\frac{\sqrt{165}}{88}$	0	$\frac{\sqrt{165}i}{66}$	0	0	0	$-\frac{3\sqrt{11}}{88}$	0	0	0	0	0	
	0	$\frac{\sqrt{11}}{44}$	$\frac{\sqrt{165}i}{88}$	0	0	0	0	$-\frac{\sqrt{165}i}{66}$	$\frac{3\sqrt{11}i}{88}$	0	0	0	0	0	
	$-\frac{\sqrt{11}}{44}$	0	0	$-\frac{\sqrt{165}i}{88}$	0	0	$-\frac{\sqrt{165}i}{66}$	0	0	$-\frac{3\sqrt{11}i}{88}$	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
$\mathbb{Q}_6^{(1,-1;a)}(A'', 2)$	0 0 0 $\frac{\sqrt{165}}{132}$ 0 $\frac{\sqrt{165}i}{132}$ 0 0 0 0 $\frac{\sqrt{11}}{44}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0	
	0 0 $-\frac{\sqrt{165}}{132}$ 0 $\frac{\sqrt{165}i}{132}$ 0 0 0 $-\frac{\sqrt{11}}{44}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0 0	
	0 $-\frac{\sqrt{165}}{132}$ 0 0 0 0 0 $\frac{5\sqrt{11}i}{88}$ $-\frac{\sqrt{165}i}{66}$ 0 0 0 0 $\frac{\sqrt{165}i}{264}$	
	$\frac{\sqrt{165}}{132}$ 0 0 0 0 0 $\frac{5\sqrt{11}i}{88}$ 0 0 $\frac{\sqrt{165}i}{66}$ 0 0 $\frac{\sqrt{165}i}{264}$ 0	
	0 $-\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$ 0 0 $\frac{\sqrt{165}i}{66}$ 0 0 $-\frac{\sqrt{165}}{264}$	
	$-\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0 $-\frac{\sqrt{165}i}{66}$ $\frac{\sqrt{165}}{264}$ 0	
	0 0 0 $-\frac{5\sqrt{11}i}{88}$ 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 $\frac{\sqrt{165}i}{88}$ 0 $-\frac{\sqrt{165}}{88}$ 0 0	
	0 0 $-\frac{5\sqrt{11}i}{88}$ 0 $\frac{5\sqrt{11}}{88}$ 0 0 0 $\frac{\sqrt{165}i}{88}$ 0 $\frac{\sqrt{165}}{88}$ 0 0 0	
	0 $-\frac{\sqrt{11}}{44}$ $\frac{\sqrt{165}i}{66}$ 0 0 0 0 $-\frac{\sqrt{165}i}{88}$ 0 0 0 0 0 $\frac{3\sqrt{11}i}{88}$	
	$\frac{\sqrt{11}}{44}$ 0 0 $-\frac{\sqrt{165}i}{66}$ 0 0 $-\frac{\sqrt{165}i}{88}$ 0 0 0 0 0 $\frac{3\sqrt{11}i}{88}$ 0	
	0 $\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{165}i}{66}$ 0 0 $\frac{\sqrt{165}}{88}$ 0 0 0 0 0 $\frac{3\sqrt{11}}{88}$	
	$\frac{\sqrt{11}i}{44}$ 0 0 0 0 $\frac{\sqrt{165}i}{66}$ $-\frac{\sqrt{165}}{88}$ 0 0 0 0 0 $-\frac{3\sqrt{11}}{88}$ 0	
	0 0 0 $-\frac{\sqrt{165}i}{264}$ 0 $\frac{\sqrt{165}}{264}$ 0 0 0 $-\frac{3\sqrt{11}i}{88}$ 0 $-\frac{3\sqrt{11}}{88}$ 0 0	
	0 0 $-\frac{\sqrt{165}i}{264}$ 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 $-\frac{3\sqrt{11}i}{88}$ 0 $\frac{3\sqrt{11}}{88}$ 0 0 0	
$\frac{\sqrt{462}yz(y^2-3z^2)(3y^2-z^2)}{16}$		
880	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(A'', 3)$	0	0 0 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 $-\frac{\sqrt{10}}{16}$ 0 0 $-\frac{\sqrt{6}i}{16}$ 0 0 $-\frac{\sqrt{6}}{16}$
	0	0 0 0 0 0 $-\frac{\sqrt{10}i}{16}$ $\frac{\sqrt{10}}{16}$ 0 0 0 0 $0 \frac{\sqrt{6}i}{16} \frac{\sqrt{6}}{16} 0$
	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
	$-\frac{\sqrt{10}i}{16}$	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{10}}{16}$ 0 0 0 0 0
	0	$\frac{\sqrt{10}i}{16}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{10}}{16}$ 0 0 0 0 0
	0	$\frac{\sqrt{10}}{16}$ 0 0 0 0 0 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 0 0 0
	$-\frac{\sqrt{10}}{16}$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{10}}{16}$ $-\frac{\sqrt{10}i}{16}$ 0 0 0 0 $\frac{\sqrt{6}}{16} -\frac{\sqrt{6}i}{16} 0$
	0	0 0 0 0 $\frac{\sqrt{10}}{16}$ 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 $-\frac{\sqrt{6}}{16}$ 0 0 $\frac{\sqrt{6}i}{16}$
	$\frac{\sqrt{6}i}{16}$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{16}$ 0 0 0 0 0
	0	$-\frac{\sqrt{6}i}{16}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}}{16}$ 0 0 0 0 0
	0	$\frac{\sqrt{6}}{16}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 0 0 0
	$-\frac{\sqrt{6}}{16}$	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{16}$ 0 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
		$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & -\frac{\sqrt{10}i}{16} & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{16} & 0 & -\frac{\sqrt{10}i}{16} & 0 & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{16} \\ \frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{16} \\ \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} \\ -\frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{16} \\ \frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{16} & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & \frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & 0 \end{bmatrix}$
		$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$

882 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(A'', 5)$	0	0 0 0 0 $-\frac{\sqrt{22}i}{48}$ 0 0 $\frac{\sqrt{22}}{48}$ 0 0 $-\frac{\sqrt{330}i}{528}$ 0 0 $-\frac{\sqrt{330}}{528}$
	0	0 0 0 0 0 $\frac{\sqrt{22}i}{48}$ $-\frac{\sqrt{22}}{48}$ 0 0 0 0 $\frac{\sqrt{330}i}{528}$ $\frac{\sqrt{330}}{528}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{330}}{132}$ $-\frac{\sqrt{330}i}{132}$ 0 0 0 $-\frac{2\sqrt{22}i}{33}$ 0 $\frac{\sqrt{22}}{132}$ $\frac{\sqrt{22}i}{132}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{330}i}{132}$ $-\frac{2\sqrt{22}i}{33}$ 0 $-\frac{\sqrt{22}}{132}$ 0 0 $-\frac{\sqrt{22}i}{132}$
	$\frac{\sqrt{22}i}{48}$	0 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 0 0 0 $-\frac{7\sqrt{22}}{528}$ 0 $\frac{\sqrt{22}i}{33}$ 0 0
	0	$-\frac{\sqrt{22}i}{48}$ $\frac{\sqrt{330}}{132}$ 0 0 0 0 0 $\frac{7\sqrt{22}}{528}$ 0 $\frac{\sqrt{22}i}{33}$ 0 0 0
	0	$-\frac{\sqrt{22}}{48}$ $\frac{\sqrt{330}i}{132}$ 0 0 0 0 0 $-\frac{7\sqrt{22}i}{528}$ 0 0 0 0 $\frac{\sqrt{22}i}{33}$
	$\frac{\sqrt{22}}{48}$	0 0 0 $-\frac{\sqrt{330}i}{132}$ 0 0 0 0 0 $\frac{7\sqrt{22}i}{528}$ 0 0 0 $\frac{\sqrt{22}i}{33}$
	0	0 0 0 $\frac{2\sqrt{22}i}{33}$ 0 $\frac{7\sqrt{22}}{528}$ $\frac{7\sqrt{22}i}{528}$ 0 0 0 0 $\frac{5\sqrt{330}}{528}$ $-\frac{5\sqrt{330}i}{528}$ 0
	0	0 0 $\frac{2\sqrt{22}i}{33}$ 0 $-\frac{7\sqrt{22}}{528}$ 0 0 $-\frac{7\sqrt{22}i}{528}$ 0 0 $-\frac{5\sqrt{330}}{528}$ 0 0 $\frac{5\sqrt{330}i}{528}$
	$\frac{\sqrt{330}i}{528}$	0 0 $-\frac{\sqrt{22}}{132}$ 0 $-\frac{\sqrt{22}i}{33}$ 0 0 0 0 $-\frac{5\sqrt{330}}{528}$ 0 0 0 0
	0	$-\frac{\sqrt{330}i}{528}$ $\frac{\sqrt{22}}{132}$ 0 $-\frac{\sqrt{22}i}{33}$ 0 0 0 $\frac{5\sqrt{330}}{528}$ 0 0 0 0
	0	$\frac{\sqrt{330}}{528}$ $-\frac{\sqrt{22}i}{132}$ 0 0 0 0 $-\frac{\sqrt{22}i}{33}$ $\frac{5\sqrt{330}i}{528}$ 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
$\mathbb{Q}_6^{(1,-1;a)}(A'', 6)$	0 0 0 $-\frac{\sqrt{22}}{48}$ 0 $\frac{\sqrt{22}i}{48}$ 0 0 0 $-\frac{\sqrt{330}}{528}$ 0 $-\frac{\sqrt{330}i}{528}$ 0 0	
	0 0 $\frac{\sqrt{22}}{48}$ 0 $\frac{\sqrt{22}i}{48}$ 0 0 0 $\frac{\sqrt{330}}{528}$ 0 $-\frac{\sqrt{330}i}{528}$ 0 0 0	
	0 $\frac{\sqrt{22}}{48}$ 0 0 0 0 0 $-\frac{\sqrt{330}i}{132}$ $\frac{\sqrt{22}i}{33}$ 0 0 0 0 $-\frac{7\sqrt{22}i}{528}$	
	$-\frac{\sqrt{22}}{48}$ 0 0 0 0 0 $-\frac{\sqrt{330}i}{132}$ 0 0 $-\frac{\sqrt{22}i}{33}$ 0 0 $-\frac{7\sqrt{22}i}{528}$ 0	
	0 $-\frac{\sqrt{22}i}{48}$ 0 0 0 0 0 $\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{22}i}{33}$ 0 0 $-\frac{7\sqrt{22}}{528}$	
	$-\frac{\sqrt{22}i}{48}$ 0 0 0 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 0 0 $-\frac{\sqrt{22}i}{33}$ $\frac{7\sqrt{22}}{528}$ 0	
	0 0 0 $\frac{\sqrt{330}i}{132}$ 0 $-\frac{\sqrt{330}}{132}$ 0 0 0 $\frac{\sqrt{22}i}{132}$ 0 $\frac{\sqrt{22}}{132}$ $-\frac{2\sqrt{22}i}{33}$ 0	
	0 0 $\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0 $\frac{\sqrt{22}i}{132}$ 0 $-\frac{\sqrt{22}}{132}$ 0 0 $\frac{2\sqrt{22}i}{33}$	
	0 $\frac{\sqrt{330}}{528}$ $-\frac{\sqrt{22}i}{33}$ 0 0 0 0 $-\frac{\sqrt{22}i}{132}$ 0 0 0 0 $-\frac{5\sqrt{330}i}{528}$ 0	
	$-\frac{\sqrt{330}}{528}$ 0 0 $\frac{\sqrt{22}i}{33}$ 0 0 $-\frac{\sqrt{22}i}{132}$ 0 0 0 0 $-\frac{5\sqrt{330}i}{528}$ 0	
	0 $\frac{\sqrt{330}i}{528}$ 0 0 $-\frac{\sqrt{22}i}{33}$ 0 0 $-\frac{\sqrt{22}}{132}$ 0 0 0 0 $-\frac{5\sqrt{330}}{528}$ 0	
	$\frac{\sqrt{330}i}{528}$ 0 0 0 0 $\frac{\sqrt{22}i}{33}$ $\frac{\sqrt{22}}{132}$ 0 0 0 0 $-\frac{5\sqrt{330}}{528}$ 0	
	0 0 0 $\frac{7\sqrt{22}i}{528}$ 0 $\frac{7\sqrt{22}}{528}$ $\frac{2\sqrt{22}i}{33}$ 0 0 $\frac{5\sqrt{330}i}{528}$ 0 $-\frac{5\sqrt{330}}{528}$ 0 0	
	0 0 $\frac{7\sqrt{22}i}{528}$ 0 $-\frac{7\sqrt{22}}{528}$ 0 0 $-\frac{2\sqrt{22}i}{33}$ $\frac{5\sqrt{330}i}{528}$ 0 $\frac{5\sqrt{330}}{528}$ 0 0 0	

884 symmetry

1

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_0^{(1,1;a)}(A')$	0	0	0	0	0	0	0	0	$\frac{\sqrt{42}i}{42}$	0	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}i}{42}$	0	0	
	0	0	0	0	0	0	0	0	$\frac{\sqrt{42}i}{42}$	0	$-\frac{\sqrt{42}}{42}$	0	0	$-\frac{\sqrt{42}i}{42}$	
	0	0	0	0	$\frac{\sqrt{42}i}{56}$	0	0	$-\frac{\sqrt{42}}{56}$	0	0	$\frac{\sqrt{70}i}{56}$	0	0	$\frac{\sqrt{70}}{56}$	
	0	0	0	0	0	$-\frac{\sqrt{42}i}{56}$	$\frac{\sqrt{42}}{56}$	0	0	0	$-\frac{\sqrt{70}i}{56}$	$-\frac{\sqrt{70}}{56}$	0	0	
	0	0	$-\frac{\sqrt{42}i}{56}$	0	0	0	0	$\frac{\sqrt{42}i}{56}$	$\frac{\sqrt{70}i}{56}$	0	0	0	0	$\frac{\sqrt{70}i}{56}$	
	0	0	0	$\frac{\sqrt{42}i}{56}$	0	0	$\frac{\sqrt{42}i}{56}$	0	0	$-\frac{\sqrt{70}i}{56}$	0	0	$\frac{\sqrt{70}i}{56}$	0	
	0	0	0	$\frac{\sqrt{42}}{56}$	0	$-\frac{\sqrt{42}i}{56}$	0	0	0	$\frac{\sqrt{70}}{56}$	0	$\frac{\sqrt{70}i}{56}$	0	0	
	0	0	$-\frac{\sqrt{42}}{56}$	0	$-\frac{\sqrt{42}i}{56}$	0	0	0	$-\frac{\sqrt{70}}{56}$	0	$\frac{\sqrt{70}i}{56}$	0	0	0	
	0	$-\frac{\sqrt{42}i}{42}$	0	0	$-\frac{\sqrt{70}i}{56}$	0	0	$-\frac{\sqrt{70}}{56}$	0	0	$-\frac{\sqrt{42}i}{168}$	0	0	$\frac{\sqrt{42}}{168}$	
	$-\frac{\sqrt{42}i}{42}$	0	0	0	0	$\frac{\sqrt{70}i}{56}$	$\frac{\sqrt{70}}{56}$	0	0	0	0	$\frac{\sqrt{42}i}{168}$	$-\frac{\sqrt{42}}{168}$	0	
	0	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{70}i}{56}$	0	0	0	0	$-\frac{\sqrt{70}i}{56}$	$\frac{\sqrt{42}i}{168}$	0	0	0	0	$-\frac{\sqrt{42}i}{168}$	
	$\frac{\sqrt{42}}{42}$	0	0	$\frac{\sqrt{70}i}{56}$	0	0	$-\frac{\sqrt{70}i}{56}$	0	0	$-\frac{\sqrt{42}i}{168}$	0	0	$-\frac{\sqrt{42}i}{168}$	0	
	$-\frac{\sqrt{42}i}{42}$	0	0	$-\frac{\sqrt{70}}{56}$	0	$-\frac{\sqrt{70}i}{56}$	0	0	0	$-\frac{\sqrt{42}}{168}$	0	$\frac{\sqrt{42}i}{168}$	0	0	
	0	$\frac{\sqrt{42}i}{42}$	$\frac{\sqrt{70}}{56}$	0	$-\frac{\sqrt{70}i}{56}$	0	0	0	$\frac{\sqrt{42}}{168}$	0	$\frac{\sqrt{42}i}{168}$	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 0 0 $\frac{\sqrt{105}i}{84}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{7}}{28}$ $\frac{\sqrt{7}i}{14}$ 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 $-\frac{\sqrt{7}i}{14}$
	0	$-\frac{\sqrt{105}i}{84}$ 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{84}$
	$-\frac{\sqrt{105}i}{84}$	0 0 0 0 $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{7}}{28}$ 0 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0
	0	$\frac{\sqrt{105}}{84}$ $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{84}$
	$-\frac{\sqrt{105}}{84}$	0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 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 $-\frac{\sqrt{105}}{84}$ 0 $\frac{\sqrt{105}i}{84}$ 0 0
	0	$\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{84}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{7}}{28}$
	$\frac{\sqrt{7}i}{28}$	0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{7}}{28}$ 0
	0	$-\frac{\sqrt{7}}{28}$ 0 0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{7}i}{28}$ 0
	$-\frac{\sqrt{7}i}{14}$	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	$\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{105}}{84}$ 0 $\frac{\sqrt{105}i}{84}$ 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0 0
		$\frac{\sqrt{3}(x-y)(x+y)}{2}$

886 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,1;a)}(A', 2)$	0	0 0 0 $\frac{\sqrt{35}i}{84}$ 0 $\frac{\sqrt{35}}{84}$ $-\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{21}}{28}$ 0 0
	0	0 0 $\frac{\sqrt{35}i}{84}$ 0 $-\frac{\sqrt{35}}{84}$ 0 0 $\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{21}}{28}$ 0 0 0
	0	$-\frac{\sqrt{35}i}{84}$ 0 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{35}}{84}$
	$-\frac{\sqrt{35}i}{84}$	0 0 0 0 0 $\frac{\sqrt{21}}{28}$ 0 0 0 0 $-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{35}}{84}$ 0
	0	$-\frac{\sqrt{35}}{84}$ 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ $-\frac{\sqrt{35}i}{42}$ 0 0 0 $-\frac{\sqrt{35}i}{84}$
	$\frac{\sqrt{35}}{84}$	0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{35}i}{84}$ 0
	$\frac{\sqrt{35}i}{42}$	0 0 $\frac{\sqrt{21}}{28}$ 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 $-\frac{\sqrt{35}}{84}$ 0 $\frac{\sqrt{35}i}{84}$ 0 0
	0	$-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{21}}{28}$ 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 $\frac{\sqrt{35}}{84}$ 0 $\frac{\sqrt{35}i}{84}$ 0 0 0
	0	$-\frac{\sqrt{21}i}{28}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{35}}{84}$ 0 0 0 0 0 $\frac{\sqrt{21}}{28}$
	$-\frac{\sqrt{21}i}{28}$	0 0 0 0 $-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{35}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0
	0	$\frac{\sqrt{21}}{28}$ $-\frac{\sqrt{35}i}{42}$ 0 0 0 0 $-\frac{\sqrt{35}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$
	$-\frac{\sqrt{21}}{28}$	0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{35}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0
	0	0 0 0 $-\frac{\sqrt{35}}{84}$ 0 $\frac{\sqrt{35}i}{84}$ 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0
	0	0 0 $\frac{\sqrt{35}}{84}$ 0 $\frac{\sqrt{35}i}{84}$ 0 0 0 $\frac{\sqrt{21}}{28}$ 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0

887 symmetry

 $\sqrt{3}xz$ 

continued ...

Table 10

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

continued ...

Table 10

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

889 symmetry

 $\sqrt{3}xy$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,1;a)}(A'', 2)$	0	0 0 0 $-\frac{\sqrt{35}}{42}$ 0 $\frac{\sqrt{35}i}{42}$ 0 0 0 $-\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0
	0	0 0 $\frac{\sqrt{35}}{42}$ 0 $\frac{\sqrt{35}i}{42}$ 0 0 0 $\frac{\sqrt{21}}{42}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0
	0	$\frac{\sqrt{35}}{42}$ 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{42}$ $-\frac{\sqrt{35}i}{42}$ 0 0 0 0 $\frac{\sqrt{35}i}{42}$
	$-\frac{\sqrt{35}}{42}$	0 0 0 0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0
	0	$-\frac{\sqrt{35}i}{42}$ 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{35}}{42}$
	$-\frac{\sqrt{35}i}{42}$	0 0 0 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 0 0 $\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{35}}{42}$ 0
	0	0 0 0 $\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0 0 $-\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{42}$ $-\frac{\sqrt{35}i}{42}$ 0
	0	0 0 $\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0 $-\frac{\sqrt{35}i}{42}$ 0 $\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{35}i}{42}$
	0	$\frac{\sqrt{21}}{42}$ $\frac{\sqrt{35}i}{42}$ 0 0 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{42}$
	$-\frac{\sqrt{21}}{42}$	0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{42}$ 0
	0	$\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{35}}{42}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{42}$
	$\frac{\sqrt{21}i}{42}$	0 0 0 0 $-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{35}}{42}$ 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0
	0	0 0 0 $-\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{42}$ $\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0
	0	0 0 $-\frac{\sqrt{35}i}{42}$ 0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0 0

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

890 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,1;a)}(A', 1)$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{110}i}{66}$ 0 $-\frac{\sqrt{110}}{66}$ $-\frac{\sqrt{110}i}{66}$ 0														
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{110}i}{66}$ 0 $\frac{\sqrt{110}}{66}$ 0 0 $\frac{\sqrt{110}i}{66}$														
	0 0 0 0 $\frac{\sqrt{110}i}{264}$ 0 0 $-\frac{\sqrt{110}}{264}$ 0 0 $\frac{\sqrt{66}i}{88}$ 0 0 $\frac{\sqrt{66}}{88}$														
	0 0 0 0 0 $-\frac{\sqrt{110}i}{264}$ $\frac{\sqrt{110}}{264}$ 0 0 0 0 $-\frac{\sqrt{66}i}{88}$ $-\frac{\sqrt{66}}{88}$ 0														
	0 0 $-\frac{\sqrt{110}i}{264}$ 0 0 0 $\frac{\sqrt{110}i}{264}$ $\frac{\sqrt{66}i}{88}$ 0 0 0 0 $\frac{\sqrt{66}i}{88}$														
	0 0 0 $\frac{\sqrt{110}i}{264}$ 0 0 $\frac{\sqrt{110}i}{264}$ 0 0 $-\frac{\sqrt{66}i}{88}$ 0 0 $\frac{\sqrt{66}i}{88}$ 0														
	0 0 0 $\frac{\sqrt{110}}{264}$ 0 $-\frac{\sqrt{110}i}{264}$ 0 0 0 $\frac{\sqrt{66}}{88}$ 0 $\frac{\sqrt{66}i}{88}$ 0 0														
	0 0 $-\frac{\sqrt{110}}{264}$ 0 $-\frac{\sqrt{110}i}{264}$ 0 0 0 $-\frac{\sqrt{66}}{88}$ 0 $\frac{\sqrt{66}i}{88}$ 0 0 0														
	0 $\frac{\sqrt{110}i}{66}$ 0 0 $-\frac{\sqrt{66}i}{88}$ 0 0 $-\frac{\sqrt{66}}{88}$ 0 0 $\frac{5\sqrt{110}i}{264}$ 0 0 $-\frac{5\sqrt{110}}{264}$														
	$\frac{\sqrt{110}i}{66}$ 0 0 0 $\frac{\sqrt{66}i}{88}$ $\frac{\sqrt{66}}{88}$ 0 0 0 0 $-\frac{5\sqrt{110}i}{264}$ $\frac{5\sqrt{110}}{264}$ 0														
	0 $\frac{\sqrt{110}}{66}$ $-\frac{\sqrt{66}i}{88}$ 0 0 0 0 $-\frac{\sqrt{66}i}{88}$ $-\frac{5\sqrt{110}i}{264}$ 0 0 0 $\frac{5\sqrt{110}i}{264}$														
	$-\frac{\sqrt{110}}{66}$ 0 0 $\frac{\sqrt{66}i}{88}$ 0 0 $-\frac{\sqrt{66}i}{88}$ 0 0 $\frac{5\sqrt{110}i}{264}$ 0 0 $\frac{5\sqrt{110}i}{264}$ 0														
	$\frac{\sqrt{110}i}{66}$ 0 0 $-\frac{\sqrt{66}}{88}$ 0 $-\frac{\sqrt{66}i}{88}$ 0 0 0 $\frac{5\sqrt{110}}{264}$ 0 $-\frac{5\sqrt{110}i}{264}$ 0 0														
	0 $-\frac{\sqrt{110}i}{66}$ $\frac{\sqrt{66}}{88}$ 0 $-\frac{\sqrt{66}i}{88}$ 0 0 0 $-\frac{5\sqrt{110}}{264}$ 0 $-\frac{5\sqrt{110}i}{264}$ 0 0 0														
891	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	0	$-\frac{\sqrt{2310}i}{220}$	0	$\frac{\sqrt{2310}}{220}$	0	0	0	$\frac{5\sqrt{154}i}{924}$	0	$\frac{5\sqrt{154}}{924}$	$-\frac{5\sqrt{154}i}{462}$	0		
	0	0	$-\frac{\sqrt{2310}i}{220}$	0	$-\frac{\sqrt{2310}}{220}$	0	0	0	$\frac{5\sqrt{154}i}{924}$	0	$-\frac{5\sqrt{154}}{924}$	0	0	$\frac{5\sqrt{154}i}{462}$		
	0	$\frac{\sqrt{2310}i}{220}$	0	0	$-\frac{\sqrt{154}i}{84}$	0	0	$-\frac{\sqrt{154}}{168}$	0	0	$\frac{\sqrt{2310}i}{385}$	0	0	$-\frac{\sqrt{2310}}{280}$		
	$\frac{\sqrt{2310}i}{220}$	0	0	0	0	$\frac{\sqrt{154}i}{84}$	$\frac{\sqrt{154}}{168}$	0	0	0	0	$-\frac{\sqrt{2310}i}{385}$	$\frac{\sqrt{2310}}{280}$	0		
	0	$-\frac{\sqrt{2310}}{220}$	$\frac{\sqrt{154}i}{84}$	0	0	0	0	$\frac{\sqrt{154}i}{168}$	$\frac{\sqrt{2310}i}{385}$	0	0	0	0	$-\frac{\sqrt{2310}i}{280}$		
	$\frac{\sqrt{2310}}{220}$	0	0	$-\frac{\sqrt{154}i}{84}$	0	0	$\frac{\sqrt{154}i}{168}$	0	0	$-\frac{\sqrt{2310}i}{385}$	0	0	$-\frac{\sqrt{2310}i}{280}$	0		
	0	0	0	$\frac{\sqrt{154}}{168}$	0	$-\frac{\sqrt{154}i}{168}$	0	0	0	$\frac{3\sqrt{2310}}{3080}$	0	$\frac{3\sqrt{2310}i}{3080}$	0	0		
	0	0	$-\frac{\sqrt{154}}{168}$	0	$-\frac{\sqrt{154}i}{168}$	0	0	0	$-\frac{3\sqrt{2310}}{3080}$	0	$\frac{3\sqrt{2310}i}{3080}$	0	0	0		
	0	$-\frac{5\sqrt{154}i}{924}$	0	0	$-\frac{\sqrt{2310}i}{385}$	0	0	$-\frac{3\sqrt{2310}}{3080}$	0	0	$-\frac{\sqrt{154}i}{924}$	0	0	$-\frac{\sqrt{154}}{1848}$		
	$-\frac{5\sqrt{154}i}{924}$	0	0	0	0	$\frac{\sqrt{2310}i}{385}$	$\frac{3\sqrt{2310}}{3080}$	0	0	0	$\frac{\sqrt{154}i}{924}$	$\frac{\sqrt{154}}{1848}$	0			
	0	$-\frac{5\sqrt{154}}{924}$	$-\frac{\sqrt{2310}i}{385}$	0	0	0	0	$-\frac{3\sqrt{2310}i}{3080}$	$\frac{\sqrt{154}i}{924}$	0	0	0	0	$\frac{\sqrt{154}i}{1848}$		
	$\frac{5\sqrt{154}}{924}$	0	0	$\frac{\sqrt{2310}i}{385}$	0	0	$-\frac{3\sqrt{2310}i}{3080}$	0	0	$-\frac{\sqrt{154}i}{924}$	0	0	$\frac{\sqrt{154}i}{1848}$	0		
	$\frac{5\sqrt{154}i}{462}$	0	0	$\frac{\sqrt{2310}}{280}$	0	$\frac{\sqrt{2310}i}{280}$	0	0	0	$\frac{\sqrt{154}}{1848}$	0	$-\frac{\sqrt{154}i}{1848}$	0	0		
	0	$-\frac{5\sqrt{154}i}{462}$	$-\frac{\sqrt{2310}}{280}$	0	$\frac{\sqrt{2310}i}{280}$	0	0	0	$-\frac{\sqrt{154}}{1848}$	0	$-\frac{\sqrt{154}i}{1848}$	0	0	0		
$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$																

892 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,1;a)}(A', 3)$	0	0 0 0 $-\frac{\sqrt{770}i}{220}$ 0 $-\frac{\sqrt{770}}{220}$ $\frac{\sqrt{770}i}{110}$ 0 0 $-\frac{5\sqrt{462}i}{924}$ 0 $\frac{5\sqrt{462}}{924}$ 0 0
	0	0 0 $-\frac{\sqrt{770}i}{220}$ 0 $\frac{\sqrt{770}}{220}$ 0 0 $-\frac{\sqrt{770}i}{110}$ $-\frac{5\sqrt{462}i}{924}$ 0 $-\frac{5\sqrt{462}}{924}$ 0 0 0
	0	$\frac{\sqrt{770}i}{220}$ 0 0 0 0 0 $-\frac{\sqrt{462}}{168}$ 0 0 $\frac{\sqrt{770}i}{220}$ 0 0 $-\frac{\sqrt{770}}{616}$
	$\frac{\sqrt{770}i}{220}$	0 0 0 0 0 $\frac{\sqrt{462}}{168}$ 0 0 0 0 $-\frac{\sqrt{770}i}{220}$ $\frac{\sqrt{770}}{616}$ 0
	0	$\frac{\sqrt{770}}{220}$ 0 0 0 0 0 $-\frac{\sqrt{462}i}{168}$ $-\frac{\sqrt{770}i}{220}$ 0 0 0 0 $\frac{\sqrt{770}i}{616}$
	$-\frac{\sqrt{770}}{220}$	0 0 0 0 0 $-\frac{\sqrt{462}i}{168}$ 0 0 $\frac{\sqrt{770}i}{220}$ 0 0 $\frac{\sqrt{770}i}{616}$ 0
	$-\frac{\sqrt{770}i}{110}$	0 0 $\frac{\sqrt{462}}{168}$ 0 $\frac{\sqrt{462}i}{168}$ 0 0 0 $-\frac{19\sqrt{770}}{3080}$ 0 $\frac{19\sqrt{770}i}{3080}$ 0 0
	0	$\frac{\sqrt{770}i}{110}$ $-\frac{\sqrt{462}}{168}$ 0 $\frac{\sqrt{462}i}{168}$ 0 0 0 $\frac{19\sqrt{770}}{3080}$ 0 $\frac{19\sqrt{770}i}{3080}$ 0 0
	0	$\frac{5\sqrt{462}i}{924}$ 0 0 $\frac{\sqrt{770}i}{220}$ 0 0 $\frac{19\sqrt{770}}{3080}$ 0 0 0 0 $-\frac{\sqrt{462}}{1848}$
	$\frac{5\sqrt{462}i}{924}$	0 0 0 0 $-\frac{\sqrt{770}i}{220}$ $-\frac{19\sqrt{770}}{3080}$ 0 0 0 0 0 $\frac{\sqrt{462}}{1848}$ 0
	0	$-\frac{5\sqrt{462}}{924}$ $-\frac{\sqrt{770}i}{220}$ 0 0 0 0 $-\frac{19\sqrt{770}i}{3080}$ 0 0 0 0 0 $-\frac{\sqrt{462}i}{1848}$
	$\frac{5\sqrt{462}}{924}$	0 0 $\frac{\sqrt{770}i}{220}$ 0 0 $-\frac{19\sqrt{770}i}{3080}$ 0 0 0 0 0 $-\frac{\sqrt{462}i}{1848}$ 0
	0	0 0 0 $\frac{\sqrt{770}}{616}$ 0 $-\frac{\sqrt{770}i}{616}$ 0 0 0 $\frac{\sqrt{462}}{1848}$ 0 $\frac{\sqrt{462}i}{1848}$ 0 0
	0	0 0 $-\frac{\sqrt{770}}{616}$ 0 $-\frac{\sqrt{770}i}{616}$ 0 0 0 $-\frac{\sqrt{462}}{1848}$ 0 $\frac{\sqrt{462}i}{1848}$ 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	$-\frac{\sqrt{110}i}{55}$	0	0	0	0	$-\frac{\sqrt{110}i}{55}$	$-\frac{\sqrt{66}i}{66}$	0	0	0	0	$\frac{\sqrt{66}i}{66}$	
	0	0	0	$\frac{\sqrt{110}i}{55}$	0	0	$-\frac{\sqrt{110}i}{55}$	0	0	$\frac{\sqrt{66}i}{66}$	0	0	$\frac{\sqrt{66}i}{66}$	0	
	$\frac{\sqrt{110}i}{55}$	0	0	0	0	$-\frac{\sqrt{66}i}{264}$	0	0	0	$\frac{3\sqrt{110}}{220}$	0	$-\frac{7\sqrt{110}i}{440}$	0	0	
	0	$-\frac{\sqrt{110}i}{55}$	0	0	$-\frac{\sqrt{66}i}{264}$	0	0	0	$-\frac{3\sqrt{110}}{220}$	0	$-\frac{7\sqrt{110}i}{440}$	0	0	0	
	0	0	0	$\frac{\sqrt{66}i}{264}$	0	0	$\frac{\sqrt{66}i}{264}$	0	0	$\frac{\sqrt{110}i}{440}$	0	0	$-\frac{\sqrt{110}i}{440}$	0	
	0	0	$\frac{\sqrt{66}i}{264}$	0	0	0	0	$-\frac{\sqrt{66}i}{264}$	$\frac{\sqrt{110}i}{440}$	0	0	0	0	$\frac{\sqrt{110}i}{440}$	
	0	$\frac{\sqrt{110}i}{55}$	0	0	$-\frac{\sqrt{66}i}{264}$	0	0	0	0	$\frac{7\sqrt{110}i}{440}$	0	0	0	$-\frac{3\sqrt{110}}{220}$	
	$\frac{\sqrt{110}i}{55}$	0	0	0	0	$\frac{\sqrt{66}i}{264}$	0	0	0	0	$-\frac{7\sqrt{110}i}{440}$	$\frac{3\sqrt{110}}{220}$	0	0	
	$\frac{\sqrt{66}i}{66}$	0	0	$-\frac{3\sqrt{110}}{220}$	0	$-\frac{\sqrt{110}i}{440}$	0	0	0	0	$-\frac{5\sqrt{66}i}{264}$	0	0	0	
	0	$-\frac{\sqrt{66}i}{66}$	$\frac{3\sqrt{110}}{220}$	0	$-\frac{\sqrt{110}i}{440}$	0	0	0	0	0	$-\frac{5\sqrt{66}i}{264}$	0	0	0	
	0	0	0	$\frac{7\sqrt{110}i}{440}$	0	0	$-\frac{7\sqrt{110}i}{440}$	0	0	$\frac{5\sqrt{66}i}{264}$	0	0	$\frac{5\sqrt{66}i}{264}$	0	
	0	0	$\frac{7\sqrt{110}i}{440}$	0	0	0	0	$\frac{7\sqrt{110}i}{440}$	$\frac{5\sqrt{66}i}{264}$	0	0	0	0	$-\frac{5\sqrt{66}i}{264}$	
	0	$-\frac{\sqrt{66}i}{66}$	0	0	$\frac{\sqrt{110}i}{440}$	0	0	$\frac{3\sqrt{110}}{220}$	0	0	$-\frac{5\sqrt{66}i}{264}$	0	0	0	
	$-\frac{\sqrt{66}i}{66}$	0	0	0	0	$-\frac{\sqrt{110}i}{440}$	$-\frac{3\sqrt{110}}{220}$	0	0	0	$\frac{5\sqrt{66}i}{264}$	0	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 0 0 0 0 0 $-\frac{\sqrt{462}i}{462}$ 0 0 0 0 $-\frac{\sqrt{462}i}{462}$														
	0 0 0 0 0 0 0 0 $\frac{\sqrt{462}i}{462}$ 0 0 0 $-\frac{\sqrt{462}i}{462}$ 0														
	0 0 0 0 0 $-\frac{17\sqrt{462}i}{1848}$ 0 0 0 $\frac{\sqrt{770}}{220}$ 0 $\frac{9\sqrt{770}i}{3080}$ 0 0														
	0 0 0 0 $-\frac{17\sqrt{462}i}{1848}$ 0 0 0 $-\frac{\sqrt{770}}{220}$ 0 $\frac{9\sqrt{770}i}{3080}$ 0 0 0														
	0 0 0 $\frac{17\sqrt{462}i}{1848}$ 0 0 $-\frac{17\sqrt{462}i}{1848}$ 0 0 $\frac{9\sqrt{770}i}{3080}$ 0 $-\frac{\sqrt{770}}{110}$ $\frac{9\sqrt{770}i}{3080}$ 0														
	0 0 $\frac{17\sqrt{462}i}{1848}$ 0 0 0 $\frac{17\sqrt{462}i}{1848}$ $\frac{9\sqrt{770}i}{3080}$ 0 $\frac{\sqrt{770}}{110}$ 0 0 $-\frac{9\sqrt{770}i}{3080}$														
	0 0 0 0 0 $-\frac{17\sqrt{462}i}{1848}$ 0 0 0 0 0 $-\frac{9\sqrt{770}i}{3080}$ 0 $-\frac{13\sqrt{462}i}{1848}$ 0 0														
	0 $-\frac{\sqrt{462}i}{462}$ $\frac{\sqrt{770}}{220}$ 0 $-\frac{9\sqrt{770}i}{3080}$ 0 0 0 0 0 $-\frac{13\sqrt{462}i}{1848}$ 0 0 0														
	0 0 0 $-\frac{9\sqrt{770}i}{3080}$ 0 $\frac{\sqrt{770}}{110}$ $-\frac{9\sqrt{770}i}{3080}$ 0 0 $\frac{13\sqrt{462}i}{1848}$ 0 0 $-\frac{13\sqrt{462}i}{1848}$ 0														
	0 0 $-\frac{9\sqrt{770}i}{3080}$ 0 $-\frac{\sqrt{770}}{110}$ 0 0 $\frac{9\sqrt{770}i}{3080}$ $\frac{13\sqrt{462}i}{1848}$ 0 0 0 0 $\frac{13\sqrt{462}i}{1848}$														
	0 $\frac{\sqrt{462}i}{462}$ 0 0 0 $\frac{9\sqrt{770}i}{3080}$ $\frac{\sqrt{770}}{220}$ 0 0 0 0 $-\frac{13\sqrt{462}i}{1848}$ 0 0 0														
	$\frac{\sqrt{462}i}{462}$ 0 0 0 0 $\frac{9\sqrt{770}i}{3080}$ $\frac{\sqrt{770}}{220}$ 0 0 0 0 $-\frac{13\sqrt{462}i}{1848}$ 0 0 0														
895	symmetry	$\frac{\sqrt{35yz(y-z)(y+z)}}{2}$													

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,1;a)}(A'',1)$	0 0 0 0 $-\frac{\sqrt{110}i}{55}$ 0 0 $-\frac{\sqrt{110}}{55}$ 0 0 $\frac{\sqrt{66}i}{66}$ 0 0 $-\frac{\sqrt{66}}{66}$	
	0 0 0 0 0 $\frac{\sqrt{110}i}{55}$ $\frac{\sqrt{110}}{55}$ 0 0 0 0 $-\frac{\sqrt{66}i}{66}$ $\frac{\sqrt{66}}{66}$ 0 0	
	0 0 0 0 0 $\frac{\sqrt{66}}{264}$ $\frac{\sqrt{66}i}{264}$ 0 0 0 0 $-\frac{\sqrt{110}}{440}$ $\frac{\sqrt{110}i}{440}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{66}}{264}$ 0 0 $-\frac{\sqrt{66}i}{264}$ 0 0 $\frac{\sqrt{110}}{440}$ 0 0 $-\frac{\sqrt{110}i}{440}$	
	$\frac{\sqrt{110}i}{55}$ 0 0 $-\frac{\sqrt{66}}{264}$ 0 0 0 0 0 $\frac{7\sqrt{110}}{440}$ 0 $-\frac{3\sqrt{110}i}{220}$ 0 0	
	0 $-\frac{\sqrt{110}i}{55}$ $\frac{\sqrt{66}}{264}$ 0 0 0 0 0 $-\frac{7\sqrt{110}}{440}$ 0 $-\frac{3\sqrt{110}i}{220}$ 0 0 0	
	0 $\frac{\sqrt{110}}{55}$ $-\frac{\sqrt{66}i}{264}$ 0 0 0 0 0 $-\frac{7\sqrt{110}i}{440}$ 0 0 0 0 $\frac{3\sqrt{110}i}{220}$	
	$-\frac{\sqrt{110}}{55}$ 0 0 $\frac{\sqrt{66}i}{264}$ 0 0 0 0 0 $\frac{7\sqrt{110}i}{440}$ 0 0 $\frac{3\sqrt{110}i}{220}$ 0	
	0 0 0 0 $-\frac{7\sqrt{110}}{440}$ $\frac{7\sqrt{110}i}{440}$ 0 0 0 0 0 $\frac{5\sqrt{66}}{264}$ $\frac{5\sqrt{66}i}{264}$ 0	
	0 0 0 0 $\frac{7\sqrt{110}}{440}$ 0 0 $-\frac{7\sqrt{110}i}{440}$ 0 0 $-\frac{5\sqrt{66}}{264}$ 0 0 $-\frac{5\sqrt{66}i}{264}$	
	$-\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{110}}{440}$ 0 $\frac{3\sqrt{110}i}{220}$ 0 0 0 0 $-\frac{5\sqrt{66}}{264}$ 0 0 0	
	0 $\frac{\sqrt{66}i}{66}$ $-\frac{\sqrt{110}}{440}$ 0 $\frac{3\sqrt{110}i}{220}$ 0 0 0 0 $\frac{5\sqrt{66}}{264}$ 0 0 0	
	0 $\frac{\sqrt{66}}{66}$ $-\frac{\sqrt{110}i}{440}$ 0 0 0 0 $-\frac{3\sqrt{110}i}{220}$ $-\frac{5\sqrt{66}i}{264}$ 0 0 0 0	
	$-\frac{\sqrt{66}}{66}$ 0 0 $\frac{\sqrt{110}i}{440}$ 0 0 $-\frac{3\sqrt{110}i}{220}$ 0 0 $\frac{5\sqrt{66}i}{264}$ 0 0 0	
$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$		
896	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,1;a)}(A'', 2)$	0	0	0	$-\frac{\sqrt{110}}{55}$	0	$-\frac{\sqrt{110}i}{55}$	0	0	0	$\frac{\sqrt{66}}{66}$	0	$-\frac{\sqrt{66}i}{66}$	0	0	
	0	0	$\frac{\sqrt{110}}{55}$	0	$-\frac{\sqrt{110}i}{55}$	0	0	0	$-\frac{\sqrt{66}}{66}$	0	$-\frac{\sqrt{66}i}{66}$	0	0	0	
	0	$\frac{\sqrt{110}}{55}$	0	0	0	0	0	$-\frac{\sqrt{66}i}{264}$	$-\frac{3\sqrt{110}i}{220}$	0	0	0	0	$\frac{7\sqrt{110}i}{440}$	
	$-\frac{\sqrt{110}}{55}$	0	0	0	0	0	$-\frac{\sqrt{66}i}{264}$	0	0	$\frac{3\sqrt{110}i}{220}$	0	0	$\frac{7\sqrt{110}i}{440}$	0	
	0	$\frac{\sqrt{110}i}{55}$	0	0	0	0	0	$-\frac{\sqrt{66}}{264}$	0	0	$\frac{3\sqrt{110}i}{220}$	0	0	$-\frac{7\sqrt{110}}{440}$	
	$\frac{\sqrt{110}i}{55}$	0	0	0	0	0	$\frac{\sqrt{66}}{264}$	0	0	0	0	$-\frac{3\sqrt{110}i}{220}$	$\frac{7\sqrt{110}}{440}$	0	
	0	0	0	$\frac{\sqrt{66}i}{264}$	0	$\frac{\sqrt{66}}{264}$	0	0	0	$-\frac{\sqrt{110}i}{440}$	0	$\frac{\sqrt{110}}{440}$	0	0	
	0	0	$\frac{\sqrt{66}i}{264}$	0	$-\frac{\sqrt{66}}{264}$	0	0	0	$-\frac{\sqrt{110}i}{440}$	0	$-\frac{\sqrt{110}}{440}$	0	0	0	
	0	$-\frac{\sqrt{66}}{66}$	$\frac{3\sqrt{110}i}{220}$	0	0	0	0	$\frac{\sqrt{110}i}{440}$	0	0	0	0	0	$-\frac{5\sqrt{66}i}{264}$	
	$\frac{\sqrt{66}}{66}$	0	0	$-\frac{3\sqrt{110}i}{220}$	0	0	$\frac{\sqrt{110}i}{440}$	0	0	0	0	0	$-\frac{5\sqrt{66}i}{264}$	0	
	0	$\frac{\sqrt{66}i}{66}$	0	0	$-\frac{3\sqrt{110}i}{220}$	0	0	$-\frac{\sqrt{110}i}{440}$	0	0	0	0	0	$-\frac{5\sqrt{66}}{264}$	
	$\frac{\sqrt{66}i}{66}$	0	0	0	0	$\frac{3\sqrt{110}i}{220}$	$\frac{\sqrt{110}}{440}$	0	0	0	0	0	$\frac{5\sqrt{66}}{264}$	0	
	0	0	0	$-\frac{7\sqrt{110}i}{440}$	0	$\frac{7\sqrt{110}}{440}$	0	0	0	$\frac{5\sqrt{66}i}{264}$	0	$\frac{5\sqrt{66}}{264}$	0	0	
	0	0	$-\frac{7\sqrt{110}i}{440}$	0	$-\frac{7\sqrt{110}}{440}$	0	0	0	$\frac{5\sqrt{66}i}{264}$	0	$-\frac{5\sqrt{66}}{264}$	0	0	0	

897 symmetry

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,1;a)}(A'', 3)$	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{462}i}{462}$	0	0	$-\frac{\sqrt{462}}{462}$		
	0	0	0	0	0	0	0	0	0	$\frac{\sqrt{462}i}{462}$	$\frac{\sqrt{462}}{462}$	0			
	0	0	0	0	0	$-\frac{17\sqrt{462}}{1848}$	$\frac{17\sqrt{462}i}{1848}$	0	0	$-\frac{\sqrt{770}i}{110}$	0	$\frac{9\sqrt{770}}{3080}$	$\frac{9\sqrt{770}i}{3080}$	0	
	0	0	0	0	$\frac{17\sqrt{462}}{1848}$	0	0	$-\frac{17\sqrt{462}i}{1848}$	$-\frac{\sqrt{770}i}{110}$	0	$-\frac{9\sqrt{770}}{3080}$	0	0	$-\frac{9\sqrt{770}i}{3080}$	
	0	0	0	$\frac{17\sqrt{462}}{1848}$	0	0	0	0	0	$\frac{9\sqrt{770}}{3080}$	0	$\frac{\sqrt{770}i}{220}$	0	0	
	0	0	$-\frac{17\sqrt{462}}{1848}$	0	0	0	0	0	$-\frac{9\sqrt{770}}{3080}$	0	$\frac{\sqrt{770}i}{220}$	0	0	0	
	0	0	$-\frac{17\sqrt{462}i}{1848}$	0	0	0	0	0	$\frac{9\sqrt{770}i}{3080}$	0	0	0	0	$\frac{\sqrt{770}i}{220}$	
	0	0	0	$\frac{17\sqrt{462}i}{1848}$	0	0	0	0	0	$-\frac{9\sqrt{770}i}{3080}$	0	0	$\frac{\sqrt{770}i}{220}$	0	
	0	0	0	$\frac{\sqrt{770}i}{110}$	0	$-\frac{9\sqrt{770}}{3080}$	$-\frac{9\sqrt{770}i}{3080}$	0	0	0	0	$-\frac{13\sqrt{462}}{1848}$	$\frac{13\sqrt{462}i}{1848}$	0	
	0	0	$\frac{\sqrt{770}i}{110}$	0	$\frac{9\sqrt{770}}{3080}$	0	0	$\frac{9\sqrt{770}i}{3080}$	0	0	$\frac{13\sqrt{462}}{1848}$	0	0	$-\frac{13\sqrt{462}i}{1848}$	
	$\frac{\sqrt{462}i}{462}$	0	0	$-\frac{9\sqrt{770}}{3080}$	0	$-\frac{\sqrt{770}i}{220}$	0	0	0	$\frac{13\sqrt{462}}{1848}$	0	0	0	0	
	0	$-\frac{\sqrt{462}i}{462}$	$\frac{9\sqrt{770}}{3080}$	0	$-\frac{\sqrt{770}i}{220}$	0	0	0	$-\frac{13\sqrt{462}}{1848}$	0	0	0	0	0	
	0	$\frac{\sqrt{462}}{462}$	$-\frac{9\sqrt{770}i}{3080}$	0	0	0	0	$-\frac{\sqrt{770}i}{220}$	$-\frac{13\sqrt{462}i}{1848}$	0	0	0	0	0	
	$-\frac{\sqrt{462}}{462}$	0	0	$\frac{9\sqrt{770}i}{3080}$	0	0	$-\frac{\sqrt{770}i}{220}$	0	0	$\frac{13\sqrt{462}i}{1848}$	0	0	0	0	

898 symmetry

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

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{Q}_4^{(1,1;a)}(A'', 4)$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{462}}{462}$ 0 $-\frac{\sqrt{462}i}{462}$ 0 0	0 0 0 0 0 0 0 0 $\frac{\sqrt{462}}{462}$ 0 $-\frac{\sqrt{462}i}{462}$ 0 0 0														
	0 0 0 0 0 0 0 $\frac{17\sqrt{462}i}{1848}$ $\frac{\sqrt{770}i}{220}$ 0 0 0 0 $\frac{9\sqrt{770}i}{3080}$	0 0 0 0 0 0 $\frac{17\sqrt{462}i}{1848}$ 0 0 $-\frac{\sqrt{770}i}{220}$ 0 0 $\frac{9\sqrt{770}i}{3080}$ 0														
	0 0 0 0 0 0 $-\frac{17\sqrt{462}}{1848}$ 0 $\frac{\sqrt{770}i}{220}$ 0 0 0 0 $-\frac{\sqrt{770}i}{220}$ 0 0 $\frac{9\sqrt{770}}{3080}$	0 0 0 0 0 0 $-\frac{17\sqrt{462}}{1848}$ 0 0 0 0 0 $-\frac{\sqrt{770}i}{220}$ 0 0 $\frac{9\sqrt{770}}{3080}$ 0														
	0 0 0 $-\frac{17\sqrt{462}i}{1848}$ 0 $\frac{17\sqrt{462}}{1848}$ 0 0 0 $\frac{9\sqrt{770}i}{3080}$ 0 0 $-\frac{9\sqrt{770}}{3080}$ 0 0 $-\frac{9\sqrt{770}i}{110}$ 0	0 0 0 $-\frac{17\sqrt{462}i}{1848}$ 0 $-\frac{17\sqrt{462}}{1848}$ 0 0 0 $\frac{9\sqrt{770}i}{3080}$ 0 0 $-\frac{9\sqrt{770}}{3080}$ 0 0 $\frac{\sqrt{770}i}{110}$														
	$\frac{\sqrt{462}}{462}$ $-\frac{\sqrt{770}i}{220}$ 0 0 0 0 $-\frac{9\sqrt{770}i}{3080}$ 0 0 0 0 0 0 0 $\frac{13\sqrt{462}i}{1848}$ 0	$-\frac{\sqrt{462}}{462}$ 0 0 $\frac{\sqrt{770}i}{220}$ 0 0 $-\frac{9\sqrt{770}i}{3080}$ 0 0 0 0 0 0 $\frac{13\sqrt{462}i}{1848}$ 0														
	0 $\frac{\sqrt{462}i}{462}$ 0 0 $-\frac{\sqrt{770}i}{220}$ 0 0 $-\frac{9\sqrt{770}}{3080}$ 0 0 0 0 0 0 0 $-\frac{13\sqrt{462}}{1848}$	$\frac{\sqrt{462}i}{462}$ 0 0 0 0 $\frac{\sqrt{770}i}{220}$ $\frac{9\sqrt{770}}{3080}$ 0 0 0 0 0 0 0 $\frac{13\sqrt{462}}{1848}$ 0														
	0 0 0 $-\frac{9\sqrt{770}i}{3080}$ 0 $-\frac{9\sqrt{770}}{3080}$ 0 0 $-\frac{13\sqrt{462}i}{1848}$ 0 0 $-\frac{13\sqrt{462}}{1848}$ 0 0 0 0	0 0 0 $-\frac{9\sqrt{770}i}{3080}$ 0 $-\frac{9\sqrt{770}}{3080}$ $\frac{\sqrt{770}i}{110}$ 0 0 $-\frac{13\sqrt{462}i}{1848}$ 0 0 $-\frac{13\sqrt{462}}{1848}$ 0 0 0														
	0 0 $-\frac{9\sqrt{770}i}{3080}$ 0 $\frac{9\sqrt{770}}{3080}$ 0 0 $-\frac{\sqrt{770}i}{110}$ $-\frac{13\sqrt{462}i}{1848}$ 0 0 $-\frac{13\sqrt{462}}{1848}$ 0 0 0 0	0 0 $-\frac{9\sqrt{770}i}{3080}$ 0 $\frac{9\sqrt{770}}{3080}$ 0 0 $-\frac{\sqrt{770}i}{110}$ $-\frac{13\sqrt{462}i}{1848}$ 0 0 $-\frac{13\sqrt{462}}{1848}$ 0 0 0 0														
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0														
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0														
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0														
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0														

899 symmetry

y

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{G}_1^{(1,0;a)}(A')$	0 0 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $-\frac{\sqrt{7}i}{14}$														
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0														
	0 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0														
	0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0														
	0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 $\frac{\sqrt{105}i}{56}$ 0														
	0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 $-\frac{3\sqrt{7}i}{56}$ $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 $-\frac{\sqrt{105}i}{56}$														
	0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0 0														
	0 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0														
	$-\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0 0														
	0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 0														
	0 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0														
	0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0 0 $\frac{\sqrt{105}i}{56}$ $-\frac{\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{56}$														
	0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0 0 0														
	$\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0														
<i>x</i>															
900	symmetry														

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{G}_1^{(1,0;a)}(A'',1)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$-\frac{\sqrt{7}i}{14}$	$0$	$0$	$\frac{\sqrt{7}}{14}$										
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\frac{\sqrt{7}i}{14}$	$-\frac{\sqrt{7}}{14}$	$0$	$0$										
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\frac{3\sqrt{7}}{56}$	$\frac{3\sqrt{7}i}{56}$	$0$	$0$	$0$	$0$	$0$	$0$	$\frac{\sqrt{105}}{56}$	$-\frac{\sqrt{105}i}{56}$	$0$			
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$-\frac{3\sqrt{7}}{56}$	$0$	$0$	$-\frac{3\sqrt{7}i}{56}$	$0$	$0$	$0$	$0$	$-\frac{\sqrt{105}}{56}$	$0$	$0$	$0$	$\frac{\sqrt{105}i}{56}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$-\frac{3\sqrt{7}}{56}$	$0$	$0$	$0$	$0$	$0$	$0$	$0$	$\frac{\sqrt{105}}{56}$	$0$	$0$	$0$	$0$	$0$
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\frac{3\sqrt{7}}{56}$	$0$	$0$	$0$	$0$	$0$	$0$	$0$	$-\frac{\sqrt{105}}{56}$	$0$	$0$	$0$	$0$	$0$
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$-\frac{3\sqrt{7}i}{56}$	$0$	$0$	$0$	$0$	$0$	$0$	$0$	$-\frac{\sqrt{105}i}{56}$	$0$	$0$	$0$	$0$	$0$
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\frac{3\sqrt{7}i}{56}$	$0$	$0$	$0$	$0$	$0$	$0$	$0$	$\frac{\sqrt{105}i}{56}$	$0$	$0$	$0$	$0$	$0$
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$0$	$-\frac{\sqrt{105}}{56}$	$\frac{\sqrt{105}i}{56}$	$0$	$0$	$0$	$0$	$0$	$0$	$0$	$-\frac{\sqrt{7}}{56}$	$-\frac{\sqrt{7}i}{56}$	$0$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$0$	$0$	$\frac{\sqrt{105}}{56}$	$0$	$0$	$-\frac{\sqrt{105}i}{56}$	$0$	$0$	$0$	$\frac{\sqrt{7}}{56}$	$0$	$0$	$\frac{\sqrt{7}i}{56}$	
	$\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$0$	$-\frac{\sqrt{105}}{56}$	$0$	$0$	$0$	$0$	$0$	$0$	$\frac{\sqrt{7}}{56}$	$0$	$0$	$0$	$0$	$0$
	0 $-\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{105}}{56}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	$0$	$0$	$0$	$0$	$0$	$0$	$0$	$-\frac{\sqrt{7}}{56}$	$0$	$0$	$0$	$0$	$0$	$0$
	0 $-\frac{\sqrt{7}}{14}$ $\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	$0$	$0$	$0$	$0$	$0$	$0$	$0$	$\frac{\sqrt{7}i}{56}$	$0$	$0$	$0$	$0$	$0$	$0$
	$\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 0 0 0 0 0 0 0	$0$	$0$	$0$	$-\frac{\sqrt{105}i}{56}$	$0$	$0$	$0$	$0$	$-\frac{\sqrt{7}i}{56}$	$0$	$0$	$0$	$0$	$0$

901 symmetry

z

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_1^{(1,0;a)}(A'', 2)$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 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 0 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{56}$	
	0 0 0 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0	
	0 0 0 0 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$	
	0 0 0 0 0 0 0 $\frac{3\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{56}$ 0	
	0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 $-\frac{\sqrt{105}}{56}$ 0 0	
	0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 $\frac{\sqrt{105}}{56}$ 0 0 0	
	0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{56}$	
	$-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0	
	0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $\frac{\sqrt{105}}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}}{56}$	
	$-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{56}$ 0	
	0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 $\frac{\sqrt{105}}{56}$ 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{56}$ 0 0	
	0 0 $-\frac{\sqrt{105}i}{56}$ 0 $-\frac{\sqrt{105}}{56}$ 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{56}$ 0 0 0	

902 symmetry

 $\sqrt{15}xyz$ 

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & -\frac{1}{6} \\ \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{6} & \frac{1}{6} & 0 & 0 \\ 0 & \frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{6} \\ -\frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{i}{6} & 0 \\ \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 \\ 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & -\frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{6} & \frac{1}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{6} & 0 & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
903	symmetry	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$

*continued ...*

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(A', 2)$	0	0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ $-\frac{i}{8}$ 0 0 0 0 $\frac{i}{8}$
	0	0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $\frac{i}{8}$ 0 0 $\frac{i}{8}$ 0
	$\frac{\sqrt{15}i}{24}$	0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0
	0	$-\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{i}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0
	0	0 0 0 $\frac{i}{8}$ 0 0 $\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0
	0	0 $\frac{i}{8}$ 0 0 0 0 $-\frac{i}{8}$ $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{\sqrt{15}i}{24}$
	0	$\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{i}{8}$ 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0
	$\frac{\sqrt{15}i}{24}$	0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0
	$\frac{i}{8}$	0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 $\frac{i}{8}$ 0 0
	0	$-\frac{i}{8}$ 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 $\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{i}{8}$ 0 0 $-\frac{i}{8}$ 0
	0	0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 $-\frac{\sqrt{15}i}{24}$ $-\frac{i}{8}$ 0 0 0 0 $\frac{i}{8}$
	0	$-\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 $\frac{i}{8}$ 0 0 0
	$-\frac{i}{8}$	0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 $-\frac{i}{8}$ 0 0
$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$		

904 symmetry

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(A'',1)$	0	0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{i}{8}$ 0 0 $-\frac{1}{8}$
	0	0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 $-\frac{i}{8}$ $\frac{1}{8}$ 0 0 0
	0	0 0 0 0 0 $\frac{1}{8}$ $\frac{i}{8}$ 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{15}i}{24}$ 0 0 0
	0	0 0 0 0 $-\frac{1}{8}$ 0 0 0 $-\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{15}i}{24}$
	$\frac{\sqrt{15}i}{24}$	0 0 $-\frac{1}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0
	0	$-\frac{\sqrt{15}i}{24}$ $\frac{1}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 0
	0	$\frac{\sqrt{15}}{24}$ $-\frac{i}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{15}}{24}$	0 0 $\frac{i}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{1}{8}$ $-\frac{i}{8}$ 0
	0	0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $\frac{1}{8}$ 0 0 $\frac{i}{8}$
	$-\frac{i}{8}$	0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 $\frac{1}{8}$ 0 0 0 0 0
	0	$\frac{i}{8}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 0 0 0
	0	$\frac{1}{8}$ $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0 0 0
	$-\frac{1}{8}$	0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0
$-\frac{z(3x^2+3y^2-2z^2)}{2}$		

906 symmetry

continued ...

Table 10

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

907 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(A'',3)$	0	0 0 0 0 $\frac{i}{24}$ 0 0 $-\frac{1}{24}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{15}}{24}$
	0	0 0 0 0 0 $-\frac{i}{24}$ $\frac{1}{24}$ 0 0 0 0 $\frac{\sqrt{15}i}{24}$ $\frac{\sqrt{15}}{24}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{15}i}{24}$ 0 0 $\frac{i}{6}$ 0 $\frac{1}{24}$ $\frac{i}{24}$ 0
	0	0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{15}i}{24}$ $\frac{i}{6}$ 0 $-\frac{1}{24}$ 0 0 $-\frac{i}{24}$
	$-\frac{i}{24}$	0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 $-\frac{1}{24}$ 0 $\frac{i}{6}$ 0 0 0
	0	$\frac{i}{24}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $\frac{1}{24}$ 0 $\frac{i}{6}$ 0 0 0 0
	0	$\frac{1}{24}$ $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 $-\frac{i}{24}$ 0 0 0 0 $\frac{i}{6}$
	$-\frac{1}{24}$	0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $\frac{i}{24}$ 0 0 $\frac{i}{6}$ 0 0
	0	0 0 0 $-\frac{i}{6}$ 0 $\frac{1}{24}$ $\frac{i}{24}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ $\frac{\sqrt{15}i}{24}$ 0
	0	0 0 $-\frac{i}{6}$ 0 $-\frac{1}{24}$ 0 0 $-\frac{i}{24}$ 0 0 $\frac{\sqrt{15}}{24}$ 0 0 $-\frac{\sqrt{15}i}{24}$
	$\frac{\sqrt{15}i}{24}$	0 0 $-\frac{1}{24}$ 0 $-\frac{i}{6}$ 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0 0 0
	0	$-\frac{\sqrt{15}i}{24}$ $\frac{1}{24}$ 0 $-\frac{i}{6}$ 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0
	0	$\frac{\sqrt{15}}{24}$ $-\frac{i}{24}$ 0 0 0 0 $-\frac{i}{6}$ $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0
	$-\frac{\sqrt{15}}{24}$	0 0 $\frac{i}{24}$ 0 0 $-\frac{i}{6}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0
$\frac{\sqrt{15}z(x-y)(x+y)}{2}$		
908	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(A'', 4)$	0	0 0 0 $\frac{1}{24}$ 0 $-\frac{i}{24}$ 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 $-\frac{\sqrt{15}i}{24}$ 0 0
	0	0 0 $-\frac{1}{24}$ 0 $-\frac{i}{24}$ 0 0 0 $\frac{\sqrt{15}}{24}$ 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0
	0	$-\frac{1}{24}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ $\frac{i}{6}$ 0 0 0 0 0 $-\frac{i}{24}$
	$\frac{1}{24}$	0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 $-\frac{i}{6}$ 0 0 $-\frac{i}{24}$ 0
	0	$\frac{i}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0 $\frac{i}{6}$ 0 0 $-\frac{1}{24}$
	$\frac{i}{24}$	0 0 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $-\frac{i}{6}$ $\frac{1}{24}$ 0
	0	0 0 0 $\frac{\sqrt{15}i}{24}$ 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 $\frac{i}{24}$ 0 $\frac{1}{24}$ $\frac{i}{6}$ 0
	0	0 0 $\frac{\sqrt{15}i}{24}$ 0 $\frac{\sqrt{15}}{24}$ 0 0 0 $\frac{i}{24}$ 0 $-\frac{1}{24}$ 0 0 $-\frac{i}{6}$
	0	$\frac{\sqrt{15}}{24}$ $-\frac{i}{6}$ 0 0 0 0 0 $-\frac{i}{24}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$
	$-\frac{\sqrt{15}}{24}$	0 0 $\frac{i}{6}$ 0 0 $-\frac{i}{24}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0
	0	$\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{i}{6}$ 0 0 $-\frac{1}{24}$ 0 0 0 0 0 $-\frac{\sqrt{15}}{24}$
	$\frac{\sqrt{15}i}{24}$	0 0 0 0 0 $\frac{i}{6}$ $\frac{1}{24}$ 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ 0
	0	0 0 0 $\frac{i}{24}$ 0 $\frac{1}{24}$ $-\frac{i}{6}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 $\frac{\sqrt{15}}{24}$ 0 0
	0	0 0 $\frac{i}{24}$ 0 $-\frac{1}{24}$ 0 0 0 $\frac{i}{6}$ $-\frac{\sqrt{15}i}{24}$ 0 $-\frac{\sqrt{15}}{24}$ 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	$-\frac{\sqrt{15}i}{30}$	0	$\frac{\sqrt{15}}{30}$	0	0	0	0	0	0	0	0	0
	0	0	$-\frac{\sqrt{15}i}{30}$	0	$-\frac{\sqrt{15}}{30}$	0	0	0	0	0	0	0	0	0	0
	0	$\frac{\sqrt{15}i}{30}$	0	0	$\frac{i}{4}$	0	0	$\frac{1}{8}$	0	0	$-\frac{\sqrt{15}i}{60}$	0	0	$-\frac{\sqrt{15}}{120}$	
	$\frac{\sqrt{15}i}{30}$	0	0	0	0	$-\frac{i}{4}$	$-\frac{1}{8}$	0	0	0	$\frac{\sqrt{15}i}{60}$	$\frac{\sqrt{15}}{120}$	0		
	0	$-\frac{\sqrt{15}}{30}$	$-\frac{i}{4}$	0	0	0	0	$-\frac{i}{8}$	$-\frac{\sqrt{15}i}{60}$	0	0	0	0	$-\frac{\sqrt{15}i}{120}$	
	$\frac{\sqrt{15}}{30}$	0	0	$\frac{i}{4}$	0	0	$-\frac{i}{8}$	0	0	$\frac{\sqrt{15}i}{60}$	0	0	$-\frac{\sqrt{15}i}{120}$	0	
	0	0	0	$-\frac{1}{8}$	0	$\frac{i}{8}$	0	0	0	$\frac{\sqrt{15}}{40}$	0	$\frac{\sqrt{15}i}{40}$	0	0	0
	0	0	$\frac{1}{8}$	0	$\frac{i}{8}$	0	0	0	$-\frac{\sqrt{15}}{40}$	0	$\frac{\sqrt{15}i}{40}$	0	0	0	0
	0	0	0	0	$\frac{\sqrt{15}i}{60}$	0	0	$-\frac{\sqrt{15}}{40}$	0	0	$\frac{i}{4}$	0	0	$\frac{1}{8}$	
	0	0	0	0	0	$-\frac{\sqrt{15}i}{60}$	$\frac{\sqrt{15}}{40}$	0	0	0	$-\frac{i}{4}$	$-\frac{1}{8}$	0		
	0	0	$\frac{\sqrt{15}i}{60}$	0	0	0	0	$-\frac{\sqrt{15}i}{40}$	$-\frac{i}{4}$	0	0	0	0	$-\frac{i}{8}$	
	0	0	0	$-\frac{\sqrt{15}i}{60}$	0	0	$-\frac{\sqrt{15}i}{40}$	0	0	$\frac{i}{4}$	0	0	$-\frac{i}{8}$	0	
	0	0	0	$\frac{\sqrt{15}}{120}$	0	$\frac{\sqrt{15}i}{120}$	0	0	0	$-\frac{1}{8}$	0	$\frac{i}{8}$	0	0	0
	0	0	$-\frac{\sqrt{15}}{120}$	0	$\frac{\sqrt{15}i}{120}$	0	0	0	$\frac{1}{8}$	0	$\frac{i}{8}$	0	0	0	0
$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$															

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(A', 2)$	0 0 0 $-\frac{\sqrt{5}i}{30}$ 0 $-\frac{\sqrt{5}}{30}$ $\frac{\sqrt{5}i}{15}$ 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{5}i}{30}$ 0 $\frac{\sqrt{5}}{30}$ 0 0 $-\frac{\sqrt{5}i}{15}$ 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{5}i}{30}$ 0 0 0 0 0 $\frac{\sqrt{3}}{8}$ 0 0 0 $\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{5}}{24}$	
	$\frac{\sqrt{5}i}{30}$ 0 0 0 0 0 $-\frac{\sqrt{3}}{8}$ 0 0 0 0 $-\frac{\sqrt{5}i}{30}$ $-\frac{\sqrt{5}}{24}$ 0	
	0 $\frac{\sqrt{5}}{30}$ 0 0 0 0 0 $\frac{\sqrt{3}i}{8}$ $-\frac{\sqrt{5}i}{30}$ 0 0 0 0 0 $-\frac{\sqrt{5}i}{24}$	
	$-\frac{\sqrt{5}}{30}$ 0 0 0 0 0 $\frac{\sqrt{3}i}{8}$ 0 0 $\frac{\sqrt{5}i}{30}$ 0 0 $-\frac{\sqrt{5}i}{24}$ 0	
	$-\frac{\sqrt{5}i}{15}$ 0 0 $-\frac{\sqrt{3}}{8}$ 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 $\frac{\sqrt{5}}{120}$ 0 $-\frac{\sqrt{5}i}{120}$ 0 0	
	0 $\frac{\sqrt{5}i}{15}$ $\frac{\sqrt{3}}{8}$ 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 $-\frac{\sqrt{5}}{120}$ 0 $-\frac{\sqrt{5}i}{120}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{5}i}{30}$ 0 0 $-\frac{\sqrt{5}}{120}$ 0 0 0 0 0 $\frac{\sqrt{3}}{8}$	
	0 0 0 0 0 $-\frac{\sqrt{5}i}{30}$ $\frac{\sqrt{5}}{120}$ 0 0 0 0 0 $-\frac{\sqrt{3}}{8}$ 0	
	0 0 $-\frac{\sqrt{5}i}{30}$ 0 0 0 $\frac{\sqrt{5}i}{120}$ 0 0 0 0 0 0 $\frac{\sqrt{3}i}{8}$	
	0 0 0 $\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{5}i}{120}$ 0 0 0 0 0 $\frac{\sqrt{3}i}{8}$ 0	
	0 0 0 $-\frac{\sqrt{5}}{24}$ 0 $\frac{\sqrt{5}i}{24}$ 0 0 0 $-\frac{\sqrt{3}}{8}$ 0 $-\frac{\sqrt{3}i}{8}$ 0 0	
	0 0 $\frac{\sqrt{5}}{24}$ 0 $\frac{\sqrt{5}i}{24}$ 0 0 0 $\frac{\sqrt{3}}{8}$ 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0	

911 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
$\mathbb{G}_5^{(1,0;a)}(A', 3)$	0 0 $\frac{\sqrt{21}i}{24}$ 0 0 0 0 $\frac{\sqrt{21}i}{24}$ $-\frac{\sqrt{35}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{56}$	
	0 0 0 $-\frac{\sqrt{21}i}{24}$ 0 0 $\frac{\sqrt{21}i}{24}$ 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 0	
	$-\frac{\sqrt{21}i}{24}$ 0 0 0 0 $-\frac{\sqrt{35}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{21}i}{84}$ 0 0 0	
	0 $\frac{\sqrt{21}i}{24}$ 0 0 $-\frac{\sqrt{35}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{84}$ 0 0 0 0	
	0 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 $-\frac{5\sqrt{21}i}{168}$ 0 0 0 $\frac{5\sqrt{21}i}{168}$ 0	
	0 0 $\frac{\sqrt{35}i}{56}$ 0 0 0 0 $-\frac{\sqrt{35}i}{56}$ $-\frac{5\sqrt{21}i}{168}$ 0 0 0 0 $-\frac{5\sqrt{21}i}{168}$	
	0 $-\frac{\sqrt{21}i}{24}$ 0 0 $-\frac{\sqrt{35}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 0	
	$-\frac{\sqrt{21}i}{24}$ 0 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{84}$ 0 0 0	
	$\frac{\sqrt{35}i}{56}$ 0 0 0 0 $\frac{5\sqrt{21}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0	
	0 $-\frac{\sqrt{35}i}{56}$ 0 0 $\frac{5\sqrt{21}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $\frac{\sqrt{21}i}{84}$ 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 $\frac{\sqrt{35}i}{28}$ 0	
	0 0 $-\frac{\sqrt{21}i}{84}$ 0 0 0 0 $-\frac{\sqrt{21}i}{84}$ $\frac{\sqrt{35}i}{28}$ 0 0 0 0 $-\frac{\sqrt{35}i}{28}$	
	0 $-\frac{\sqrt{35}i}{56}$ 0 0 $-\frac{5\sqrt{21}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0	
	$-\frac{\sqrt{35}i}{56}$ 0 0 0 0 $\frac{5\sqrt{21}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 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 $-\frac{\sqrt{15}i}{120}$ 0 0 0 0 $-\frac{\sqrt{15}i}{120}$ $-\frac{i}{8}$ 0 0 0 0 $\frac{i}{8}$
	0	0 0 0 $\frac{\sqrt{15}i}{120}$ 0 0 $-\frac{\sqrt{15}i}{120}$ 0 0 $\frac{i}{8}$ 0 0 $\frac{i}{8}$ 0
	$\frac{\sqrt{15}i}{120}$	0 0 0 0 0 $\frac{i}{8}$ 0 0 0 $-\frac{\sqrt{15}}{15}$ 0 $-\frac{\sqrt{15}i}{30}$ 0 0
	0	$-\frac{\sqrt{15}i}{120}$ 0 0 $\frac{i}{8}$ 0 0 0 0 $\frac{\sqrt{15}}{15}$ 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0
	0	0 0 0 $-\frac{i}{8}$ 0 0 $-\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}i}{40}$ 0 0 $\frac{\sqrt{15}i}{40}$ 0
	0	0 $-\frac{i}{8}$ 0 0 0 0 0 $\frac{i}{8}$ $-\frac{\sqrt{15}i}{40}$ 0 0 0 0 $-\frac{\sqrt{15}i}{40}$
	0	$\frac{\sqrt{15}i}{120}$ 0 0 $\frac{i}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{15}i}{30}$ 0 0 $\frac{\sqrt{15}}{15}$
	$\frac{\sqrt{15}i}{120}$	0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{30}$ $-\frac{\sqrt{15}}{15}$ 0
	$\frac{i}{8}$	0 0 $\frac{\sqrt{15}}{15}$ 0 $\frac{\sqrt{15}i}{40}$ 0 0 0 0 0 0 0 0 0
	0	$-\frac{i}{8}$ $-\frac{\sqrt{15}}{15}$ 0 $\frac{\sqrt{15}i}{40}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{15}i}{30}$ 0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{15}i}{30}$ 0 0 0 0 $\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 0
	0	$-\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}i}{40}$ 0 0 $-\frac{\sqrt{15}}{15}$ 0 0 0 0 0 0 0
	$-\frac{i}{8}$	0 0 0 0 0 $\frac{\sqrt{15}i}{40}$ $\frac{\sqrt{15}}{15}$ 0 0 0 0 0 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	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{5}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{12} & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{12} & 0 & 0 & -\frac{\sqrt{5}i}{12} & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 \\ -\frac{\sqrt{5}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & -\frac{\sqrt{5}}{30} & 0 & \frac{\sqrt{5}i}{120} & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{12} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & \frac{\sqrt{5}}{30} & 0 & \frac{\sqrt{5}i}{120} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & \frac{11\sqrt{5}i}{120} & 0 & \frac{\sqrt{5}}{15} & \frac{11\sqrt{5}i}{120} & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & \frac{11\sqrt{5}i}{120} & 0 & -\frac{\sqrt{5}}{15} & 0 & 0 & -\frac{11\sqrt{5}i}{120} \\ 0 & \frac{\sqrt{5}i}{12} & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{120} & 0 & 0 & -\frac{\sqrt{5}}{30} \\ \frac{\sqrt{5}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{120} & \frac{\sqrt{5}}{30} & 0 \\ \frac{\sqrt{3}i}{12} & 0 & 0 & \frac{\sqrt{5}}{30} & 0 & -\frac{11\sqrt{5}i}{120} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{12} & -\frac{\sqrt{5}}{30} & 0 & -\frac{11\sqrt{5}i}{120} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{120} & 0 & -\frac{\sqrt{5}}{15} & -\frac{\sqrt{5}i}{120} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{120} & 0 & \frac{\sqrt{5}}{15} & 0 & 0 & \frac{\sqrt{5}i}{120} & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} \\ 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & -\frac{11\sqrt{5}i}{120} & 0 & 0 & \frac{\sqrt{5}}{30} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & \frac{11\sqrt{5}i}{120} & -\frac{\sqrt{5}}{30} & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & 0 \end{bmatrix}$
	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$	

914 symmetry

Table 10

No.	multipole	matrix														
$\mathbb{G}_5^{(1,0;a)}(A'', 1)$	0	0	0	0	$\frac{\sqrt{21}i}{24}$	0	0	$\frac{\sqrt{21}}{24}$	0	0	$\frac{\sqrt{35}i}{56}$	0	0	$-\frac{\sqrt{35}}{56}$		
	0	0	0	0	0	$-\frac{\sqrt{21}i}{24}$	$-\frac{\sqrt{21}}{24}$	0	0	0	0	$-\frac{\sqrt{35}i}{56}$	$\frac{\sqrt{35}}{56}$	$\frac{\sqrt{35}}{56}$	0	
	0	0	0	0	0	$\frac{\sqrt{35}}{56}$	$\frac{\sqrt{35}i}{56}$	0	0	0	0	$\frac{5\sqrt{21}}{168}$	$-\frac{5\sqrt{21}i}{168}$	0		
	0	0	0	0	$-\frac{\sqrt{35}}{56}$	0	0	$-\frac{\sqrt{35}i}{56}$	0	0	$-\frac{5\sqrt{21}}{168}$	0	0	$\frac{5\sqrt{21}i}{168}$		
	$-\frac{\sqrt{21}i}{24}$	0	0	$-\frac{\sqrt{35}}{56}$	0	0	0	0	0	$-\frac{\sqrt{21}}{84}$	0	0	0	0	0	
	0	$\frac{\sqrt{21}i}{24}$	$\frac{\sqrt{35}}{56}$	0	0	0	0	$\frac{\sqrt{21}}{84}$	0	0	0	0	0	0	0	
	0	$-\frac{\sqrt{21}}{24}$	$-\frac{\sqrt{35}i}{56}$	0	0	0	0	0	$\frac{\sqrt{21}i}{84}$	0	0	0	0	0	0	
	$\frac{\sqrt{21}}{24}$	0	0	$\frac{\sqrt{35}i}{56}$	0	0	0	0	0	$-\frac{\sqrt{21}i}{84}$	0	0	0	0	0	
	0	0	0	0	0	$\frac{\sqrt{21}}{84}$	$-\frac{\sqrt{21}i}{84}$	0	0	0	$\frac{\sqrt{35}}{28}$	$\frac{\sqrt{35}i}{28}$	0			
	0	0	0	0	$-\frac{\sqrt{21}}{84}$	0	0	$\frac{\sqrt{21}i}{84}$	0	0	$-\frac{\sqrt{35}}{28}$	0	0	$-\frac{\sqrt{35}i}{28}$		
	$-\frac{\sqrt{35}i}{56}$	0	0	$-\frac{5\sqrt{21}}{168}$	0	0	0	0	0	$-\frac{\sqrt{35}}{28}$	0	0	0	0	0	
	0	$\frac{\sqrt{35}i}{56}$	$\frac{5\sqrt{21}}{168}$	0	0	0	0	0	$\frac{\sqrt{35}}{28}$	0	0	0	0	0	0	
	0	$\frac{\sqrt{35}}{56}$	$\frac{5\sqrt{21}i}{168}$	0	0	0	0	0	$-\frac{\sqrt{35}i}{28}$	0	0	0	0	0	0	
	$-\frac{\sqrt{35}}{56}$	0	0	$-\frac{5\sqrt{21}i}{168}$	0	0	0	0	0	$\frac{\sqrt{35}i}{28}$	0	0	0	0	0	
915	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													
$\mathbb{G}_5^{(1,0;a)}(A'', 2)$	0	0	0	$\frac{\sqrt{21}}{24}$	0	$\frac{\sqrt{21}i}{24}$	0	0	0	$\frac{\sqrt{35}}{56}$	0	$-\frac{\sqrt{35}i}{56}$	0	0	0
	0	0	$-\frac{\sqrt{21}}{24}$	0	$\frac{\sqrt{21}i}{24}$	0	0	0	$-\frac{\sqrt{35}}{56}$	0	$-\frac{\sqrt{35}i}{56}$	0	0	0	0
	0	$-\frac{\sqrt{21}}{24}$	0	0	0	0	0	$-\frac{\sqrt{35}i}{56}$	0	0	0	0	0	0	$-\frac{\sqrt{21}i}{84}$
	$\frac{\sqrt{21}}{24}$	0	0	0	0	0	$-\frac{\sqrt{35}i}{56}$	0	0	0	0	0	$-\frac{\sqrt{21}i}{84}$	0	0
	0	$-\frac{\sqrt{21}i}{24}$	0	0	0	0	0	$-\frac{\sqrt{35}}{56}$	0	0	0	0	0	0	$\frac{\sqrt{21}}{84}$
	$-\frac{\sqrt{21}i}{24}$	0	0	0	0	0	$\frac{\sqrt{35}}{56}$	0	0	0	0	0	$-\frac{\sqrt{21}}{84}$	0	0
	0	0	0	$\frac{\sqrt{35}i}{56}$	0	$\frac{\sqrt{35}}{56}$	0	0	0	$\frac{5\sqrt{21}i}{168}$	0	$-\frac{5\sqrt{21}}{168}$	0	0	0
	0	0	$\frac{\sqrt{35}i}{56}$	0	$-\frac{\sqrt{35}}{56}$	0	0	0	$\frac{5\sqrt{21}i}{168}$	0	$\frac{5\sqrt{21}}{168}$	0	0	0	0
	0	$-\frac{\sqrt{35}}{56}$	0	0	0	0	0	$-\frac{5\sqrt{21}i}{168}$	0	0	0	0	0	$-\frac{\sqrt{35}i}{28}$	0
	$\frac{\sqrt{35}}{56}$	0	0	0	0	0	$-\frac{5\sqrt{21}i}{168}$	0	0	0	0	0	$-\frac{\sqrt{35}i}{28}$	0	0
	0	$\frac{\sqrt{35}i}{56}$	0	0	0	0	0	$\frac{5\sqrt{21}}{168}$	0	0	0	0	0	0	$-\frac{\sqrt{35}}{28}$
	$\frac{\sqrt{35}i}{56}$	0	0	0	0	0	$-\frac{5\sqrt{21}}{168}$	0	0	0	0	0	$\frac{\sqrt{35}}{28}$	0	0
	0	0	0	$\frac{\sqrt{21}i}{84}$	0	$-\frac{\sqrt{21}}{84}$	0	0	0	$\frac{\sqrt{35}i}{28}$	0	$\frac{\sqrt{35}}{28}$	0	0	0
	0	0	$\frac{\sqrt{21}i}{84}$	0	$\frac{\sqrt{21}}{84}$	0	0	0	$\frac{\sqrt{35}i}{28}$	0	$-\frac{\sqrt{35}}{28}$	0	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
$\mathbb{G}_5^{(1,0;a)}(A'', 3)$	0	0 0 0 0 $-\frac{\sqrt{15}i}{120}$ 0 0 $-\frac{\sqrt{15}}{120}$ 0 0 $\frac{i}{8}$ 0 0 $-\frac{1}{8}$
	0	0 0 0 0 0 $\frac{\sqrt{15}i}{120}$ $\frac{\sqrt{15}}{120}$ 0 0 0 0 $-\frac{i}{8}$ $\frac{1}{8}$ 0
	0	0 0 0 0 0 $-\frac{1}{8}$ $-\frac{i}{8}$ 0 0 0 0 0 $\frac{\sqrt{15}}{40}$ $-\frac{\sqrt{15}i}{40}$ 0
	0	0 0 0 0 $\frac{1}{8}$ 0 0 $\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}}{40}$ 0 0 $\frac{\sqrt{15}i}{40}$
	$\frac{\sqrt{15}i}{120}$	0 0 $\frac{1}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{30}$ 0 $\frac{\sqrt{15}i}{15}$ 0 0
	0	$-\frac{\sqrt{15}i}{120}$ $-\frac{1}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}}{30}$ 0 $\frac{\sqrt{15}i}{15}$ 0 0 0
	0	$\frac{\sqrt{15}}{120}$ $\frac{i}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 $-\frac{\sqrt{15}i}{15}$
	$-\frac{\sqrt{15}}{120}$	0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{15}i}{30}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{15}}{30}$ $\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{15}}{30}$ 0 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 0 0
	$-\frac{i}{8}$	0 0 $-\frac{\sqrt{15}}{40}$ 0 $-\frac{\sqrt{15}i}{15}$ 0 0 0 0 0 0 0 0 0
	0	$\frac{i}{8}$ $\frac{\sqrt{15}}{40}$ 0 $-\frac{\sqrt{15}i}{15}$ 0 0 0 0 0 0 0 0 0 0
	0	$\frac{1}{8}$ $\frac{\sqrt{15}i}{40}$ 0 0 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 0 0 0 0 0
	$-\frac{1}{8}$	0 0 $-\frac{\sqrt{15}i}{40}$ 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 0 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
$\mathbb{G}_5^{(1,0;a)}(A'', 4)$	0 0 0 $-\frac{\sqrt{15}}{120}$ 0 $-\frac{\sqrt{15}i}{120}$ 0 0 0 $\frac{1}{8}$ 0 $-\frac{i}{8}$ 0 0	
	0 0 $\frac{\sqrt{15}}{120}$ 0 $-\frac{\sqrt{15}i}{120}$ 0 0 0 $-\frac{1}{8}$ 0 $-\frac{i}{8}$ 0 0 0	
	0 $\frac{\sqrt{15}}{120}$ 0 0 0 0 0 $\frac{i}{8}$ $\frac{\sqrt{15}i}{15}$ 0 0 0 0 $\frac{\sqrt{15}i}{30}$	
	$-\frac{\sqrt{15}}{120}$ 0 0 0 0 0 $\frac{i}{8}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{15}i}{30}$ 0	
	0 $\frac{\sqrt{15}i}{120}$ 0 0 0 0 0 $\frac{1}{8}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{15}}{30}$	
	$\frac{\sqrt{15}i}{120}$ 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 $\frac{\sqrt{15}i}{15}$ $\frac{\sqrt{15}}{30}$ 0	
	0 0 0 $-\frac{i}{8}$ 0 $-\frac{1}{8}$ 0 0 0 $\frac{\sqrt{15}i}{40}$ 0 $-\frac{\sqrt{15}}{40}$ 0 0	
	0 0 $-\frac{i}{8}$ 0 $\frac{1}{8}$ 0 0 0 $\frac{\sqrt{15}i}{40}$ 0 $\frac{\sqrt{15}}{40}$ 0 0 0	
	0 $-\frac{1}{8}$ $-\frac{\sqrt{15}i}{15}$ 0 0 0 0 $-\frac{\sqrt{15}i}{40}$ 0 0 0 0 0 0	
	$\frac{1}{8}$ 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{15}i}{40}$ 0 0 0 0 0 0 0	
	0 $\frac{i}{8}$ 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{15}}{40}$ 0 0 0 0 0 0 0	
	$\frac{i}{8}$ 0 0 0 0 $-\frac{\sqrt{15}i}{15}$ $-\frac{\sqrt{15}}{40}$ 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{30}$ 0 $\frac{\sqrt{15}}{30}$ 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{15}i}{30}$ 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 0 0 0 0 0 0	
$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$		

918 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{G}_5^{(1,0;a)}(A'', 5)$	0	0	0	0	$-\frac{\sqrt{5}i}{12}$	0	0	$\frac{\sqrt{5}}{12}$	0	0	$-\frac{\sqrt{3}i}{12}$	0	0	$-\frac{\sqrt{3}}{12}$	
	0	0	0	0	0	$\frac{\sqrt{5}i}{12}$	$-\frac{\sqrt{5}}{12}$	0	0	0	0	$\frac{\sqrt{3}i}{12}$	$\frac{\sqrt{3}}{12}$	0	
	0	0	0	0	0	$-\frac{\sqrt{3}}{24}$	$\frac{\sqrt{3}i}{24}$	0	0	$\frac{\sqrt{5}i}{15}$	0	$\frac{11\sqrt{5}}{120}$	$\frac{11\sqrt{5}i}{120}$	0	
	0	0	0	0	$\frac{\sqrt{3}}{24}$	0	0	$-\frac{\sqrt{3}i}{24}$	$\frac{\sqrt{5}i}{15}$	0	$-\frac{11\sqrt{5}}{120}$	0	0	$-\frac{11\sqrt{5}i}{120}$	
	$\frac{\sqrt{5}i}{12}$	0	0	$\frac{\sqrt{3}}{24}$	0	0	0	0	$\frac{\sqrt{5}}{120}$	0	$-\frac{\sqrt{5}i}{30}$	0	0	0	
	0	$-\frac{\sqrt{5}i}{12}$	$-\frac{\sqrt{3}}{24}$	0	0	0	0	0	$-\frac{\sqrt{5}}{120}$	0	$-\frac{\sqrt{5}i}{30}$	0	0	0	
	0	$-\frac{\sqrt{5}}{12}$	$-\frac{\sqrt{3}i}{24}$	0	0	0	0	0	$\frac{\sqrt{5}i}{120}$	0	0	0	0	$-\frac{\sqrt{5}i}{30}$	
	$\frac{\sqrt{5}}{12}$	0	0	$\frac{\sqrt{3}i}{24}$	0	0	0	0	0	$-\frac{\sqrt{5}i}{120}$	0	0	$-\frac{\sqrt{5}i}{30}$	0	
	0	0	0	$-\frac{\sqrt{5}i}{15}$	0	$-\frac{\sqrt{5}}{120}$	$-\frac{\sqrt{5}i}{120}$	0	0	0	0	$\frac{\sqrt{3}}{24}$	$-\frac{\sqrt{3}i}{24}$	0	
	0	0	$-\frac{\sqrt{5}i}{15}$	0	$\frac{\sqrt{5}}{120}$	0	0	$\frac{\sqrt{5}i}{120}$	0	0	$-\frac{\sqrt{3}}{24}$	0	0	$\frac{\sqrt{3}i}{24}$	
	$\frac{\sqrt{3}i}{12}$	0	0	$-\frac{11\sqrt{5}}{120}$	0	$\frac{\sqrt{5}i}{30}$	0	0	0	$-\frac{\sqrt{3}}{24}$	0	0	0	0	
	0	$-\frac{\sqrt{3}i}{12}$	$\frac{11\sqrt{5}}{120}$	0	$\frac{\sqrt{5}i}{30}$	0	0	0	$\frac{\sqrt{3}}{24}$	0	0	0	0	0	
	0	$\frac{\sqrt{3}}{12}$	$-\frac{11\sqrt{5}i}{120}$	0	0	0	0	$\frac{\sqrt{5}i}{30}$	$\frac{\sqrt{3}i}{24}$	0	0	0	0	0	
	$-\frac{\sqrt{3}}{12}$	0	0	$\frac{11\sqrt{5}i}{120}$	0	0	$\frac{\sqrt{5}i}{30}$	0	0	$-\frac{\sqrt{3}i}{24}$	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
$\mathbb{G}_5^{(1,0;a)}(A'', 6)$	0	0 0 0 $-\frac{\sqrt{5}}{12}$ 0 $\frac{\sqrt{5}i}{12}$ 0 0 0 $-\frac{\sqrt{3}}{12}$ 0 $-\frac{\sqrt{3}i}{12}$ 0 0
	0	0 0 $\frac{\sqrt{5}}{12}$ 0 $\frac{\sqrt{5}i}{12}$ 0 0 0 $\frac{\sqrt{3}}{12}$ 0 $-\frac{\sqrt{3}i}{12}$ 0 0 0
	0	$\frac{\sqrt{5}}{12}$ 0 0 0 0 0 0 $\frac{\sqrt{3}i}{24}$ $-\frac{\sqrt{5}i}{30}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{120}$
	$-\frac{\sqrt{5}}{12}$	0 0 0 0 0 0 $\frac{\sqrt{3}i}{24}$ 0 0 $\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{5}i}{120}$ 0
	0	$-\frac{\sqrt{5}i}{12}$ 0 0 0 0 0 0 $-\frac{\sqrt{3}}{24}$ 0 0 $-\frac{\sqrt{5}i}{30}$ 0 0 $\frac{\sqrt{5}}{120}$
	$-\frac{\sqrt{5}i}{12}$	0 0 0 0 0 0 $\frac{\sqrt{3}}{24}$ 0 0 0 0 $\frac{\sqrt{5}i}{30}$ $-\frac{\sqrt{5}}{120}$ 0
	0	0 0 0 $-\frac{\sqrt{3}i}{24}$ 0 $\frac{\sqrt{3}}{24}$ 0 0 0 $\frac{11\sqrt{5}i}{120}$ 0 $\frac{11\sqrt{5}}{120}$ $\frac{\sqrt{5}i}{15}$ 0
	0	$-\frac{\sqrt{3}i}{24}$ 0 $-\frac{\sqrt{3}}{24}$ 0 0 0 0 $\frac{11\sqrt{5}i}{120}$ 0 $-\frac{11\sqrt{5}}{120}$ 0 0 $-\frac{\sqrt{5}i}{15}$
	0	$\frac{\sqrt{3}}{12}$ $\frac{\sqrt{5}i}{30}$ 0 0 0 0 0 $-\frac{11\sqrt{5}i}{120}$ 0 0 0 0 0 $-\frac{\sqrt{3}i}{24}$
	$-\frac{\sqrt{3}}{12}$	0 0 $-\frac{\sqrt{5}i}{30}$ 0 0 $-\frac{11\sqrt{5}i}{120}$ 0 0 0 0 0 $-\frac{\sqrt{3}i}{24}$ 0
	0	$\frac{\sqrt{3}i}{12}$ 0 0 $\frac{\sqrt{5}i}{30}$ 0 0 0 $-\frac{11\sqrt{5}}{120}$ 0 0 0 0 0 $\frac{\sqrt{3}}{24}$
	$\frac{\sqrt{3}i}{12}$	0 0 0 0 0 $-\frac{\sqrt{5}i}{30}$ $\frac{11\sqrt{5}}{120}$ 0 0 0 0 0 $-\frac{\sqrt{3}}{24}$ 0
	0	0 0 0 $-\frac{\sqrt{5}i}{120}$ 0 $-\frac{\sqrt{5}}{120}$ $-\frac{\sqrt{5}i}{15}$ 0 0 $\frac{\sqrt{5}i}{24}$ 0 $-\frac{\sqrt{3}}{24}$ 0 0
	0	$0 -\frac{\sqrt{5}i}{120}$ 0 $\frac{\sqrt{5}}{120}$ 0 0 0 $\frac{\sqrt{5}i}{15}$ $\frac{\sqrt{3}i}{24}$ 0 $\frac{\sqrt{3}}{24}$ 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	$-\frac{\sqrt{105}}{42}$	0	$-\frac{\sqrt{105}i}{42}$	0	0	0	0	0	0	0	0	0
	0	0	$-\frac{\sqrt{105}}{42}$	0	$\frac{\sqrt{105}i}{42}$	0	0	0	0	0	0	0	0	0	0
	0	$-\frac{\sqrt{105}}{42}$	0	0	0	0	0	$-\frac{\sqrt{7}i}{56}$	0	0	0	0	0	$\frac{\sqrt{105}i}{168}$	
	$-\frac{\sqrt{105}}{42}$	0	0	0	0	0	$\frac{\sqrt{7}i}{56}$	0	0	0	0	0	$-\frac{\sqrt{105}i}{168}$	0	
	0	$-\frac{\sqrt{105}i}{42}$	0	0	0	0	0	$-\frac{\sqrt{7}}{56}$	0	0	0	0	0	$-\frac{\sqrt{105}}{168}$	
	$\frac{\sqrt{105}i}{42}$	0	0	0	0	0	$-\frac{\sqrt{7}}{56}$	0	0	0	0	0	$-\frac{\sqrt{105}}{168}$	0	
	0	0	0	$-\frac{\sqrt{7}i}{56}$	0	$-\frac{\sqrt{7}}{56}$	0	0	0	$-\frac{\sqrt{105}i}{168}$	0	$\frac{\sqrt{105}}{168}$	0	0	0
	0	0	$\frac{\sqrt{7}i}{56}$	0	$-\frac{\sqrt{7}}{56}$	0	0	0	$\frac{\sqrt{105}i}{168}$	0	$\frac{\sqrt{105}}{168}$	0	0	0	
	0	0	0	0	0	0	$-\frac{\sqrt{105}i}{168}$	0	0	0	0	0	$-\frac{5\sqrt{7}i}{56}$		
	0	0	0	0	0	0	$\frac{\sqrt{105}i}{168}$	0	0	0	0	0	$\frac{5\sqrt{7}i}{56}$	0	
	0	0	0	0	0	0	$\frac{\sqrt{105}}{168}$	0	0	0	0	0	$-\frac{5\sqrt{7}}{56}$	0	
	0	0	0	$\frac{\sqrt{105}i}{168}$	0	$-\frac{\sqrt{105}}{168}$	0	0	0	$-\frac{5\sqrt{7}i}{56}$	0	$-\frac{5\sqrt{7}}{56}$	0	0	0
	0	0	$-\frac{\sqrt{105}i}{168}$	0	$-\frac{\sqrt{105}}{168}$	0	0	0	$\frac{5\sqrt{7}i}{56}$	0	$-\frac{5\sqrt{7}}{56}$	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 $-\frac{\sqrt{35}}{42}$ 0 $\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{35}}{21}$ 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{35}}{42}$ 0 $-\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{35}}{21}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{21}}{84}$ 0 0 $\frac{\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{35}}{84}$ 0 0 $-\frac{\sqrt{35}i}{168}$	
	$-\frac{\sqrt{35}}{42}$ 0 0 0 0 $-\frac{\sqrt{21}}{84}$ $-\frac{\sqrt{21}i}{168}$ 0 0 0 0 $-\frac{\sqrt{35}}{84}$ $\frac{\sqrt{35}i}{168}$ 0	
	0 $\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{21}}{84}$ 0 0 0 0 $-\frac{\sqrt{21}}{168}$ $-\frac{\sqrt{35}}{84}$ 0 0 0 0 $-\frac{\sqrt{35}}{168}$	
	$-\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{21}}{84}$ 0 0 $-\frac{\sqrt{21}}{168}$ 0 0 $\frac{\sqrt{35}}{84}$ 0 0 $-\frac{\sqrt{35}}{168}$ 0	
	$\frac{\sqrt{35}}{21}$ 0 0 $\frac{\sqrt{21}i}{168}$ 0 $-\frac{\sqrt{21}}{168}$ 0 0 0 $\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{168}$ 0 0	
	0 $-\frac{\sqrt{35}}{21}$ $-\frac{\sqrt{21}i}{168}$ 0 $-\frac{\sqrt{21}}{168}$ 0 0 0 $-\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{168}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{35}}{84}$ 0 0 $\frac{\sqrt{35}i}{168}$ 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 $\frac{5\sqrt{21}i}{168}$	
	0 0 0 0 0 $\frac{\sqrt{35}}{84}$ $-\frac{\sqrt{35}i}{168}$ 0 0 0 0 $-\frac{5\sqrt{21}}{84}$ $-\frac{5\sqrt{21}i}{168}$ 0	
	0 0 $\frac{\sqrt{35}}{84}$ 0 0 0 0 $\frac{\sqrt{35}}{168}$ $\frac{5\sqrt{21}}{84}$ 0 0 0 0 $-\frac{5\sqrt{21}}{168}$	
	0 0 0 $-\frac{\sqrt{35}}{84}$ 0 0 $\frac{\sqrt{35}}{168}$ 0 0 $-\frac{5\sqrt{21}}{84}$ 0 0 $-\frac{5\sqrt{21}}{168}$ 0	
	0 0 0 $-\frac{\sqrt{35}i}{168}$ 0 $-\frac{\sqrt{35}}{168}$ 0 0 0 $-\frac{5\sqrt{21}i}{168}$ 0 $-\frac{5\sqrt{21}}{168}$ 0 0	
	0 0 $\frac{\sqrt{35}i}{168}$ 0 $-\frac{\sqrt{35}}{168}$ 0 0 0 $-\frac{5\sqrt{21}i}{168}$ 0 $-\frac{5\sqrt{21}}{168}$ 0 0 0	

922 symmetry

 $\sqrt{3}xz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(A', 3)$	0 0 $\frac{\sqrt{35}}{42}$ 0 0 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{21}i}{21}$ 0 $-\frac{\sqrt{21}}{168}$ 0 0 0 $-\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{168}$ 0 0 0	
	0 $-\frac{\sqrt{35}}{42}$ $-\frac{\sqrt{21}i}{21}$ 0 $-\frac{\sqrt{21}}{168}$ 0 0 0 $\frac{\sqrt{35}i}{42}$ 0 $-\frac{\sqrt{35}}{168}$ 0 0 0 0	
	0 0 0 $-\frac{\sqrt{21}}{168}$ 0 0 $\frac{\sqrt{21}}{168}$ 0 0 $\frac{\sqrt{35}}{168}$ 0 0 $\frac{\sqrt{35}i}{21}$ $\frac{\sqrt{35}}{168}$ 0	
	0 0 $-\frac{\sqrt{21}}{168}$ 0 0 0 0 $-\frac{\sqrt{21}}{168}$ $\frac{\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{21}$ 0 0 $-\frac{\sqrt{35}}{168}$	
	0 $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $-\frac{\sqrt{35}}{168}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0	
	$-\frac{\sqrt{35}}{42}$ 0 0 0 0 $-\frac{\sqrt{21}}{168}$ $\frac{\sqrt{21}i}{21}$ 0 0 0 0 $\frac{\sqrt{35}}{168}$ $\frac{\sqrt{35}i}{42}$ 0	
	0 0 0 $-\frac{\sqrt{35}i}{42}$ 0 $\frac{\sqrt{35}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{21}}{168}$ 0 0 0	
	0 0 $\frac{\sqrt{35}i}{42}$ 0 $\frac{\sqrt{35}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{21}}{168}$ 0 0 0 0	
	0 0 0 $-\frac{\sqrt{35}}{168}$ 0 $\frac{\sqrt{35}i}{21}$ $-\frac{\sqrt{35}}{168}$ 0 0 0 $-\frac{5\sqrt{21}}{168}$ 0 0 $\frac{5\sqrt{21}}{168}$ 0	
	0 0 $-\frac{\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{21}$ 0 0 $\frac{\sqrt{35}}{168}$ $-\frac{5\sqrt{21}}{168}$ 0 0 0 0 $-\frac{5\sqrt{21}}{168}$	
	0 0 0 0 $\frac{\sqrt{35}}{168}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 0 $\frac{5\sqrt{21}}{168}$ 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{35}}{168}$ $\frac{\sqrt{35}i}{42}$ 0 0 0 0 $-\frac{5\sqrt{21}}{168}$ 0 0 0	

923 symmetry

 $\sqrt{3}yz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(A'', 1)$	0 0 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{35}i}{42}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{35}}{42}$ $\frac{\sqrt{35}i}{42}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{21}i}{168}$ $-\frac{\sqrt{21}}{168}$ 0 0 0 $-\frac{\sqrt{35}}{21}$ 0 $-\frac{\sqrt{35}i}{168}$ $\frac{\sqrt{35}}{168}$ 0	
	0 0 0 0 $\frac{\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{21}}{168}$ $-\frac{\sqrt{35}}{21}$ 0 $\frac{\sqrt{35}i}{168}$ 0 0 $-\frac{\sqrt{35}}{168}$	
	$-\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{21}$ 0 0 0 $\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{42}$ 0 0	
	0 $\frac{\sqrt{35}}{42}$ $\frac{\sqrt{21}i}{168}$ 0 $\frac{\sqrt{21}}{21}$ 0 0 0 $-\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{42}$ 0 0 0	
	0 $-\frac{\sqrt{35}i}{42}$ $-\frac{\sqrt{21}}{168}$ 0 0 0 0 $-\frac{\sqrt{21}}{21}$ $-\frac{\sqrt{35}}{168}$ 0 0 0 0 $\frac{\sqrt{35}}{42}$	
	$\frac{\sqrt{35}i}{42}$ 0 0 $\frac{\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 $\frac{\sqrt{35}}{168}$ 0 0 $\frac{\sqrt{35}}{42}$ 0	
	0 0 0 $-\frac{\sqrt{35}}{21}$ 0 $\frac{\sqrt{35}i}{168}$ $-\frac{\sqrt{35}}{168}$ 0 0 0 0 $-\frac{5\sqrt{21}i}{168}$ $-\frac{5\sqrt{21}}{168}$ 0	
	0 0 $-\frac{\sqrt{35}}{21}$ 0 $-\frac{\sqrt{35}i}{168}$ 0 0 $\frac{\sqrt{35}}{168}$ 0 0 $\frac{5\sqrt{21}i}{168}$ 0 0 $\frac{5\sqrt{21}}{168}$	
	0 0 0 $-\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{42}$ 0 0 0 $-\frac{5\sqrt{21}i}{168}$ 0 0 0 0	
	0 0 $\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{42}$ 0 0 0 $\frac{5\sqrt{21}i}{168}$ 0 0 0 0	
	0 0 $\frac{\sqrt{35}}{168}$ 0 0 0 0 $\frac{\sqrt{35}}{42}$ $-\frac{5\sqrt{21}}{168}$ 0 0 0 0	
	0 0 0 $-\frac{\sqrt{35}}{168}$ 0 0 $\frac{\sqrt{35}}{42}$ 0 0 $\frac{5\sqrt{21}}{168}$ 0 0 0 0	

924 symmetry

 $\sqrt{3}xy$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(A'', 2)$	0 0 0 $\frac{\sqrt{35}i}{42}$ 0 $\frac{\sqrt{35}}{42}$ 0 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{35}i}{42}$ 0 $\frac{\sqrt{35}}{42}$ 0 0 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{35}i}{42}$ $\frac{\sqrt{21}}{21}$ 0 0 0 0 $\frac{\sqrt{21}}{168}$ $\frac{\sqrt{35}}{42}$ 0 0 0 0 $-\frac{\sqrt{35}}{168}$	
	$-\frac{\sqrt{35}i}{42}$ 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 $\frac{\sqrt{21}}{168}$ 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{35}}{168}$ 0	
	0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 $\frac{\sqrt{21}i}{168}$ 0 0 $\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{35}i}{168}$	
	$\frac{\sqrt{35}}{42}$ 0 0 0 0 $\frac{\sqrt{21}}{21}$ $-\frac{\sqrt{21}i}{168}$ 0 0 0 0 $-\frac{\sqrt{35}}{42}$ $-\frac{\sqrt{35}i}{168}$ 0	
	0 0 0 $\frac{\sqrt{21}}{168}$ 0 $\frac{\sqrt{21}i}{168}$ 0 0 0 $\frac{\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{168}$ $-\frac{\sqrt{35}}{21}$ 0	
	0 0 $\frac{\sqrt{21}}{168}$ 0 $-\frac{\sqrt{21}i}{168}$ 0 0 0 $\frac{\sqrt{35}}{168}$ 0 $\frac{\sqrt{35}i}{168}$ 0 0 $\frac{\sqrt{35}}{21}$	
	0 0 $\frac{\sqrt{35}}{42}$ 0 0 0 0 $\frac{\sqrt{35}}{168}$ 0 0 0 0 0 $\frac{5\sqrt{21}}{168}$	
	0 0 0 $-\frac{\sqrt{35}}{42}$ 0 0 $\frac{\sqrt{35}}{168}$ 0 0 0 0 0 $\frac{5\sqrt{21}}{168}$ 0	
	0 0 0 0 $\frac{\sqrt{35}}{42}$ 0 0 $-\frac{\sqrt{35}i}{168}$ $\frac{\sqrt{35}i}{168}$ 0 0 0 0 $-\frac{5\sqrt{21}i}{168}$ 0	
	0 0 0 $-\frac{\sqrt{35}}{168}$ 0 $\frac{\sqrt{35}i}{168}$ $-\frac{\sqrt{35}}{21}$ 0 0 $\frac{5\sqrt{21}}{168}$ 0 $\frac{5\sqrt{21}i}{168}$ 0 0	
	0 0 $-\frac{\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{168}$ 0 0 $\frac{\sqrt{35}}{21}$ $\frac{5\sqrt{21}}{168}$ 0 $-\frac{5\sqrt{21}i}{168}$ 0 0 0	
$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$		
925	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A', 1)$	0	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{66}$ 0 $\frac{\sqrt{165}i}{66}$ $-\frac{\sqrt{165}}{66}$ 0
	0	0 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{66}$ 0 $-\frac{\sqrt{165}i}{66}$ 0 0 $\frac{\sqrt{165}}{66}$
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{11}}{22}$ 0 0 0 $-\frac{\sqrt{11}i}{22}$
	0	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{11}}{22}$ $\frac{\sqrt{11}i}{22}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{11}}{22}$
	0	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{11}}{22}$ 0
	0	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{22}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{22}$ 0 0
	0	$-\frac{\sqrt{165}}{66}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 0 $-\frac{\sqrt{11}i}{22}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{165}}{66}$	0 0 0 0 $-\frac{\sqrt{11}}{22}$ $\frac{\sqrt{11}i}{22}$ 0 0 0 0 0 0 0 0
	0	$\frac{\sqrt{165}i}{66}$ $\frac{\sqrt{11}}{22}$ 0 0 0 0 $\frac{\sqrt{11}}{22}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{165}i}{66}$	0 0 $-\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{165}}{66}$	0 0 $-\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{22}$ 0 0 0 0 0 0 0 0 0
	0	$\frac{\sqrt{165}}{66}$ $\frac{\sqrt{11}i}{22}$ 0 $\frac{\sqrt{11}}{22}$ 0 0 0 0 0 0 0 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	$\frac{3\sqrt{385}}{1540}$	0	$\frac{3\sqrt{385}i}{1540}$	0	0	0	$-\frac{\sqrt{231}}{132}$	0	$\frac{\sqrt{231}i}{132}$	$\frac{\sqrt{231}}{66}$	0	
	0	0	$\frac{3\sqrt{385}}{1540}$	0	$-\frac{3\sqrt{385}i}{1540}$	0	0	0	$-\frac{\sqrt{231}}{132}$	0	$-\frac{\sqrt{231}i}{132}$	0	0	$-\frac{\sqrt{231}}{66}$	
	0	$\frac{3\sqrt{385}}{1540}$	0	0	0	0	0	$-\frac{3\sqrt{231}i}{308}$	0	0	$-\frac{\sqrt{385}}{110}$	0	0	$-\frac{13\sqrt{385}i}{1540}$	
	$\frac{3\sqrt{385}}{1540}$	0	0	0	0	0	$\frac{3\sqrt{231}i}{308}$	0	0	0	$\frac{\sqrt{385}}{110}$	$\frac{13\sqrt{385}i}{1540}$	0		
	0	$\frac{3\sqrt{385}i}{1540}$	0	0	0	0	0	$-\frac{3\sqrt{231}}{308}$	$-\frac{\sqrt{385}}{110}$	0	0	0	0	$\frac{13\sqrt{385}}{1540}$	
	$-\frac{3\sqrt{385}i}{1540}$	0	0	0	0	0	$-\frac{3\sqrt{231}}{308}$	0	0	$\frac{\sqrt{385}}{110}$	0	0	$\frac{13\sqrt{385}}{1540}$	0	
	0	0	0	$-\frac{3\sqrt{231}i}{308}$	0	$-\frac{3\sqrt{231}}{308}$	0	0	0	$-\frac{\sqrt{385}i}{1540}$	0	$\frac{\sqrt{385}}{1540}$	0	0	
	0	0	$\frac{3\sqrt{231}i}{308}$	0	$-\frac{3\sqrt{231}}{308}$	0	0	0	$\frac{\sqrt{385}i}{1540}$	0	$\frac{\sqrt{385}}{1540}$	0	0	0	
	0	$-\frac{\sqrt{231}}{132}$	0	0	$-\frac{\sqrt{385}}{110}$	0	0	$-\frac{\sqrt{385}i}{1540}$	0	0	0	0	0	$-\frac{\sqrt{231}i}{308}$	
	$-\frac{\sqrt{231}}{132}$	0	0	0	0	$\frac{\sqrt{385}}{110}$	$\frac{\sqrt{385}i}{1540}$	0	0	0	0	0	$\frac{\sqrt{231}i}{308}$	0	
	0	$\frac{\sqrt{231}i}{132}$	$-\frac{\sqrt{385}}{110}$	0	0	0	0	$\frac{\sqrt{385}}{1540}$	0	0	0	0	0	$-\frac{\sqrt{231}}{308}$	
	$-\frac{\sqrt{231}i}{132}$	0	0	$\frac{\sqrt{385}}{110}$	0	0	$\frac{\sqrt{385}}{1540}$	0	0	0	0	0	$-\frac{\sqrt{231}}{308}$	0	
	$\frac{\sqrt{231}}{66}$	0	0	$-\frac{13\sqrt{385}i}{1540}$	0	$\frac{13\sqrt{385}}{1540}$	0	0	0	$-\frac{\sqrt{231}i}{308}$	0	$-\frac{\sqrt{231}}{308}$	0	0	
	0	$-\frac{\sqrt{231}}{66}$	$\frac{13\sqrt{385}i}{1540}$	0	$\frac{13\sqrt{385}}{1540}$	0	0	0	$\frac{\sqrt{231}i}{308}$	0	$-\frac{\sqrt{231}}{308}$	0	0	0	

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

927 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{T}_4^{(1,0;a)}(A', 3)$	0	0	0	$\frac{\sqrt{1155}}{1540}$	0	$-\frac{\sqrt{1155}i}{1540}$	$-\frac{\sqrt{1155}}{770}$	0	0	$\frac{\sqrt{77}}{44}$	0	$\frac{\sqrt{77}i}{44}$	0	0	0
	0	0	$\frac{\sqrt{1155}}{1540}$	0	$\frac{\sqrt{1155}i}{1540}$	0	0	$\frac{\sqrt{1155}}{770}$	$\frac{\sqrt{77}}{44}$	0	$-\frac{\sqrt{77}i}{44}$	0	0	0	0
	0	$\frac{\sqrt{1155}}{1540}$	0	0	$\frac{3\sqrt{77}}{154}$	0	0	$\frac{3\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{1155}}{385}$	0	0	$-\frac{\sqrt{1155}i}{308}$	
	$\frac{\sqrt{1155}}{1540}$	0	0	0	0	$-\frac{3\sqrt{77}}{154}$	$-\frac{3\sqrt{77}i}{308}$	0	0	0	0	$\frac{\sqrt{1155}}{385}$	$\frac{\sqrt{1155}i}{308}$	0	
	0	$-\frac{\sqrt{1155}i}{1540}$	$\frac{3\sqrt{77}}{154}$	0	0	0	0	$-\frac{3\sqrt{77}}{308}$	$\frac{\sqrt{1155}}{385}$	0	0	0	0	$-\frac{\sqrt{1155}}{308}$	
	$\frac{\sqrt{1155}i}{1540}$	0	0	$-\frac{3\sqrt{77}}{154}$	0	0	$-\frac{3\sqrt{77}}{308}$	0	0	$-\frac{\sqrt{1155}}{385}$	0	0	$-\frac{\sqrt{1155}}{308}$	0	
	$-\frac{\sqrt{1155}}{770}$	0	0	$\frac{3\sqrt{77}i}{308}$	0	$-\frac{3\sqrt{77}}{308}$	0	0	0	$-\frac{9\sqrt{1155}i}{1540}$	0	$-\frac{9\sqrt{1155}}{1540}$	0	0	0
	0	$\frac{\sqrt{1155}}{770}$	$-\frac{3\sqrt{77}i}{308}$	0	$-\frac{3\sqrt{77}}{308}$	0	0	0	$\frac{9\sqrt{1155}i}{1540}$	0	$-\frac{9\sqrt{1155}}{1540}$	0	0	0	
	0	$\frac{\sqrt{77}}{44}$	0	0	$\frac{\sqrt{1155}}{385}$	0	0	$-\frac{9\sqrt{1155}i}{1540}$	0	0	$\frac{\sqrt{77}}{154}$	0	0	$\frac{\sqrt{77}i}{308}$	
	$\frac{\sqrt{77}}{44}$	0	0	0	0	$-\frac{\sqrt{1155}}{385}$	$\frac{9\sqrt{1155}i}{1540}$	0	0	0	0	$-\frac{\sqrt{77}}{154}$	$-\frac{\sqrt{77}i}{308}$	0	
	0	$\frac{\sqrt{77}i}{44}$	$-\frac{\sqrt{1155}}{385}$	0	0	0	0	$-\frac{9\sqrt{1155}}{1540}$	$\frac{\sqrt{77}}{154}$	0	0	0	0	$-\frac{\sqrt{77}}{308}$	
	$-\frac{\sqrt{77}i}{44}$	0	0	$\frac{\sqrt{1155}}{385}$	0	0	$-\frac{9\sqrt{1155}}{1540}$	0	0	$-\frac{\sqrt{77}}{154}$	0	0	$-\frac{\sqrt{77}}{308}$	0	
	0	0	0	$-\frac{\sqrt{1155}i}{308}$	0	$-\frac{\sqrt{1155}}{308}$	0	0	0	$\frac{\sqrt{77}i}{308}$	0	$-\frac{\sqrt{77}}{308}$	0	0	0
	0	0	$\frac{\sqrt{1155}i}{308}$	0	$-\frac{\sqrt{1155}}{308}$	0	0	0	$-\frac{\sqrt{77}i}{308}$	0	$-\frac{\sqrt{77}}{308}$	0	0	0	

928 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A', 4)$	0	$\frac{\sqrt{11}i}{11} \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad \frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{88}$
	$-\frac{\sqrt{11}i}{11}$	$0 \quad 0 \quad \frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{88} \quad 0$
	$-\frac{\sqrt{165}}{440}$	$0 \quad 0 \quad -\frac{3\sqrt{11}i}{44} \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{220} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0$
	0	$\frac{\sqrt{165}}{440} \quad \frac{3\sqrt{11}i}{44} \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{220} \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad \frac{3\sqrt{165}}{440} \quad 0 \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad 0$
	0	$0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{88} \quad \frac{3\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{165}}{440}$
	$0 \quad -\frac{\sqrt{165}}{440}$	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad -\frac{3\sqrt{11}i}{44} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{220}$
	$-\frac{\sqrt{165}}{440}$	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{88} \quad \frac{3\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad \frac{\sqrt{165}i}{220} \quad 0$
	$\frac{\sqrt{11}}{88}$	$0 \quad 0 \quad \frac{\sqrt{165}i}{220} \quad 0 \quad \frac{3\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}i}{44} \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{11}}{88} \quad -\frac{\sqrt{165}i}{220} \quad 0 \quad \frac{3\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{11}i}{44} \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad -\frac{\sqrt{11}i}{11} \quad \frac{\sqrt{11}}{88} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad \frac{\sqrt{11}}{88} \quad 0 \quad \frac{\sqrt{11}i}{11} \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{88}$
	0	$-\frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{220} \quad 0 \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}i}{44}$
	$-\frac{\sqrt{11}}{88}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{165}}{440} \quad \frac{\sqrt{165}i}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{88} \quad -\frac{3\sqrt{11}i}{44} \quad 0$
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	0	$-\frac{\sqrt{1155}}{616}$	0	0	0	$\frac{\sqrt{1155}}{616}$	$-\frac{\sqrt{77}}{88}$	0	0	0	0	0	$-\frac{\sqrt{77}}{88}$		
	0	0	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{77}}{88}$	0	0	0	$-\frac{\sqrt{77}}{88}$	0	
	$-\frac{\sqrt{1155}}{616}$	0	0	$-\frac{3\sqrt{77}i}{308}$	0	$-\frac{15\sqrt{77}}{616}$	0	0	0	$-\frac{\sqrt{1155}i}{1540}$	0	$\frac{17\sqrt{1155}}{3080}$	0	0	0	
	0	$\frac{\sqrt{1155}}{616}$	$\frac{3\sqrt{77}i}{308}$	0	$-\frac{15\sqrt{77}}{616}$	0	0	0	$\frac{\sqrt{1155}i}{1540}$	0	$\frac{17\sqrt{1155}}{3080}$	0	0	0	0	
	0	0	0	$-\frac{15\sqrt{77}}{616}$	0	0	$\frac{15\sqrt{77}}{616}$	0	0	$-\frac{3\sqrt{1155}}{3080}$	0	$\frac{\sqrt{1155}i}{770}$	$-\frac{3\sqrt{1155}}{3080}$	0	0	
	0	0	$-\frac{15\sqrt{77}}{616}$	0	0	0	0	$-\frac{15\sqrt{77}}{616}$	$-\frac{3\sqrt{1155}}{3080}$	0	$-\frac{\sqrt{1155}i}{770}$	0	0	$\frac{3\sqrt{1155}}{3080}$	0	
	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{15\sqrt{77}}{616}$	0	0	$\frac{3\sqrt{77}i}{308}$	0	0	$\frac{17\sqrt{1155}}{3080}$	0	0	$-\frac{\sqrt{1155}i}{1540}$	0	
	$\frac{\sqrt{1155}}{616}$	0	0	0	$-\frac{15\sqrt{77}}{616}$	$-\frac{3\sqrt{77}i}{308}$	0	0	0	0	$-\frac{17\sqrt{1155}}{3080}$	$\frac{\sqrt{1155}i}{1540}$	0	0	0	
	$-\frac{\sqrt{77}}{88}$	0	0	$-\frac{\sqrt{1155}i}{1540}$	0	$-\frac{3\sqrt{1155}}{3080}$	0	0	0	$\frac{\sqrt{77}i}{44}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	0	
	0	$\frac{\sqrt{77}}{88}$	$\frac{\sqrt{1155}i}{1540}$	0	$-\frac{3\sqrt{1155}}{3080}$	0	0	0	$-\frac{\sqrt{77}i}{44}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	0	0	
	0	0	0	$\frac{17\sqrt{1155}}{3080}$	0	$\frac{\sqrt{1155}i}{770}$	$\frac{17\sqrt{1155}}{3080}$	0	0	$-\frac{5\sqrt{77}}{616}$	0	0	$\frac{5\sqrt{77}}{616}$	0	0	
	0	0	$\frac{17\sqrt{1155}}{3080}$	0	$-\frac{\sqrt{1155}i}{770}$	0	0	$-\frac{17\sqrt{1155}}{3080}$	$-\frac{5\sqrt{77}}{616}$	0	0	0	0	$-\frac{5\sqrt{77}}{616}$	0	
	0	$-\frac{\sqrt{77}}{88}$	0	0	$-\frac{3\sqrt{1155}}{3080}$	0	0	$-\frac{\sqrt{1155}i}{1540}$	0	0	$\frac{5\sqrt{77}}{616}$	0	0	$-\frac{\sqrt{77}i}{44}$	0	0
	$-\frac{\sqrt{77}}{88}$	0	0	0	0	$\frac{3\sqrt{1155}}{3080}$	$\frac{\sqrt{1155}i}{1540}$	0	0	0	0	$-\frac{5\sqrt{77}}{616}$	$\frac{\sqrt{77}i}{44}$	0	0	0

930 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A'', 1)$	0	$-\frac{\sqrt{11}}{11}$
	0	0
	0	0
	0	$-\frac{\sqrt{165}}{440}$
	0	0
	0	$-\frac{3\sqrt{11}i}{88}$
	0	$-\frac{3\sqrt{11}i}{88}$
	$-\frac{\sqrt{165}}{440}$	0
	0	$\frac{3\sqrt{11}i}{88}$
	0	$\frac{3\sqrt{11}i}{88}$
	$-\frac{\sqrt{165}i}{440}$	0
	0	$-\frac{3\sqrt{11}}{88}$
	$\frac{\sqrt{11}i}{88}$	0
$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$		

931 symmetry

Table 10

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A'', 2)$	$-\frac{\sqrt{11}}{11} \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{440} \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{88} \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{11}}{11} \quad -\frac{\sqrt{165}i}{440} \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{88} \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{165}i}{440} \quad \frac{3\sqrt{11}}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad \frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{440}$	
	$-\frac{\sqrt{165}i}{440} \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{44} \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{440} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{44} \quad 0 \quad 0 \quad -\frac{3\sqrt{11}i}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{440} \quad 0$	
	$-\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{44} \quad \frac{3\sqrt{11}i}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{220} \quad -\frac{\sqrt{165}i}{440} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad -\frac{3\sqrt{11}i}{88} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad 0 \quad -\frac{3\sqrt{165}i}{440} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad \frac{3\sqrt{11}i}{88} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad 0 \quad \frac{3\sqrt{165}i}{440} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{11}i}{88} \quad \frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad -\frac{3\sqrt{11}}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0$	
	$-\frac{\sqrt{11}i}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{44} \quad 0 \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad -\frac{3\sqrt{165}i}{440} \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{44} \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{88} \quad 0$	
	$\frac{\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{220} \quad \frac{3\sqrt{165}i}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{44} \quad \frac{\sqrt{11}i}{88} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{440} \quad 0 \quad \frac{\sqrt{165}i}{440} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad -\frac{\sqrt{11}i}{88} \quad \frac{\sqrt{11}}{11} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{165}}{440} \quad 0 \quad -\frac{\sqrt{165}i}{440} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{11}}{88} \quad 0 \quad \frac{\sqrt{11}i}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{11} \quad 0$	
$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$		

932 symmetry

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_4^{(1,0;a)}(A'', 3)$	0	0	0	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{1155}i}{616}$	0	0	- $\frac{\sqrt{77}}{88}$	0	0	$\frac{\sqrt{77}i}{88}$		
	0	0	0	0	0	$-\frac{\sqrt{1155}}{616}$	$-\frac{\sqrt{1155}i}{616}$	0	0	0	0	$\frac{\sqrt{77}}{88}$	$-\frac{\sqrt{77}i}{88}$	0		
	0	0	0	0	0	$-\frac{15\sqrt{77}i}{616}$	$-\frac{15\sqrt{77}}{616}$	0	0	- $\frac{\sqrt{1155}}{770}$	0	$\frac{3\sqrt{1155}i}{3080}$	$-\frac{3\sqrt{1155}}{3080}$	0		
	0	0	0	0	$\frac{15\sqrt{77}i}{616}$	0	0	$\frac{15\sqrt{77}}{616}$	$-\frac{\sqrt{1155}}{770}$	0	$-\frac{3\sqrt{1155}i}{3080}$	0	0	$\frac{3\sqrt{1155}}{3080}$		
	$\frac{\sqrt{1155}}{616}$	0	0	$-\frac{15\sqrt{77}i}{616}$	0	$-\frac{3\sqrt{77}}{308}$	0	0	0	$-\frac{17\sqrt{1155}i}{3080}$	0	$\frac{\sqrt{1155}}{1540}$	0	0		
	0	$-\frac{\sqrt{1155}}{616}$	$\frac{15\sqrt{77}i}{616}$	0	$-\frac{3\sqrt{77}}{308}$	0	0	0	$\frac{17\sqrt{1155}i}{3080}$	0	$\frac{\sqrt{1155}}{1540}$	0	0	0		
	0	$\frac{\sqrt{1155}i}{616}$	$-\frac{15\sqrt{77}}{616}$	0	0	0	0	$\frac{3\sqrt{77}}{308}$	$\frac{17\sqrt{1155}}{3080}$	0	0	0	0	$\frac{\sqrt{1155}}{1540}$		
	$-\frac{\sqrt{1155}i}{616}$	0	0	$\frac{15\sqrt{77}}{616}$	0	0	$\frac{3\sqrt{77}}{308}$	0	0	$-\frac{17\sqrt{1155}}{3080}$	0	0	$\frac{\sqrt{1155}}{1540}$	0		
	0	0	0	$-\frac{\sqrt{1155}}{770}$	0	$-\frac{17\sqrt{1155}i}{3080}$	$\frac{17\sqrt{1155}}{3080}$	0	0	0	0	$-\frac{5\sqrt{77}i}{616}$	$-\frac{5\sqrt{77}}{616}$	0		
	0	0	$-\frac{\sqrt{1155}}{770}$	0	$\frac{17\sqrt{1155}i}{3080}$	0	0	$-\frac{17\sqrt{1155}}{3080}$	0	0	$\frac{5\sqrt{77}i}{616}$	0	0	$\frac{5\sqrt{77}}{616}$		
	$-\frac{\sqrt{77}}{88}$	0	0	$\frac{3\sqrt{1155}i}{3080}$	0	$\frac{\sqrt{1155}}{1540}$	0	0	0	$-\frac{5\sqrt{77}i}{616}$	0	$\frac{\sqrt{77}}{44}$	0	0		
	0	$\frac{\sqrt{77}}{88}$	$-\frac{3\sqrt{1155}i}{3080}$	0	$\frac{\sqrt{1155}}{1540}$	0	0	0	$\frac{5\sqrt{77}i}{616}$	0	$\frac{\sqrt{77}}{44}$	0	0	0		
	0	$\frac{\sqrt{77}i}{88}$	$-\frac{3\sqrt{1155}}{3080}$	0	0	0	0	$\frac{\sqrt{1155}}{1540}$	$-\frac{5\sqrt{77}}{616}$	0	0	0	0	$-\frac{\sqrt{77}}{44}$		
	$-\frac{\sqrt{77}i}{88}$	0	0	$\frac{3\sqrt{1155}}{3080}$	0	0	$\frac{\sqrt{1155}}{1540}$	0	0	$\frac{5\sqrt{77}}{616}$	0	0	0	$-\frac{\sqrt{77}}{44}$	0	
933	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$														

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_4^{(1,0;a)}(A'', 4)$	0 0 0 $-\frac{\sqrt{1155}i}{616}$ 0 $-\frac{\sqrt{1155}}{616}$ 0 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 $-\frac{\sqrt{77}i}{88}$ 0 $-\frac{\sqrt{77}}{88}$ 0 0 0 0															
	0 $-\frac{\sqrt{1155}i}{616}$ $-\frac{3\sqrt{77}}{308}$ 0 0 0 0 $\frac{15\sqrt{77}}{616}$ $\frac{\sqrt{1155}}{1540}$ 0 0 0 0 $\frac{17\sqrt{1155}}{3080}$															
	$\frac{\sqrt{1155}i}{616}$ 0 0 $\frac{3\sqrt{77}}{308}$ 0 0 $\frac{15\sqrt{77}}{616}$ 0 0 $-\frac{\sqrt{1155}}{1540}$ 0 0 $\frac{17\sqrt{1155}}{3080}$ 0															
	0 $-\frac{\sqrt{1155}}{616}$ 0 0 $\frac{3\sqrt{77}}{308}$ 0 0 $\frac{15\sqrt{77}i}{616}$ 0 0 $\frac{\sqrt{1155}}{1540}$ 0 0 $-\frac{17\sqrt{1155}i}{3080}$															
	$-\frac{\sqrt{1155}}{616}$ 0 0 0 0 $-\frac{3\sqrt{77}}{308}$ $-\frac{15\sqrt{77}i}{616}$ 0 0 0 0 $-\frac{\sqrt{1155}}{1540}$ $\frac{17\sqrt{1155}i}{3080}$ 0															
	0 0 0 $\frac{15\sqrt{77}}{616}$ 0 $\frac{15\sqrt{77}i}{616}$ 0 0 0 $-\frac{3\sqrt{1155}}{3080}$ 0 $\frac{3\sqrt{1155}i}{3080}$ $-\frac{\sqrt{1155}}{770}$ 0															
	0 0 $\frac{15\sqrt{77}}{616}$ 0 $-\frac{15\sqrt{77}i}{616}$ 0 0 0 $-\frac{3\sqrt{1155}}{3080}$ 0 $-\frac{3\sqrt{1155}i}{3080}$ 0 0 $\frac{\sqrt{1155}}{770}$															
	0 $\frac{\sqrt{77}i}{88}$ $\frac{\sqrt{1155}}{1540}$ 0 0 0 0 $-\frac{3\sqrt{1155}}{3080}$ $\frac{\sqrt{77}}{44}$ 0 0 0 0 $\frac{5\sqrt{77}}{616}$ 0															
	$-\frac{\sqrt{77}i}{88}$ 0 0 $-\frac{\sqrt{1155}}{1540}$ 0 0 $-\frac{3\sqrt{1155}}{3080}$ 0 0 $-\frac{\sqrt{77}}{44}$ 0 0 $\frac{5\sqrt{77}}{616}$ 0															
	0 $-\frac{\sqrt{77}}{88}$ 0 0 $\frac{\sqrt{1155}}{1540}$ 0 0 $\frac{3\sqrt{1155}i}{3080}$ 0 0 $-\frac{\sqrt{77}}{44}$ 0 0 $\frac{5\sqrt{77}i}{616}$ 0															
	$-\frac{\sqrt{77}}{88}$ 0 0 0 0 $-\frac{\sqrt{1155}}{1540}$ $-\frac{3\sqrt{1155}i}{3080}$ 0 0 0 0 $\frac{\sqrt{77}}{44}$ $-\frac{5\sqrt{77}i}{616}$ 0															
	0 0 0 $\frac{17\sqrt{1155}}{3080}$ 0 $-\frac{17\sqrt{1155}i}{3080}$ $-\frac{\sqrt{1155}}{770}$ 0 0 $\frac{5\sqrt{77}}{616}$ 0 $\frac{5\sqrt{77}i}{616}$ 0 0															
	0 0 $\frac{17\sqrt{1155}}{3080}$ 0 $\frac{17\sqrt{1155}i}{3080}$ 0 0 $\frac{\sqrt{1155}}{770}$ $\frac{5\sqrt{77}}{616}$ 0 $-\frac{5\sqrt{77}i}{616}$ 0 0 0															

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

934 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(A', 1)$	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{22}}{22}$ 0 $-\frac{\sqrt{22}i}{22}$ $\frac{\sqrt{22}}{22}$ 0	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{22}}{22}$ 0 $\frac{\sqrt{22}i}{22}$ 0 0 $-\frac{\sqrt{22}}{22}$	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{330}i}{132}$	
	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{132}$ $\frac{\sqrt{330}i}{132}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{132}$	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{330}}{132}$	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0	
	0 $\frac{\sqrt{22}}{22}$ 0 0 $\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{330}i}{132}$ 0 0 0 0 0 0	
	$\frac{\sqrt{22}}{22}$ 0 0 0 $-\frac{\sqrt{330}}{132}$ $\frac{\sqrt{330}i}{132}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{22}i}{22}$ $\frac{\sqrt{330}}{132}$ 0 0 0 0 $\frac{\sqrt{330}}{132}$ 0 0 0 0 0 0	
	$\frac{\sqrt{22}i}{22}$ 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{330}}{132}$ 0 0 0 0 0 0	
	$\frac{\sqrt{22}}{22}$ 0 0 $-\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{22}}{22}$ $\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0 0 0 0 0 0 0	
$\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$		

935 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(A', 2)$	0 0 0 $\frac{\sqrt{14}}{42}$ 0 $-\frac{\sqrt{14}i}{42}$ $\frac{\sqrt{14}}{42}$ 0 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{14}}{42}$ 0 $\frac{\sqrt{14}i}{42}$ 0 0 $-\frac{\sqrt{14}}{42}$ 0 0 0 0 0 0	
	0 $\frac{\sqrt{14}}{42}$ 0 0 $\frac{\sqrt{210}}{84}$ 0 0 $-\frac{\sqrt{210}i}{84}$ 0 0 $\frac{\sqrt{14}}{42}$ 0 0 $\frac{\sqrt{14}i}{42}$	
	$\frac{\sqrt{14}}{42}$ 0 0 0 0 $-\frac{\sqrt{210}}{84}$ $\frac{\sqrt{210}i}{84}$ 0 0 0 0 $-\frac{\sqrt{14}}{42}$ $-\frac{\sqrt{14}i}{42}$ 0	
	0 $-\frac{\sqrt{14}i}{42}$ $\frac{\sqrt{210}}{84}$ 0 0 0 0 $\frac{\sqrt{210}}{84}$ $-\frac{\sqrt{14}}{42}$ 0 0 0 0 $\frac{\sqrt{14}}{42}$	
	$\frac{\sqrt{14}i}{42}$ 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 $\frac{\sqrt{210}}{84}$ 0 0 $\frac{\sqrt{14}}{42}$ 0 0 $\frac{\sqrt{14}}{42}$ 0	
	$\frac{\sqrt{14}}{42}$ 0 0 $-\frac{\sqrt{210}i}{84}$ 0 $\frac{\sqrt{210}}{84}$ 0 0 0 $-\frac{\sqrt{14}i}{42}$ 0 $-\frac{\sqrt{14}}{42}$ 0 0	
	0 $-\frac{\sqrt{14}}{42}$ $\frac{\sqrt{210}i}{84}$ 0 $\frac{\sqrt{210}}{84}$ 0 0 0 $\frac{\sqrt{14}i}{42}$ 0 $-\frac{\sqrt{14}}{42}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{14}}{42}$ 0 0 $-\frac{\sqrt{14}i}{42}$ 0 0 $-\frac{\sqrt{210}}{84}$ 0 0 $\frac{\sqrt{210}i}{84}$	
	0 0 0 0 0 $\frac{\sqrt{14}}{42}$ $\frac{\sqrt{14}i}{42}$ 0 0 0 0 $\frac{\sqrt{210}}{84}$ $-\frac{\sqrt{210}i}{84}$ 0	
	0 0 $\frac{\sqrt{14}}{42}$ 0 0 0 0 $-\frac{\sqrt{14}}{42}$ $-\frac{\sqrt{210}}{84}$ 0 0 0 0 $-\frac{\sqrt{210}}{84}$	
	0 0 0 $-\frac{\sqrt{14}}{42}$ 0 0 $-\frac{\sqrt{14}}{42}$ 0 0 $\frac{\sqrt{210}}{84}$ 0 0 $-\frac{\sqrt{210}}{84}$ 0	
	0 0 0 $\frac{\sqrt{14}i}{42}$ 0 $\frac{\sqrt{14}}{42}$ 0 0 0 $\frac{\sqrt{210}i}{84}$ 0 $-\frac{\sqrt{210}}{84}$ 0 0 0	
	0 0 $-\frac{\sqrt{14}i}{42}$ 0 $\frac{\sqrt{14}}{42}$ 0 0 0 $-\frac{\sqrt{210}i}{84}$ 0 $-\frac{\sqrt{210}}{84}$ 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	$\frac{\sqrt{2310}}{924}$	0	$\frac{\sqrt{2310}i}{924}$	0	0	0	$\frac{\sqrt{154}}{308}$	0	$-\frac{\sqrt{154}i}{308}$	$-\frac{\sqrt{154}}{154}$	0		
	0	0	$\frac{\sqrt{2310}}{924}$	0	$-\frac{\sqrt{2310}i}{924}$	0	0	0	$\frac{\sqrt{154}}{308}$	0	$\frac{\sqrt{154}i}{308}$	0	0	$\frac{\sqrt{154}}{154}$		
	0	$\frac{\sqrt{2310}}{924}$	0	0	0	0	0	$-\frac{5\sqrt{154}i}{308}$	0	0	$-\frac{\sqrt{2310}}{924}$	0	0	$\frac{\sqrt{2310}i}{308}$	0	$\frac{\sqrt{2310}i}{308}$
	$\frac{\sqrt{2310}}{924}$	0	0	0	0	0	$\frac{5\sqrt{154}i}{308}$	0	0	0	0	$\frac{\sqrt{2310}}{924}$	$-\frac{\sqrt{2310}i}{308}$	0		
	0	$\frac{\sqrt{2310}i}{924}$	0	0	0	0	0	$-\frac{5\sqrt{154}}{308}$	$-\frac{\sqrt{2310}}{924}$	0	0	0	0	$-\frac{\sqrt{2310}}{308}$		
	$-\frac{\sqrt{2310}i}{924}$	0	0	0	0	0	$-\frac{5\sqrt{154}}{308}$	0	0	$\frac{\sqrt{2310}}{924}$	0	0	0	$-\frac{\sqrt{2310}}{308}$	0	
	0	0	0	$-\frac{5\sqrt{154}i}{308}$	0	$-\frac{5\sqrt{154}}{308}$	0	0	0	$-\frac{\sqrt{2310}i}{231}$	0	$\frac{\sqrt{2310}}{231}$	0	0	0	
	0	0	$\frac{5\sqrt{154}i}{308}$	0	$-\frac{5\sqrt{154}}{308}$	0	0	0	$\frac{\sqrt{2310}i}{231}$	0	$\frac{\sqrt{2310}}{231}$	0	0	0		
	0	$\frac{\sqrt{154}}{308}$	0	0	$-\frac{\sqrt{2310}}{924}$	0	0	$-\frac{\sqrt{2310}i}{231}$	0	0	0	0	0	$\frac{\sqrt{154}i}{154}$		
	$\frac{\sqrt{154}}{308}$	0	0	0	0	$\frac{\sqrt{2310}}{924}$	$\frac{\sqrt{2310}i}{231}$	0	0	0	0	0	0	$-\frac{\sqrt{154}i}{154}$	0	
	0	$-\frac{\sqrt{154}i}{308}$	$-\frac{\sqrt{2310}}{924}$	0	0	0	0	$\frac{\sqrt{2310}}{231}$	0	0	0	0	0	$\frac{\sqrt{154}}{154}$		
	$\frac{\sqrt{154}i}{308}$	0	0	$\frac{\sqrt{2310}}{924}$	0	0	$\frac{\sqrt{2310}}{231}$	0	0	0	0	0	0	$\frac{\sqrt{154}}{154}$	0	
	$-\frac{\sqrt{154}}{154}$	0	0	$\frac{\sqrt{2310}i}{308}$	0	$-\frac{\sqrt{2310}}{308}$	0	0	0	$\frac{\sqrt{154}i}{154}$	0	$\frac{\sqrt{154}}{154}$	0	0	0	
	0	$\frac{\sqrt{154}}{154}$	$-\frac{\sqrt{2310}i}{308}$	0	$-\frac{\sqrt{2310}}{308}$	0	0	0	$-\frac{\sqrt{154}i}{154}$	0	$\frac{\sqrt{154}}{154}$	0	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	0	$\frac{\sqrt{770}}{924}$	0	$-\frac{\sqrt{770}i}{924}$	$-\frac{\sqrt{770}}{462}$	0	0	$-\frac{\sqrt{462}}{308}$	0	$-\frac{\sqrt{462}i}{308}$	0	0	0
	0	0	$\frac{\sqrt{770}}{924}$	0	$\frac{\sqrt{770}i}{924}$	0	0	$\frac{\sqrt{770}}{462}$	$-\frac{\sqrt{462}}{308}$	0	$\frac{\sqrt{462}i}{308}$	0	0	0	0
	0	$\frac{\sqrt{770}}{924}$	0	0	$\frac{5\sqrt{462}}{462}$	0	0	$\frac{5\sqrt{462}i}{924}$	0	0	$\frac{\sqrt{770}}{132}$	0	0	0	$-\frac{5\sqrt{770}i}{924}$
	$\frac{\sqrt{770}}{924}$	0	0	0	0	$-\frac{5\sqrt{462}}{462}$	$-\frac{5\sqrt{462}i}{924}$	0	0	0	0	$-\frac{\sqrt{770}}{132}$	$\frac{5\sqrt{770}i}{924}$	0	0
	0	$-\frac{\sqrt{770}i}{924}$	$\frac{5\sqrt{462}}{462}$	0	0	0	0	$-\frac{5\sqrt{462}}{924}$	$-\frac{\sqrt{770}}{132}$	0	0	0	0	$-\frac{5\sqrt{770}}{924}$	
	$\frac{\sqrt{770}i}{924}$	0	0	$-\frac{5\sqrt{462}}{462}$	0	0	$-\frac{5\sqrt{462}}{924}$	0	0	$\frac{\sqrt{770}}{132}$	0	0	$-\frac{5\sqrt{770}}{924}$	0	0
	$-\frac{\sqrt{770}}{462}$	0	0	$\frac{5\sqrt{462}i}{924}$	0	$-\frac{5\sqrt{462}}{924}$	0	0	0	$\frac{\sqrt{770}i}{462}$	0	$\frac{\sqrt{770}}{462}$	0	0	0
	0	$\frac{\sqrt{770}}{462}$	$-\frac{5\sqrt{462}i}{924}$	0	$-\frac{5\sqrt{462}}{924}$	0	0	0	$-\frac{\sqrt{770}i}{462}$	0	$\frac{\sqrt{770}}{462}$	0	0	0	0
	0	$-\frac{\sqrt{462}}{308}$	0	0	$-\frac{\sqrt{770}}{132}$	0	0	$\frac{\sqrt{770}i}{462}$	0	0	$-\frac{\sqrt{462}}{231}$	0	0	$-\frac{\sqrt{462}i}{462}$	0
	$-\frac{\sqrt{462}}{308}$	0	0	0	0	$\frac{\sqrt{770}}{132}$	$-\frac{\sqrt{770}i}{462}$	0	0	0	0	$\frac{\sqrt{462}}{231}$	$\frac{\sqrt{462}i}{462}$	0	0
	0	$-\frac{\sqrt{462}i}{308}$	$\frac{\sqrt{770}}{132}$	0	0	0	0	$\frac{\sqrt{770}}{462}$	$-\frac{\sqrt{462}}{231}$	0	0	0	0	$\frac{\sqrt{462}}{462}$	0
	$\frac{\sqrt{462}i}{308}$	0	0	$-\frac{\sqrt{770}}{132}$	0	0	$\frac{\sqrt{770}}{462}$	0	0	$\frac{\sqrt{462}}{231}$	0	0	$\frac{\sqrt{462}}{462}$	0	0
	0	0	0	$-\frac{5\sqrt{770}i}{924}$	0	$-\frac{5\sqrt{770}}{924}$	0	0	0	$-\frac{\sqrt{462}i}{462}$	0	$\frac{\sqrt{462}}{462}$	0	0	0
	0	0	$\frac{5\sqrt{770}i}{924}$	0	$-\frac{5\sqrt{770}}{924}$	0	0	0	$\frac{\sqrt{462}i}{462}$	0	$\frac{\sqrt{462}}{462}$	0	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	$\frac{2\sqrt{77}i}{77}$	$-\frac{5\sqrt{1155}}{924}$	0	0	0	0	$-\frac{5\sqrt{1155}}{924}$	$\frac{\sqrt{77}}{308}$	0	0	0	0	$-\frac{\sqrt{77}}{308}$		
	$-\frac{2\sqrt{77}i}{77}$	0	0	$\frac{5\sqrt{1155}}{924}$	0	0	$-\frac{5\sqrt{1155}}{924}$	0	0	$-\frac{\sqrt{77}}{308}$	0	0	$-\frac{\sqrt{77}}{308}$	0		
	$-\frac{5\sqrt{1155}}{924}$	0	0	$\frac{5\sqrt{77}i}{308}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	0	$-\frac{\sqrt{1155}i}{924}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	0	
	0	$\frac{5\sqrt{1155}}{924}$	$-\frac{5\sqrt{77}i}{308}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	0	$\frac{\sqrt{1155}i}{924}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	0	0	
	0	0	0	$-\frac{5\sqrt{77}}{616}$	0	0	$-\frac{5\sqrt{77}}{616}$	0	0	$-\frac{\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{1155}}{616}$	0		
	0	0	$-\frac{5\sqrt{77}}{616}$	0	0	0	0	$\frac{5\sqrt{77}}{616}$	$-\frac{\sqrt{1155}}{616}$	0	0	0	0	$-\frac{\sqrt{1155}}{616}$		
	0	$-\frac{5\sqrt{1155}}{924}$	0	0	$-\frac{5\sqrt{77}}{616}$	0	0	$\frac{5\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{1155}}{1848}$	0	0	$\frac{\sqrt{1155}i}{924}$		
	$-\frac{5\sqrt{1155}}{924}$	0	0	0	0	$\frac{5\sqrt{77}}{616}$	$-\frac{5\sqrt{77}i}{308}$	0	0	0	0	$\frac{\sqrt{1155}}{1848}$	$-\frac{\sqrt{1155}i}{924}$	0		
	$\frac{\sqrt{77}}{308}$	0	0	$-\frac{\sqrt{1155}i}{924}$	0	$-\frac{\sqrt{1155}}{616}$	0	0	0	$-\frac{5\sqrt{77}i}{308}$	0	$\frac{13\sqrt{77}}{616}$	0	0	0	
	0	$-\frac{\sqrt{77}}{308}$	$\frac{\sqrt{1155}i}{924}$	0	$-\frac{\sqrt{1155}}{616}$	0	0	0	$\frac{5\sqrt{77}i}{308}$	0	$\frac{13\sqrt{77}}{616}$	0	0	0	0	
	0	0	0	$\frac{\sqrt{1155}}{1848}$	0	0	$-\frac{\sqrt{1155}}{1848}$	0	0	$\frac{13\sqrt{77}}{616}$	0	$-\frac{2\sqrt{77}i}{77}$	$\frac{13\sqrt{77}}{616}$	0		
	0	0	$\frac{\sqrt{1155}}{1848}$	0	0	0	0	$\frac{\sqrt{1155}}{1848}$	$\frac{13\sqrt{77}}{616}$	0	$\frac{2\sqrt{77}i}{77}$	0	0	$-\frac{13\sqrt{77}}{616}$		
	0	$-\frac{\sqrt{77}}{308}$	0	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{1155}i}{924}$	0	0	$\frac{13\sqrt{77}}{616}$	0	0	$-\frac{5\sqrt{77}i}{308}$		
	$-\frac{\sqrt{77}}{308}$	0	0	0	0	$-\frac{\sqrt{1155}}{616}$	$-\frac{\sqrt{1155}i}{924}$	0	0	0	0	$-\frac{13\sqrt{77}}{616}$	$\frac{5\sqrt{77}i}{308}$	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	0 $-\frac{\sqrt{70}}{112}$ 0 0 0 0 $\frac{\sqrt{70}}{112}$ $-\frac{\sqrt{42}}{112}$ 0 0 0 0 $-\frac{\sqrt{42}}{112}$
	0	0 0 0 $\frac{\sqrt{70}}{112}$ 0 0 $\frac{\sqrt{70}}{112}$ 0 0 $\frac{\sqrt{42}}{112}$ 0 0 $-\frac{\sqrt{42}}{112}$ 0
	$-\frac{\sqrt{70}}{112}$	0 0 0 $\frac{5\sqrt{42}i}{112}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 0 $-\frac{\sqrt{70}}{112}$ 0 0
	0	$\frac{\sqrt{70}}{112}$ $-\frac{5\sqrt{42}i}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 $-\frac{\sqrt{70}}{112}$ 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	$\frac{\sqrt{70}}{112}$ 0 0 0 0 0 $-\frac{5\sqrt{42}i}{112}$ 0 0 $-\frac{\sqrt{70}}{112}$ 0 0 $\frac{3\sqrt{70}i}{112}$
	$\frac{\sqrt{70}}{112}$	0 0 0 0 0 $\frac{5\sqrt{42}i}{112}$ 0 0 0 0 $\frac{\sqrt{70}}{112}$ $-\frac{3\sqrt{70}i}{112}$ 0
	$-\frac{\sqrt{42}}{112}$	0 0 $\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $\frac{3\sqrt{42}i}{112}$ 0 $-\frac{\sqrt{42}}{112}$ 0 0
	0	$\frac{\sqrt{42}}{112}$ $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{42}i}{112}$ 0 $-\frac{\sqrt{42}}{112}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{70}}{112}$ 0 0 $-\frac{\sqrt{70}}{112}$ 0 0 $-\frac{\sqrt{42}}{112}$ 0 0 $\frac{\sqrt{42}}{112}$ 0
	0	0 0 $-\frac{\sqrt{70}}{112}$ 0 0 0 0 $\frac{\sqrt{70}}{112}$ $-\frac{\sqrt{42}}{112}$ 0 0 0 0 $-\frac{\sqrt{42}}{112}$
	$-\frac{\sqrt{42}}{112}$	0 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 0 0 $\frac{\sqrt{42}}{112}$ 0 0 $-\frac{3\sqrt{42}i}{112}$ 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	0	$-\frac{37\sqrt{154}}{3696}$	0	0	0	0	$\frac{37\sqrt{154}}{3696}$	$\frac{5\sqrt{2310}}{1232}$	0	0	0	0	0	$\frac{5\sqrt{2310}}{1232}$	
	0	0	0	$\frac{37\sqrt{154}}{3696}$	0	0	$\frac{37\sqrt{154}}{3696}$	0	0	$-\frac{5\sqrt{2310}}{1232}$	0	0	0	$\frac{5\sqrt{2310}}{1232}$	0	
	$-\frac{37\sqrt{154}}{3696}$	0	0	$\frac{5\sqrt{2310}i}{3696}$	0	$-\frac{\sqrt{2310}}{924}$	0	0	0	$-\frac{17\sqrt{154}i}{3696}$	0	$\frac{\sqrt{154}}{528}$	0	0	0	
	0	$\frac{37\sqrt{154}}{3696}$	$-\frac{5\sqrt{2310}i}{3696}$	0	$-\frac{\sqrt{2310}}{924}$	0	0	0	$\frac{17\sqrt{154}i}{3696}$	0	$\frac{\sqrt{154}}{528}$	0	0	0	0	
	0	0	0	$-\frac{\sqrt{2310}}{924}$	0	0	$\frac{\sqrt{2310}}{924}$	0	0	$\frac{17\sqrt{154}}{924}$	0	$-\frac{2\sqrt{154}i}{231}$	$\frac{17\sqrt{154}}{924}$	0	0	
	0	0	$-\frac{\sqrt{2310}}{924}$	0	0	0	0	$-\frac{\sqrt{2310}}{924}$	$\frac{17\sqrt{154}}{924}$	0	$\frac{2\sqrt{154}i}{231}$	0	0	0	$-\frac{17\sqrt{154}}{924}$	
	0	$\frac{37\sqrt{154}}{3696}$	0	0	$\frac{\sqrt{2310}}{924}$	0	0	$-\frac{5\sqrt{2310}i}{3696}$	0	0	$\frac{\sqrt{154}}{528}$	0	0	0	$-\frac{17\sqrt{154}i}{3696}$	
	$\frac{37\sqrt{154}}{3696}$	0	0	0	0	$-\frac{\sqrt{2310}}{924}$	$\frac{5\sqrt{2310}i}{3696}$	0	0	0	0	$-\frac{\sqrt{154}}{528}$	$\frac{17\sqrt{154}i}{3696}$	0		
	$\frac{5\sqrt{2310}}{1232}$	0	0	$-\frac{17\sqrt{154}i}{3696}$	0	$\frac{17\sqrt{154}}{924}$	0	0	0	$\frac{\sqrt{2310}i}{1232}$	0	$-\frac{5\sqrt{2310}}{3696}$	0	0	0	
	0	$-\frac{5\sqrt{2310}}{1232}$	$\frac{17\sqrt{154}i}{3696}$	0	$\frac{17\sqrt{154}}{924}$	0	0	0	$-\frac{\sqrt{2310}i}{1232}$	0	$-\frac{5\sqrt{2310}}{3696}$	0	0	0	0	
	0	0	0	$\frac{\sqrt{154}}{528}$	0	$-\frac{2\sqrt{154}i}{231}$	$\frac{\sqrt{154}}{528}$	0	0	$-\frac{5\sqrt{2310}}{3696}$	0	0	0	$\frac{5\sqrt{2310}}{3696}$	0	
	0	0	$\frac{\sqrt{154}}{528}$	0	$\frac{2\sqrt{154}i}{231}$	0	0	$-\frac{\sqrt{154}}{528}$	$-\frac{5\sqrt{2310}}{3696}$	0	0	0	0	$-\frac{5\sqrt{2310}}{3696}$		
	0	$\frac{5\sqrt{2310}}{1232}$	0	0	$\frac{17\sqrt{154}}{924}$	0	0	$-\frac{17\sqrt{154}i}{3696}$	0	0	$\frac{5\sqrt{2310}}{3696}$	0	0	0	$-\frac{\sqrt{2310}i}{1232}$	
	$\frac{5\sqrt{2310}}{1232}$	0	0	0	0	$-\frac{17\sqrt{154}}{924}$	$\frac{17\sqrt{154}i}{3696}$	0	0	0	0	$-\frac{5\sqrt{2310}}{3696}$	$\frac{\sqrt{2310}i}{1232}$	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														
$\mathbb{T}_6^{(1,0;a)}(A'', 1)$	0	$-\frac{2\sqrt{77}}{77}$	0	0	$-\frac{5\sqrt{1155}}{924}$	0	0	$\frac{5\sqrt{1155}i}{924}$	0	0	$-\frac{\sqrt{77}}{308}$	0	0	$-\frac{\sqrt{77}i}{308}$		
	$-\frac{2\sqrt{77}}{77}$	0	0	0	0	$\frac{5\sqrt{1155}}{924}$	$-\frac{5\sqrt{1155}i}{924}$	0	0	0	$\frac{\sqrt{77}}{308}$	$\frac{\sqrt{77}i}{308}$	0			
	0	0	0	0	0	$\frac{5\sqrt{77}i}{616}$	$-\frac{5\sqrt{77}}{616}$	0	0	0	$-\frac{\sqrt{1155}i}{616}$	$-\frac{\sqrt{1155}}{616}$	0			
	0	0	0	0	$-\frac{5\sqrt{77}i}{616}$	0	0	$\frac{5\sqrt{77}}{616}$	0	0	$\frac{\sqrt{1155}i}{616}$	0	0	$\frac{\sqrt{1155}}{616}$		
	$-\frac{5\sqrt{1155}}{924}$	0	0	$\frac{5\sqrt{77}i}{616}$	0	$-\frac{5\sqrt{77}}{308}$	0	0	0	$\frac{\sqrt{1155}i}{1848}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	
	0	$\frac{5\sqrt{1155}}{924}$	$-\frac{5\sqrt{77}i}{616}$	0	$-\frac{5\sqrt{77}}{308}$	0	0	0	$-\frac{\sqrt{1155}i}{1848}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	0	
	0	$\frac{5\sqrt{1155}i}{924}$	$-\frac{5\sqrt{77}}{616}$	0	0	0	0	$-\frac{5\sqrt{77}}{308}$	$\frac{\sqrt{1155}}{1848}$	0	0	0	0	$\frac{\sqrt{1155}}{924}$		
	$-\frac{5\sqrt{1155}i}{924}$	0	0	$\frac{5\sqrt{77}}{616}$	0	0	$-\frac{5\sqrt{77}}{308}$	0	0	$-\frac{\sqrt{1155}}{1848}$	0	0	$\frac{\sqrt{1155}}{924}$	0		
	0	0	0	0	0	$\frac{\sqrt{1155}i}{1848}$	$\frac{\sqrt{1155}}{1848}$	0	0	$\frac{2\sqrt{77}}{77}$	0	$-\frac{13\sqrt{77}i}{616}$	$\frac{13\sqrt{77}}{616}$	0		
	0	0	0	0	$-\frac{\sqrt{1155}i}{1848}$	0	0	$-\frac{\sqrt{1155}}{1848}$	$\frac{2\sqrt{77}}{77}$	0	$\frac{13\sqrt{77}i}{616}$	0	0	$-\frac{13\sqrt{77}}{616}$		
	$-\frac{\sqrt{77}}{308}$	0	0	$-\frac{\sqrt{1155}i}{616}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	$-\frac{13\sqrt{77}i}{616}$	0	$\frac{5\sqrt{77}}{308}$	0	0	0	
	0	$\frac{\sqrt{77}}{308}$	$\frac{\sqrt{1155}i}{616}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	$\frac{13\sqrt{77}i}{616}$	0	$\frac{5\sqrt{77}}{308}$	0	0	0	0	
	0	$-\frac{\sqrt{77}i}{308}$	$-\frac{\sqrt{1155}}{616}$	0	0	0	0	$\frac{\sqrt{1155}}{924}$	$\frac{13\sqrt{77}}{616}$	0	0	0	0	$\frac{5\sqrt{77}}{308}$		
	$\frac{\sqrt{77}i}{308}$	0	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{1155}}{924}$	0	0	$-\frac{13\sqrt{77}}{616}$	0	0	$\frac{5\sqrt{77}}{308}$	0		

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

942 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(A'', 2)$	$-\frac{2\sqrt{77}}{77} \quad 0 \quad 0 \quad \frac{5\sqrt{1155}i}{924} \quad 0 \quad -\frac{5\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{77}i}{308} \quad 0 \quad \frac{\sqrt{77}}{308} \quad 0 \quad 0$	
	$0 \quad \frac{2\sqrt{77}}{77} \quad -\frac{5\sqrt{1155}i}{924} \quad 0 \quad -\frac{5\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{77}i}{308} \quad 0 \quad \frac{\sqrt{77}}{308} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{5\sqrt{1155}i}{924} \quad -\frac{5\sqrt{77}}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{77}}{616} \quad -\frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{1848}$	
	$-\frac{5\sqrt{1155}i}{924} \quad 0 \quad 0 \quad \frac{5\sqrt{77}}{308} \quad 0 \quad 0 \quad -\frac{5\sqrt{77}}{616} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{1848} \quad 0 \quad 0$	
	$0 \quad -\frac{5\sqrt{1155}}{924} \quad 0 \quad 0 \quad -\frac{5\sqrt{77}}{308} \quad 0 \quad 0 \quad \frac{5\sqrt{77}i}{616} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{1848} \quad 0$	
	$-\frac{5\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{77}}{308} \quad -\frac{5\sqrt{77}i}{616} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{924} \quad \frac{\sqrt{1155}i}{1848} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{5\sqrt{77}}{616} \quad 0 \quad \frac{5\sqrt{77}i}{616} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{616} \quad 0 \quad \frac{\sqrt{1155}i}{616} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{5\sqrt{77}}{616} \quad 0 \quad -\frac{5\sqrt{77}i}{616} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{616} \quad 0 \quad -\frac{\sqrt{1155}i}{616} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{77}i}{308} \quad -\frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{616} \quad \frac{5\sqrt{77}}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{77}}{616}$	
	$-\frac{\sqrt{77}i}{308} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{616} \quad 0 \quad 0 \quad -\frac{5\sqrt{77}}{308} \quad 0 \quad 0 \quad \frac{13\sqrt{77}}{616} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{77}}{308} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{616} \quad 0 \quad 0 \quad \frac{5\sqrt{77}}{308} \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{77}i}{616} \quad 0$	
	$\frac{\sqrt{77}}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{924} \quad -\frac{\sqrt{1155}i}{616} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{77}}{308} \quad \frac{13\sqrt{77}i}{616} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{1848} \quad 0 \quad -\frac{\sqrt{1155}i}{1848} \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{77}}{616} \quad 0 \quad -\frac{13\sqrt{77}i}{616} \quad \frac{2\sqrt{77}}{77} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{1155}}{1848} \quad 0 \quad \frac{\sqrt{1155}i}{1848} \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{77}}{616} \quad 0 \quad \frac{13\sqrt{77}i}{616} \quad 0 \quad 0 \quad 0 \quad -\frac{2\sqrt{77}}{77}$	
943	symmetry	$\frac{\sqrt{462}yz(y^2-3z^2)(3y^2-z^2)}{16}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(A'', 3)$	0 0 0 0 $\frac{\sqrt{70}}{112}$ 0 0 $\frac{\sqrt{70}i}{112}$ 0 0 $-\frac{\sqrt{42}}{112}$ 0 0 $\frac{\sqrt{42}i}{112}$	
	0 0 0 0 0 $-\frac{\sqrt{70}}{112}$ $-\frac{\sqrt{70}i}{112}$ 0 0 0 0 $\frac{\sqrt{42}}{112}$ $-\frac{\sqrt{42}i}{112}$ 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	
	$\frac{\sqrt{70}}{112}$ 0 0 0 0 $\frac{5\sqrt{42}}{112}$ 0 0 0 $\frac{\sqrt{70}i}{112}$ 0 $-\frac{3\sqrt{70}}{112}$ 0 0	
	0 $-\frac{\sqrt{70}}{112}$ 0 0 $\frac{5\sqrt{42}}{112}$ 0 0 0 $-\frac{\sqrt{70}i}{112}$ 0 $-\frac{3\sqrt{70}}{112}$ 0 0 0	
	0 $\frac{\sqrt{70}i}{112}$ 0 0 0 0 0 $-\frac{5\sqrt{42}}{112}$ $-\frac{\sqrt{70}}{112}$ 0 0 0 0 $-\frac{3\sqrt{70}}{112}$	
	$-\frac{\sqrt{70}i}{112}$ 0 0 0 0 0 $-\frac{5\sqrt{42}}{112}$ 0 0 $\frac{\sqrt{70}}{112}$ 0 0 $-\frac{3\sqrt{70}}{112}$ 0	
	0 0 0 0 0 $\frac{\sqrt{70}i}{112}$ $-\frac{\sqrt{70}}{112}$ 0 0 0 0 $-\frac{\sqrt{42}i}{112}$ $-\frac{\sqrt{42}}{112}$ 0	
	0 0 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 $\frac{\sqrt{70}}{112}$ 0 0 0 $\frac{\sqrt{42}i}{112}$ 0 0 $\frac{\sqrt{42}}{112}$	
	$-\frac{\sqrt{42}}{112}$ 0 0 0 0 $-\frac{3\sqrt{70}}{112}$ 0 0 0 $-\frac{\sqrt{42}i}{112}$ 0 $\frac{3\sqrt{42}}{112}$ 0 0	
	0 $\frac{\sqrt{42}}{112}$ 0 0 $-\frac{3\sqrt{70}}{112}$ 0 0 0 $\frac{\sqrt{42}i}{112}$ 0 $\frac{3\sqrt{42}}{112}$ 0 0 0	
	0 $\frac{\sqrt{42}i}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{70}}{112}$ $-\frac{\sqrt{42}}{112}$ 0 0 0 0 $-\frac{3\sqrt{42}}{112}$ 0	
	$-\frac{\sqrt{42}i}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{70}}{112}$ 0 0 $\frac{\sqrt{42}}{112}$ 0 0 $-\frac{3\sqrt{42}}{112}$ 0	
$\frac{\sqrt{462}xy(x^2 - 3y^2)(3x^2 - y^2)}{16}$		
944	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(A'', 4)$	0 0 0 $-\frac{\sqrt{70}i}{112}$ 0 $-\frac{\sqrt{70}}{112}$ 0 0 0 $\frac{\sqrt{42}i}{112}$ 0 $-\frac{\sqrt{42}}{112}$ 0 0	
	0 0 $\frac{\sqrt{70}i}{112}$ 0 $-\frac{\sqrt{70}}{112}$ 0 0 0 $-\frac{\sqrt{42}i}{112}$ 0 $-\frac{\sqrt{42}}{112}$ 0 0 0	
	0 $-\frac{\sqrt{70}i}{112}$ $\frac{5\sqrt{42}}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{70}}{112}$ 0 0 0 0 $-\frac{\sqrt{70}}{112}$	
	$\frac{\sqrt{70}i}{112}$ 0 0 $-\frac{5\sqrt{42}}{112}$ 0 0 0 0 0 $\frac{3\sqrt{70}}{112}$ 0 0 0 $-\frac{\sqrt{70}}{112}$ 0	
	0 $-\frac{\sqrt{70}}{112}$ 0 0 $-\frac{5\sqrt{42}}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{70}}{112}$ 0 0 0 $\frac{\sqrt{70}i}{112}$	
	$-\frac{\sqrt{70}}{112}$ 0 0 0 0 $\frac{5\sqrt{42}}{112}$ 0 0 0 0 0 0 $\frac{3\sqrt{70}}{112}$ $-\frac{\sqrt{70}i}{112}$ 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 $\frac{\sqrt{42}i}{112}$ $-\frac{3\sqrt{70}}{112}$ 0 0 0 0 0 $\frac{3\sqrt{42}}{112}$ 0 0 0 0 $\frac{\sqrt{42}}{112}$	
	$-\frac{\sqrt{42}i}{112}$ 0 0 $\frac{3\sqrt{70}}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{42}}{112}$ 0 0 0 $\frac{\sqrt{42}}{112}$ 0	
	0 $-\frac{\sqrt{42}}{112}$ 0 0 $-\frac{3\sqrt{70}}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{42}}{112}$ 0 0 0 $\frac{\sqrt{42}i}{112}$	
	$-\frac{\sqrt{42}}{112}$ 0 0 0 0 $\frac{3\sqrt{70}}{112}$ 0 0 0 0 0 0 $\frac{3\sqrt{42}}{112}$ $-\frac{\sqrt{42}i}{112}$ 0	
	0 0 0 $-\frac{\sqrt{70}}{112}$ 0 $\frac{\sqrt{70}i}{112}$ 0 0 0 $\frac{\sqrt{42}}{112}$ 0 $\frac{\sqrt{42}i}{112}$ 0 0 0	
	0 0 $-\frac{\sqrt{70}}{112}$ 0 $-\frac{\sqrt{70}i}{112}$ 0 0 0 $\frac{\sqrt{42}}{112}$ 0 $-\frac{\sqrt{42}i}{112}$ 0 0 0	
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														
$\mathbb{T}_6^{(1,0;a)}(A'', 5)$	0	0	0	0	$\frac{37\sqrt{154}}{3696}$	0	0	$\frac{37\sqrt{154}i}{3696}$	0	0	$\frac{5\sqrt{2310}}{1232}$	0	0	$-\frac{5\sqrt{2310}i}{1232}$		
	0	0	0	0	0	$-\frac{37\sqrt{154}}{3696}$	$-\frac{37\sqrt{154}i}{3696}$	0	0	0	0	$-\frac{5\sqrt{2310}}{1232}$	$\frac{5\sqrt{2310}i}{1232}$	0		
	0	0	0	0	0	$-\frac{\sqrt{2310}i}{924}$	$-\frac{\sqrt{2310}}{924}$	0	0	$\frac{2\sqrt{154}}{231}$	0	$-\frac{17\sqrt{154}i}{924}$	$\frac{17\sqrt{154}}{924}$	0		
	0	0	0	0	$\frac{\sqrt{2310}i}{924}$	0	0	$\frac{\sqrt{2310}}{924}$	$\frac{2\sqrt{154}}{231}$	0	$\frac{17\sqrt{154}i}{924}$	0	0	$-\frac{17\sqrt{154}}{924}$		
	$\frac{37\sqrt{154}}{3696}$	0	0	$-\frac{\sqrt{2310}i}{924}$	0	$\frac{5\sqrt{2310}}{3696}$	0	0	0	$-\frac{\sqrt{154}i}{528}$	0	$\frac{17\sqrt{154}}{3696}$	0	0	0	
	0	$-\frac{37\sqrt{154}}{3696}$	$\frac{\sqrt{2310}i}{924}$	0	$\frac{5\sqrt{2310}}{3696}$	0	0	0	$\frac{\sqrt{154}i}{528}$	0	$\frac{17\sqrt{154}}{3696}$	0	0	0	0	
	0	$\frac{37\sqrt{154}i}{3696}$	$-\frac{\sqrt{2310}}{924}$	0	0	0	0	$-\frac{5\sqrt{2310}}{3696}$	$\frac{\sqrt{154}}{528}$	0	0	0	0	$\frac{17\sqrt{154}}{3696}$		
	$-\frac{37\sqrt{154}i}{3696}$	0	0	$\frac{\sqrt{2310}}{924}$	0	0	$-\frac{5\sqrt{2310}}{3696}$	0	0	$-\frac{\sqrt{154}}{528}$	0	0	$\frac{17\sqrt{154}}{3696}$	0		
	0	0	0	$\frac{2\sqrt{154}}{231}$	0	$-\frac{\sqrt{154}i}{528}$	$\frac{\sqrt{154}}{528}$	0	0	0	0	$-\frac{5\sqrt{2310}i}{3696}$	$-\frac{5\sqrt{2310}}{3696}$	0		
	0	0	$\frac{2\sqrt{154}}{231}$	0	$\frac{\sqrt{154}i}{528}$	0	0	$-\frac{\sqrt{154}}{528}$	0	0	$\frac{5\sqrt{2310}i}{3696}$	0	0	$\frac{5\sqrt{2310}}{3696}$		
	$\frac{5\sqrt{2310}}{1232}$	0	0	$-\frac{17\sqrt{154}i}{924}$	0	$\frac{17\sqrt{154}}{3696}$	0	0	0	$-\frac{5\sqrt{2310}i}{3696}$	0	$\frac{\sqrt{2310}}{1232}$	0	0	0	
	0	$-\frac{5\sqrt{2310}}{1232}$	$\frac{17\sqrt{154}i}{924}$	0	$\frac{17\sqrt{154}}{3696}$	0	0	0	$\frac{5\sqrt{2310}i}{3696}$	0	$\frac{\sqrt{2310}}{1232}$	0	0	0	0	
	0	$-\frac{5\sqrt{2310}i}{1232}$	$\frac{17\sqrt{154}}{924}$	0	0	0	0	$\frac{17\sqrt{154}}{3696}$	$-\frac{5\sqrt{2310}}{3696}$	0	0	0	0	$-\frac{\sqrt{2310}}{1232}$		
	$\frac{5\sqrt{2310}i}{1232}$	0	0	$-\frac{17\sqrt{154}}{924}$	0	0	$\frac{17\sqrt{154}}{3696}$	0	0	$\frac{5\sqrt{2310}}{3696}$	0	0	0	$-\frac{\sqrt{2310}}{1232}$	0	
946	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														
$\mathbb{T}_6^{(1,0;a)}(A'', 6)$	0 0 0 $-\frac{37\sqrt{154}i}{3696}$ 0 $-\frac{37\sqrt{154}}{3696}$ 0 0 0 $-\frac{5\sqrt{2310}i}{1232}$ 0 $\frac{5\sqrt{2310}}{1232}$ 0 0 0															
	0 0 $\frac{37\sqrt{154}i}{3696}$ 0 $-\frac{37\sqrt{154}}{3696}$ 0 0 0 $\frac{5\sqrt{2310}i}{1232}$ 0 $\frac{5\sqrt{2310}}{1232}$ 0 0 0															
	0 $-\frac{37\sqrt{154}i}{3696}$ $\frac{5\sqrt{2310}}{3696}$ 0 0 0 0 $\frac{\sqrt{2310}}{924}$ $\frac{17\sqrt{154}}{3696}$ 0 0 0 0 $\frac{\sqrt{154}}{528}$															
	$\frac{37\sqrt{154}i}{3696}$ 0 0 $-\frac{5\sqrt{2310}}{3696}$ 0 0 $\frac{\sqrt{2310}}{924}$ 0 0 $-\frac{17\sqrt{154}}{3696}$ 0 0 $\frac{\sqrt{154}}{528}$ 0															
	0 $-\frac{37\sqrt{154}}{3696}$ 0 0 $-\frac{5\sqrt{2310}}{3696}$ 0 0 $\frac{\sqrt{2310}i}{924}$ 0 0 $\frac{17\sqrt{154}}{3696}$ 0 0 $-\frac{\sqrt{154}i}{528}$															
	$-\frac{37\sqrt{154}}{3696}$ 0 0 0 0 $\frac{5\sqrt{2310}}{3696}$ $-\frac{\sqrt{2310}i}{924}$ 0 0 0 0 $-\frac{17\sqrt{154}}{3696}$ $\frac{\sqrt{154}i}{528}$ 0															
	0 0 0 $\frac{\sqrt{2310}}{924}$ 0 $\frac{\sqrt{2310}i}{924}$ 0 0 0 $\frac{17\sqrt{154}}{924}$ 0 $-\frac{17\sqrt{154}i}{924}$ $\frac{2\sqrt{154}}{231}$ 0															
	0 0 $\frac{\sqrt{2310}}{924}$ 0 $-\frac{\sqrt{2310}i}{924}$ 0 0 0 $\frac{17\sqrt{154}}{924}$ 0 $\frac{17\sqrt{154}i}{924}$ 0 0 $-\frac{2\sqrt{154}}{231}$															
	0 $-\frac{5\sqrt{2310}i}{1232}$ $\frac{17\sqrt{154}}{3696}$ 0 0 0 0 $\frac{17\sqrt{154}}{924}$ $\frac{\sqrt{2310}}{1232}$ 0 0 0 0 $\frac{5\sqrt{2310}}{3696}$															
	$\frac{5\sqrt{2310}i}{1232}$ 0 0 $-\frac{17\sqrt{154}}{3696}$ 0 0 $\frac{17\sqrt{154}}{924}$ 0 0 $-\frac{\sqrt{2310}}{1232}$ 0 0 $\frac{5\sqrt{2310}}{3696}$ 0															
	0 $\frac{5\sqrt{2310}}{1232}$ 0 0 $\frac{17\sqrt{154}}{3696}$ 0 0 $-\frac{17\sqrt{154}i}{924}$ 0 0 $-\frac{\sqrt{2310}}{1232}$ 0 0 $\frac{5\sqrt{2310}i}{3696}$															
	$\frac{5\sqrt{2310}}{1232}$ 0 0 0 0 $-\frac{17\sqrt{154}}{3696}$ $\frac{17\sqrt{154}i}{924}$ 0 0 0 0 $\frac{\sqrt{2310}}{1232}$ $-\frac{5\sqrt{2310}i}{3696}$ 0															
	0 0 0 $\frac{\sqrt{154}}{528}$ 0 $\frac{\sqrt{154}i}{528}$ 0 0 $-\frac{2\sqrt{154}}{231}$ $\frac{5\sqrt{2310}}{3696}$ 0 $-\frac{5\sqrt{2310}i}{3696}$ 0 0 0															

947 symmetry

y

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(a)}(A')$	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 $-\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0	
	0 0 0 0 0 0 0 $-\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$	
	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 0 $\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 0	
	0 0 0 $\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$	
	$-\frac{\sqrt{14}i}{14}$ 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 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 0 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	

948 symmetry

x

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(a)}(A'', 1)$	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 0 0 0 $\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0	
	0 0 0 0 0 0 0 $\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$	
	0 0 0 0 $-\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0	
	0 0 0 0 0 0 $-\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 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 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$	
	0 0 0 0 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0	

949 symmetry

z

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(a)}(A'', 2)$	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 $\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0	
	0 0 0 0 0 $\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0	
	0 0 $-\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{3\sqrt{14}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{210}i}{56}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 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 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{210}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 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	

950 symmetry

 $\sqrt{15}xyz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(A', 1)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 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 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 $\frac{\sqrt{3}i}{6}$ 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	

*continued ...*

Table 10

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

952 symmetry

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(A'', 1)$	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
	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 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 $\frac{\sqrt{3}i}{6}$ 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 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 $-\frac{\sqrt{3}i}{6}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0
954	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
955	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(A'', 4)$	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 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 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0	
	$\frac{\sqrt{3}i}{6}$ 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 $\frac{\sqrt{3}i}{6}$ 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 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 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
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
958	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(A', 2)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	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 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 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 $\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 0	0	0	0	0	0	0	0	0	0	$\frac{3\sqrt{70}i}{112}$	0	0
	0 0 0 0 0 0 0 $\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0	0	0	0	0	0	0	0	0	0	0	$\frac{3\sqrt{70}i}{112}$	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 0 0 0 0 0	0	0	0	0	0	0	0	0	0	0	0	0
	0 0 $-\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 0 0 0 0	0	0	0	0	0	$\frac{3\sqrt{70}i}{112}$	0	0	0	0	0	0
	0 0 0 $-\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 0 0 0 0	0	0	0	0	0	$\frac{3\sqrt{70}i}{112}$	0	0	0	0	0	0
	0 0 0 0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 0 $-\frac{11\sqrt{42}i}{336}$ 0	0	0	0	0	0	0	0	0	0	$-\frac{11\sqrt{42}i}{336}$	0	0
	0 0 0 0 0 0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 0 $-\frac{11\sqrt{42}i}{336}$	0	0	0	0	0	0	0	0	0	0	$-\frac{11\sqrt{42}i}{336}$	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	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	0	0	0	0	0
	0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 0 0 $\frac{11\sqrt{42}i}{336}$ 0 0 0 0	0	0	0	0	0	$\frac{11\sqrt{42}i}{336}$	0	0	0	0	0	0
	0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 0 0 $\frac{11\sqrt{42}i}{336}$ 0 0 0 0	0	0	0	$\frac{11\sqrt{42}i}{336}$	0	0	0	0	0	0	0	0
960	symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$											

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(A', 4)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
	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 $-\frac{\sqrt{6}i}{6}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{6}i}{6}$ 0 0 0 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 0 $\frac{\sqrt{6}i}{12}$ 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 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 $-\frac{\sqrt{6}i}{12}$ 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 $-\frac{\sqrt{6}i}{12}$ 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	
962	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
$\mathbb{M}_5^{(a)}(A'', 1)$	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 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 0	
	0 0 0 0 0 0 0 $-\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$	
	0 0 0 0 $\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 0 0 0	
	0 0 0 0 0 $\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 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 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $\frac{11\sqrt{42}i}{336}$ 0	
	0 0 0 0 0 0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $\frac{11\sqrt{42}i}{336}$	
	0 0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $-\frac{11\sqrt{42}i}{336}$ 0 0 0	
	0 0 0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $-\frac{11\sqrt{42}i}{336}$ 0 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
$\mathbb{M}_5^{(a)}(A'', 2)$	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 $-\frac{\sqrt{42}i}{21}$ 0	
	0 0 0 0 $-\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 0 0 0 0	
	0 0 0 0 0 $-\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 0 0 0 0	
	0 0 $\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0	
	0 0 0 $\frac{5\sqrt{42}i}{336}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{112}$ 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 0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $\frac{11\sqrt{42}i}{336}$ 0 0 0 0	
	0 0 0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $\frac{11\sqrt{42}i}{336}$ 0 0 0 0	
	0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $-\frac{11\sqrt{42}i}{336}$ 0 0 0 0 0	
	0 0 0 $-\frac{3\sqrt{70}i}{112}$ 0 0 0 0 0 $-\frac{11\sqrt{42}i}{336}$ 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	
$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$		

964 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(A'', 3)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 \end{bmatrix}$
	965 symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(A'', 4)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	966 symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
967	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(A'', 6)$	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	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 $\frac{\sqrt{6}i}{12}$ 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
	$\frac{\sqrt{6}i}{6}$	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	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 $-\frac{\sqrt{6}i}{12}$ 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 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
<i>y</i>		
968	symmetry	

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	$-\frac{\sqrt{14}i}{14}$
	0	$\frac{\sqrt{14}i}{14}$
	0	0
	0	$-\frac{\sqrt{14}i}{14}$
	0	$\frac{\sqrt{14}i}{14}$
	0	0
	0	$-\frac{\sqrt{14}i}{14}$
	0	$\frac{\sqrt{14}i}{14}$
	0	0
<i>x</i>		
969	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(1,-1:a)}(A'', 1)$	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	$0 \quad 0 \quad \frac{\sqrt{14}}{14} \quad 0 \quad 0 \quad 0 \quad 0$
<i>z</i>		

970 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(1,-1:a)}(A'', 2)$		$\begin{bmatrix} \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 \end{bmatrix}$

971 symmetry

 $\sqrt{15}xyz$ 

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,-1;a)}(A', 1)$	0 0 0 $-\frac{\sqrt{70}}{42}$ 0 $\frac{\sqrt{70}i}{42}$ $-\frac{\sqrt{70}}{42}$ 0 0 0 0 0 0 0 0														
	0 0 $-\frac{\sqrt{70}}{42}$ 0 $-\frac{\sqrt{70}i}{42}$ 0 0 $\frac{\sqrt{70}}{42}$ 0 0 0 0 0 0 0														
	0 $-\frac{\sqrt{70}}{42}$ 0 0 $-\frac{\sqrt{42}}{168}$ 0 0 $\frac{\sqrt{42}i}{168}$ 0 0 $-\frac{\sqrt{70}}{168}$ 0 0 $-\frac{\sqrt{70}i}{168}$														
	$-\frac{\sqrt{70}}{42}$ 0 0 0 0 $\frac{\sqrt{42}}{168}$ $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 $\frac{\sqrt{70}}{168}$ $\frac{\sqrt{70}i}{168}$ 0														
	0 $\frac{\sqrt{70}i}{42}$ $-\frac{\sqrt{42}}{168}$ 0 0 0 0 $-\frac{\sqrt{42}}{168}$ $\frac{\sqrt{70}}{168}$ 0 0 0 0 $-\frac{\sqrt{70}}{168}$														
	$-\frac{\sqrt{70}i}{42}$ 0 0 $\frac{\sqrt{42}}{168}$ 0 0 $-\frac{\sqrt{42}}{168}$ 0 0 $-\frac{\sqrt{70}}{168}$ 0 0 $-\frac{\sqrt{70}}{168}$ 0														
	$-\frac{\sqrt{70}}{42}$ 0 0 $\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ 0 0 0 $\frac{\sqrt{70}i}{168}$ 0 $\frac{\sqrt{70}}{168}$ 0 0														
	0 $\frac{\sqrt{70}}{42}$ $-\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ 0 0 0 $-\frac{\sqrt{70}i}{168}$ 0 $\frac{\sqrt{70}}{168}$ 0 0 0														
	0 0 0 0 $\frac{\sqrt{70}}{168}$ 0 0 $\frac{\sqrt{70}i}{168}$ 0 0 $-\frac{5\sqrt{42}}{168}$ 0 0 $\frac{5\sqrt{42}i}{168}$														
	0 0 0 0 0 $-\frac{\sqrt{70}}{168}$ $-\frac{\sqrt{70}i}{168}$ 0 0 0 0 $\frac{5\sqrt{42}}{168}$ $-\frac{5\sqrt{42}i}{168}$ 0														
	0 0 $-\frac{\sqrt{70}}{168}$ 0 0 0 0 $\frac{\sqrt{70}}{168}$ $-\frac{5\sqrt{42}}{168}$ 0 0 0 0 $-\frac{5\sqrt{42}}{168}$														
	0 0 0 $\frac{\sqrt{70}}{168}$ 0 0 0 $\frac{\sqrt{70}}{168}$ 0 0 0 0 $-\frac{5\sqrt{42}}{168}$ 0 0														
	0 0 $-\frac{\sqrt{70}i}{168}$ 0 0 $-\frac{\sqrt{70}}{168}$ 0 0 0 $\frac{5\sqrt{42}i}{168}$ 0 $-\frac{5\sqrt{42}}{168}$ 0 0														
	0 0 $\frac{\sqrt{70}i}{168}$ 0 $-\frac{\sqrt{70}}{168}$ 0 0 0 $-\frac{5\sqrt{42}i}{168}$ 0 $-\frac{5\sqrt{42}}{168}$ 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	0 $\frac{\sqrt{42}}{42}$ 0 0 0 0 0 $\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 $\frac{\sqrt{42}}{42}$ 0 0 0 0 0 0 0 0
	$\frac{\sqrt{42}}{42}$	0 0 0 $\frac{\sqrt{70}i}{70}$ 0 $\frac{\sqrt{70}}{280}$ 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{168}$ 0 0 0
	0	$-\frac{\sqrt{42}}{42}$ $-\frac{\sqrt{70}i}{70}$ 0 $\frac{\sqrt{70}}{280}$ 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 $\frac{\sqrt{42}}{168}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{70}}{280}$ 0 $-\frac{\sqrt{70}i}{35}$ $\frac{\sqrt{70}}{280}$ 0 0 $-\frac{\sqrt{42}}{168}$ 0 0 $\frac{\sqrt{42}}{168}$ 0
	0	0 0 $\frac{\sqrt{70}}{280}$ 0 $\frac{\sqrt{70}i}{35}$ 0 0 $-\frac{\sqrt{70}}{280}$ $-\frac{\sqrt{42}}{168}$ 0 0 0 0 $-\frac{\sqrt{42}}{168}$
	0	$\frac{\sqrt{42}}{42}$ 0 0 $\frac{\sqrt{70}}{280}$ 0 0 $\frac{\sqrt{70}i}{70}$ 0 0 $-\frac{\sqrt{42}}{168}$ 0 0 0 $-\frac{\sqrt{42}i}{28}$
	$\frac{\sqrt{42}}{42}$	0 0 0 0 $-\frac{\sqrt{70}}{280}$ $-\frac{\sqrt{70}i}{70}$ 0 0 0 0 $\frac{\sqrt{42}}{168}$ $\frac{\sqrt{42}i}{28}$ 0
	0	0 0 0 $\frac{\sqrt{42}i}{28}$ 0 $-\frac{\sqrt{42}}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 0
	0	0 0 $-\frac{\sqrt{42}i}{28}$ 0 $-\frac{\sqrt{42}}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 0
	0	0 0 0 $\frac{\sqrt{42}}{168}$ 0 0 $-\frac{\sqrt{42}}{168}$ 0 0 $\frac{\sqrt{70}}{56}$ 0 0 $\frac{\sqrt{70}}{56}$ 0
	0	0 0 0 0 $\frac{\sqrt{42}}{168}$ $\frac{\sqrt{42}i}{28}$ 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{42}}{168}$ $\frac{\sqrt{42}i}{28}$ 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 0
$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$		

973 symmetry

continued ...

Table 10

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

974 symmetry

$$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,-1;a)}(A'', 1)$	0	0	0	0	$\frac{\sqrt{42}}{42}$	0	0	$-\frac{\sqrt{42}i}{42}$	0	0	0	0	0	0	0
	0	0	0	0	0	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}i}{42}$	0	0	0	0	0	0	0	0
	0	0	0	$\frac{\sqrt{70}}{35}$	0	$-\frac{\sqrt{70}i}{280}$	$\frac{\sqrt{70}}{280}$	0	0	0	0	$-\frac{\sqrt{42}i}{168}$	$-\frac{\sqrt{42}}{168}$	0	0
	0	0	$\frac{\sqrt{70}}{35}$	0	$\frac{\sqrt{70}i}{280}$	0	0	$-\frac{\sqrt{70}}{280}$	0	0	$\frac{\sqrt{42}i}{168}$	0	0	$\frac{\sqrt{42}}{168}$	0
	$\frac{\sqrt{42}}{42}$	0	0	$-\frac{\sqrt{70}i}{280}$	0	$-\frac{\sqrt{70}}{70}$	0	0	0	$\frac{\sqrt{42}i}{168}$	0	$\frac{\sqrt{42}}{28}$	0	0	0
	0	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{70}i}{280}$	0	$-\frac{\sqrt{70}}{70}$	0	0	0	$-\frac{\sqrt{42}i}{168}$	0	$\frac{\sqrt{42}}{28}$	0	0	0	0
	0	$-\frac{\sqrt{42}i}{42}$	$\frac{\sqrt{70}}{280}$	0	0	0	0	$-\frac{\sqrt{70}}{70}$	$\frac{\sqrt{42}}{168}$	0	0	0	0	$-\frac{\sqrt{42}}{28}$	0
	$\frac{\sqrt{42}i}{42}$	0	0	$-\frac{\sqrt{70}}{280}$	0	0	$-\frac{\sqrt{70}}{70}$	0	0	$-\frac{\sqrt{42}}{168}$	0	0	$-\frac{\sqrt{42}}{28}$	0	0
	0	0	0	0	0	$\frac{\sqrt{42}i}{168}$	$\frac{\sqrt{42}}{168}$	0	0	0	0	$-\frac{\sqrt{70}i}{56}$	$\frac{\sqrt{70}}{56}$	0	0
	0	0	0	0	$-\frac{\sqrt{42}i}{168}$	0	$\frac{\sqrt{42}}{28}$	0	0	0	$-\frac{\sqrt{70}i}{56}$	0	0	0	$-\frac{\sqrt{70}}{56}$
	0	0	$\frac{\sqrt{42}i}{168}$	0	$\frac{\sqrt{42}}{28}$	0	0	0	$\frac{\sqrt{70}i}{56}$	0	0	0	0	0	0
	0	0	$-\frac{\sqrt{42}}{168}$	0	0	0	$-\frac{\sqrt{42}}{28}$	$\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	0
	0	0	0	$\frac{\sqrt{42}}{168}$	0	0	$-\frac{\sqrt{42}}{28}$	0	0	$-\frac{\sqrt{70}}{56}$	0	0	0	0	0

975 symmetry

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,-1;a)}(A'', 2)$	0	0	0	$-\frac{\sqrt{42}i}{42}$	0	$\frac{\sqrt{42}}{42}$	0	0	0	0	0	0	0	0	0
	0	0	$\frac{\sqrt{42}i}{42}$	0	$\frac{\sqrt{42}}{42}$	0	0	0	0	0	0	0	0	0	0
	0	$-\frac{\sqrt{42}i}{42}$	$-\frac{\sqrt{70}}{70}$	0	0	0	0	$\frac{\sqrt{70}}{280}$	$\frac{\sqrt{42}}{28}$	0	0	0	0	$-\frac{\sqrt{42}}{168}$	
	$\frac{\sqrt{42}i}{42}$	0	0	$\frac{\sqrt{70}}{70}$	0	0	$\frac{\sqrt{70}}{280}$	0	0	$-\frac{\sqrt{42}}{28}$	0	0	$-\frac{\sqrt{42}}{168}$	0	
	0	$\frac{\sqrt{42}}{42}$	0	0	$-\frac{\sqrt{70}}{70}$	0	0	$-\frac{\sqrt{70}i}{280}$	0	0	$-\frac{\sqrt{42}}{28}$	0	0	$-\frac{\sqrt{42}i}{168}$	
	$\frac{\sqrt{42}}{42}$	0	0	0	0	$\frac{\sqrt{70}}{70}$	$\frac{\sqrt{70}i}{280}$	0	0	0	0	$\frac{\sqrt{42}}{28}$	$\frac{\sqrt{42}i}{168}$	0	
	0	0	0	$\frac{\sqrt{70}}{280}$	0	$-\frac{\sqrt{70}i}{280}$	$\frac{\sqrt{70}}{35}$	0	0	$\frac{\sqrt{42}}{168}$	0	$\frac{\sqrt{42}i}{168}$	0	0	
	0	0	$\frac{\sqrt{70}}{280}$	0	$\frac{\sqrt{70}i}{280}$	0	0	$-\frac{\sqrt{70}}{35}$	$\frac{\sqrt{42}}{168}$	0	$-\frac{\sqrt{42}i}{168}$	0	0	0	
	0	0	$\frac{\sqrt{42}}{28}$	0	0	0	0	$\frac{\sqrt{42}}{168}$	0	0	0	0	0	$\frac{\sqrt{70}}{56}$	
	0	0	0	$-\frac{\sqrt{42}}{28}$	0	0	$\frac{\sqrt{42}}{168}$	0	0	0	0	0	$\frac{\sqrt{70}}{56}$	0	
	0	0	0	0	$-\frac{\sqrt{42}}{28}$	0	0	$\frac{\sqrt{42}}{168}$	0	0	0	0	0	$-\frac{\sqrt{70}i}{56}$	
	0	0	0	0	0	$\frac{\sqrt{42}}{28}$	$-\frac{\sqrt{42}i}{168}$	0	0	0	0	0	$\frac{\sqrt{70}i}{56}$	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	$-\frac{\sqrt{42}}{168}$	0	$\frac{\sqrt{42}i}{168}$	0	0	0	$\frac{\sqrt{70}}{56}$	0	$\frac{\sqrt{70}i}{56}$	0	0	0	

976 symmetry

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

continued ...

Table 10

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

977 symmetry

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

continued ...

Table 10

No.	multipole	matrix													
$M_3^{(1,-1;a)}(A'', 4)$	0 0 0 $-\frac{\sqrt{70}i}{42}$ 0 $-\frac{\sqrt{70}}{42}$ 0 0 0 0 0 0 0 0 0														
	0 0 $\frac{\sqrt{70}i}{42}$ 0 $-\frac{\sqrt{70}}{42}$ 0 0 0 0 0 0 0 0 0 0														
	0 $-\frac{\sqrt{70}i}{42}$ $\frac{\sqrt{42}}{42}$ 0 0 0 0 $-\frac{\sqrt{42}}{168}$ $\frac{\sqrt{70}}{84}$ 0 0 0 0 $\frac{\sqrt{70}}{168}$														
	$\frac{\sqrt{70}i}{42}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}}{168}$ 0 0 $-\frac{\sqrt{70}}{84}$ 0 0 $\frac{\sqrt{70}}{168}$ 0														
	0 $-\frac{\sqrt{70}}{42}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}i}{168}$ 0 0 $\frac{\sqrt{70}}{84}$ 0 0 $-\frac{\sqrt{70}i}{168}$														
	$-\frac{\sqrt{70}}{42}$ 0 0 0 0 $\frac{\sqrt{42}}{42}$ $\frac{\sqrt{42}i}{168}$ 0 0 0 0 $-\frac{\sqrt{70}}{84}$ $\frac{\sqrt{70}i}{168}$ 0														
	0 0 0 $-\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 $-\frac{\sqrt{70}}{168}$ 0 $\frac{\sqrt{70}i}{168}$ $-\frac{\sqrt{70}}{42}$ 0														
	0 0 $-\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ 0 0 0 $-\frac{\sqrt{70}}{168}$ 0 $-\frac{\sqrt{70}i}{168}$ 0 0 $\frac{\sqrt{70}}{42}$														
	0 0 $\frac{\sqrt{70}}{84}$ 0 0 0 0 $-\frac{\sqrt{70}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{42}}{168}$														
	0 0 0 $-\frac{\sqrt{70}}{84}$ 0 0 $-\frac{\sqrt{70}}{168}$ 0 0 0 0 0 $-\frac{5\sqrt{42}}{168}$ 0														
	0 0 0 0 $\frac{\sqrt{70}}{84}$ 0 0 $-\frac{\sqrt{70}i}{168}$ 0 0 0 0 0 0 $-\frac{5\sqrt{42}i}{168}$														
	0 0 0 0 0 $-\frac{\sqrt{70}}{84}$ $-\frac{\sqrt{70}i}{168}$ 0 0 0 0 0 $\frac{5\sqrt{42}i}{168}$ 0														
	0 0 0 $\frac{\sqrt{70}}{168}$ 0 $-\frac{\sqrt{70}i}{168}$ 0 0 $-\frac{\sqrt{70}}{42}$ $-\frac{5\sqrt{42}}{168}$ 0 $-\frac{5\sqrt{42}i}{168}$ 0 0														
	0 0 $\frac{\sqrt{70}}{168}$ 0 $\frac{\sqrt{70}i}{168}$ 0 0 $\frac{\sqrt{70}}{42}$ $-\frac{5\sqrt{42}}{168}$ 0 $\frac{5\sqrt{42}i}{168}$ 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 $-\frac{\sqrt{165}}{220}$ 0 $-\frac{\sqrt{165}i}{220}$ 0 0 0 0 $-\frac{\sqrt{11}}{44}$ 0 $\frac{\sqrt{11}i}{44}$ $\frac{\sqrt{11}}{22}$ 0	
	0 0 $-\frac{\sqrt{165}}{220}$ 0 $\frac{\sqrt{165}i}{220}$ 0 0 0 0 $-\frac{\sqrt{11}}{44}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{11}}{22}$	
	0 $-\frac{\sqrt{165}}{220}$ 0 0 0 0 0 $\frac{3\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{165}}{110}$ 0 0 $\frac{\sqrt{165}i}{220}$	
	$-\frac{\sqrt{165}}{220}$ 0 0 0 0 0 $-\frac{3\sqrt{11}i}{44}$ 0 0 0 0 $\frac{\sqrt{165}}{110}$ $-\frac{\sqrt{165}i}{220}$ 0	
	0 $-\frac{\sqrt{165}i}{220}$ 0 0 0 0 0 $\frac{3\sqrt{11}}{44}$ $-\frac{\sqrt{165}}{110}$ 0 0 0 0 $-\frac{\sqrt{165}}{220}$	
	$\frac{\sqrt{165}i}{220}$ 0 0 0 0 0 $\frac{3\sqrt{11}}{44}$ 0 0 $\frac{\sqrt{165}}{110}$ 0 0 $-\frac{\sqrt{165}}{220}$ 0	
	0 0 0 $\frac{3\sqrt{11}i}{44}$ 0 $\frac{3\sqrt{11}}{44}$ 0 0 0 $-\frac{3\sqrt{165}i}{220}$ 0 $\frac{3\sqrt{165}}{220}$ 0 0	
	0 0 $-\frac{3\sqrt{11}i}{44}$ 0 $\frac{3\sqrt{11}}{44}$ 0 0 0 $\frac{3\sqrt{165}i}{220}$ 0 $\frac{3\sqrt{165}}{220}$ 0 0	
	0 $-\frac{\sqrt{11}}{44}$ 0 0 $-\frac{\sqrt{165}}{110}$ 0 0 $-\frac{3\sqrt{165}i}{220}$ 0 0 0 0 0 $\frac{\sqrt{11}i}{44}$	
	$-\frac{\sqrt{11}}{44}$ 0 0 0 0 $\frac{\sqrt{165}}{110}$ $\frac{3\sqrt{165}i}{220}$ 0 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0	
	0 $\frac{\sqrt{11}i}{44}$ $-\frac{\sqrt{165}}{110}$ 0 0 0 0 $\frac{3\sqrt{165}}{220}$ 0 0 0 0 0 $\frac{\sqrt{11}}{44}$	
	$-\frac{\sqrt{11}i}{44}$ 0 0 $\frac{\sqrt{165}}{110}$ 0 0 $\frac{3\sqrt{165}}{220}$ 0 0 0 0 0 $\frac{\sqrt{11}}{44}$ 0	
	$\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{165}i}{220}$ 0 $-\frac{\sqrt{165}}{220}$ 0 0 0 $\frac{\sqrt{11}i}{44}$ 0 $\frac{\sqrt{11}}{44}$ 0 0	
	0 $-\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{165}i}{220}$ 0 $-\frac{\sqrt{165}}{220}$ 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 $\frac{\sqrt{11}}{44}$ 0 0 0	
979 symmetry		$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(A', 2)$	0	0 0 0 $-\frac{\sqrt{55}}{220}$ 0 $\frac{\sqrt{55}i}{220}$ $\frac{\sqrt{55}}{110}$ 0 0 $\frac{\sqrt{33}}{44}$ 0 $\frac{\sqrt{33}i}{44}$ 0 0
	0	0 0 $-\frac{\sqrt{55}}{220}$ 0 $-\frac{\sqrt{55}i}{220}$ 0 0 $-\frac{\sqrt{55}}{110}$ $\frac{\sqrt{33}}{44}$ 0 $-\frac{\sqrt{33}i}{44}$ 0 0 0
	0	$-\frac{\sqrt{55}}{220}$ 0 0 $-\frac{\sqrt{33}}{22}$ 0 0 $-\frac{\sqrt{33}i}{44}$ 0 0 $\frac{\sqrt{55}}{55}$ 0 0 $-\frac{\sqrt{55}i}{44}$
	$-\frac{\sqrt{55}}{220}$	0 0 0 0 $\frac{\sqrt{33}}{22}$ $\frac{\sqrt{33}i}{44}$ 0 0 0 0 $-\frac{\sqrt{55}}{55}$ $\frac{\sqrt{55}i}{44}$ 0
	0	$\frac{\sqrt{55}i}{220}$ $-\frac{\sqrt{33}}{22}$ 0 0 0 0 $\frac{\sqrt{33}}{44}$ $-\frac{\sqrt{55}}{55}$ 0 0 0 0 $-\frac{\sqrt{55}}{44}$
	$-\frac{\sqrt{55}i}{220}$	0 0 $\frac{\sqrt{33}}{22}$ 0 0 $\frac{\sqrt{33}}{44}$ 0 0 $\frac{\sqrt{55}}{55}$ 0 0 $-\frac{\sqrt{55}}{44}$ 0
	$\frac{\sqrt{55}}{110}$	0 0 $-\frac{\sqrt{33}i}{44}$ 0 $\frac{\sqrt{33}}{44}$ 0 0 0 $-\frac{\sqrt{55}i}{220}$ 0 $-\frac{\sqrt{55}}{220}$ 0 0
	0	$-\frac{\sqrt{55}}{110}$ $\frac{\sqrt{33}i}{44}$ 0 $\frac{\sqrt{33}}{44}$ 0 0 0 $\frac{\sqrt{55}i}{220}$ 0 $-\frac{\sqrt{55}}{220}$ 0 0 0
	0	$\frac{\sqrt{33}}{44}$ 0 0 $-\frac{\sqrt{55}}{55}$ 0 0 $-\frac{\sqrt{55}i}{220}$ 0 0 $-\frac{\sqrt{33}}{66}$ 0 0 $-\frac{\sqrt{33}i}{132}$
	$\frac{\sqrt{33}}{44}$	0 0 0 0 $\frac{\sqrt{55}}{55}$ $\frac{\sqrt{55}i}{220}$ 0 0 0 0 $\frac{\sqrt{33}}{66}$ $\frac{\sqrt{33}i}{132}$ 0
	0	$\frac{\sqrt{33}i}{44}$ $\frac{\sqrt{55}}{55}$ 0 0 0 0 $-\frac{\sqrt{55}}{220}$ $-\frac{\sqrt{33}}{66}$ 0 0 0 0 $\frac{\sqrt{33}}{132}$
	$-\frac{\sqrt{33}i}{44}$	0 0 $-\frac{\sqrt{55}}{55}$ 0 0 $-\frac{\sqrt{55}}{220}$ 0 0 $\frac{\sqrt{33}}{66}$ 0 0 $\frac{\sqrt{33}}{132}$ 0
	0	0 0 0 $-\frac{\sqrt{55}i}{44}$ 0 $-\frac{\sqrt{55}}{44}$ 0 0 0 $-\frac{\sqrt{33}i}{132}$ 0 $\frac{\sqrt{33}}{132}$ 0 0
	0	0 0 $\frac{\sqrt{55}i}{44}$ 0 $-\frac{\sqrt{55}}{44}$ 0 0 0 $\frac{\sqrt{33}i}{132}$ 0 $\frac{\sqrt{33}}{132}$ 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	$\frac{\sqrt{385}i}{66}$	$-\frac{\sqrt{231}}{924}$	0	0	0	0	$-\frac{\sqrt{231}}{924}$	$-\frac{\sqrt{385}}{132}$	0	0	0	0	$\frac{\sqrt{385}}{132}$	
	$-\frac{\sqrt{385}i}{66}$	0	0	$\frac{\sqrt{231}}{924}$	0	0	$-\frac{\sqrt{231}}{924}$	0	0	$\frac{\sqrt{385}}{132}$	0	0	$\frac{\sqrt{385}}{132}$	0	
	$-\frac{\sqrt{231}}{924}$	0	0	$-\frac{3\sqrt{385}i}{616}$	0	$\frac{\sqrt{385}}{308}$	0	0	0	$-\frac{5\sqrt{231}i}{1848}$	0	$-\frac{3\sqrt{231}}{308}$	0	0	
	0	$\frac{\sqrt{231}}{924}$	$\frac{3\sqrt{385}i}{616}$	0	$\frac{\sqrt{385}}{308}$	0	0	0	$\frac{5\sqrt{231}i}{1848}$	0	$-\frac{3\sqrt{231}}{308}$	0	0	0	
	0	0	0	$\frac{\sqrt{385}}{308}$	0	$-\frac{\sqrt{385}i}{77}$	$\frac{\sqrt{385}}{308}$	0	0	$-\frac{5\sqrt{231}}{924}$	0	0	$\frac{5\sqrt{231}}{924}$	0	
	0	0	$\frac{\sqrt{385}}{308}$	0	$\frac{\sqrt{385}i}{77}$	0	0	$-\frac{\sqrt{385}}{308}$	$-\frac{5\sqrt{231}}{924}$	0	0	0	0	$-\frac{5\sqrt{231}}{924}$	
	0	$-\frac{\sqrt{231}}{924}$	0	0	$\frac{\sqrt{385}}{308}$	0	0	$-\frac{3\sqrt{385}i}{616}$	0	0	$\frac{3\sqrt{231}}{308}$	0	0	$\frac{5\sqrt{231}i}{1848}$	
	$-\frac{\sqrt{231}}{924}$	0	0	0	0	$-\frac{\sqrt{385}}{308}$	$\frac{3\sqrt{385}i}{616}$	0	0	0	0	$-\frac{3\sqrt{231}}{308}$	$-\frac{5\sqrt{231}i}{1848}$	0	
	$-\frac{\sqrt{385}}{132}$	0	0	$-\frac{5\sqrt{231}i}{1848}$	0	$-\frac{5\sqrt{231}}{924}$	0	0	0	$-\frac{\sqrt{385}i}{264}$	0	$\frac{\sqrt{385}}{924}$	0	0	
	0	$\frac{\sqrt{385}}{132}$	$\frac{5\sqrt{231}i}{1848}$	0	$-\frac{5\sqrt{231}}{924}$	0	0	0	$\frac{\sqrt{385}i}{264}$	0	$\frac{\sqrt{385}}{924}$	0	0	0	
	0	0	0	$-\frac{3\sqrt{231}}{308}$	0	0	$\frac{3\sqrt{231}}{308}$	0	0	$\frac{\sqrt{385}}{924}$	0	$\frac{\sqrt{385}i}{66}$	$\frac{\sqrt{385}}{924}$	0	
	0	0	$-\frac{3\sqrt{231}}{308}$	0	0	0	0	$-\frac{3\sqrt{231}}{308}$	$\frac{\sqrt{385}}{924}$	0	$-\frac{\sqrt{385}i}{66}$	0	0	$-\frac{\sqrt{385}}{924}$	
	0	$\frac{\sqrt{385}}{132}$	0	0	$\frac{5\sqrt{231}}{924}$	0	0	$\frac{5\sqrt{231}i}{1848}$	0	0	$\frac{\sqrt{385}}{924}$	0	0	$-\frac{\sqrt{385}i}{264}$	
	$\frac{\sqrt{385}}{132}$	0	0	0	0	$-\frac{5\sqrt{231}}{924}$	$-\frac{5\sqrt{231}i}{1848}$	0	0	0	$-\frac{\sqrt{385}}{924}$	$\frac{\sqrt{385}i}{264}$	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	$\frac{\sqrt{11}i}{22}$ $\frac{\sqrt{165}}{220}$ 0 0 0 0 0 $\frac{\sqrt{165}}{220}$ $-\frac{\sqrt{11}}{44}$ 0 0 0 0 $\frac{\sqrt{11}}{44}$
	$-\frac{\sqrt{11}i}{22}$	0 0 $-\frac{\sqrt{165}}{220}$ 0 0 $\frac{\sqrt{165}}{220}$ 0 0 $\frac{\sqrt{11}}{44}$ 0 0 $\frac{\sqrt{11}}{44}$ 0
	$\frac{\sqrt{165}}{220}$	0 0 $-\frac{3\sqrt{11}i}{88}$ 0 $-\frac{3\sqrt{11}}{44}$ 0 0 0 $\frac{\sqrt{165}i}{440}$ 0 $\frac{\sqrt{165}}{220}$ 0 0 0
	0	$-\frac{\sqrt{165}}{220}$ $\frac{3\sqrt{11}i}{88}$ 0 $-\frac{3\sqrt{11}}{44}$ 0 0 0 $-\frac{\sqrt{165}i}{440}$ 0 $\frac{\sqrt{165}}{220}$ 0 0 0
	0	0 0 $-\frac{3\sqrt{11}}{44}$ 0 0 $-\frac{3\sqrt{11}}{44}$ 0 0 $-\frac{3\sqrt{165}}{220}$ 0 0 0 $\frac{3\sqrt{165}}{220}$ 0
	0	0 0 $-\frac{3\sqrt{11}}{44}$ 0 0 0 0 $\frac{3\sqrt{11}}{44}$ $-\frac{3\sqrt{165}}{220}$ 0 0 0 0 $-\frac{3\sqrt{165}}{220}$
	0	$\frac{\sqrt{165}}{220}$ 0 0 $-\frac{3\sqrt{11}}{44}$ 0 0 $-\frac{3\sqrt{11}i}{88}$ 0 0 $-\frac{\sqrt{165}}{220}$ 0 0 $-\frac{\sqrt{165}i}{440}$
	$\frac{\sqrt{165}}{220}$	0 0 0 0 $\frac{3\sqrt{11}}{44}$ $\frac{3\sqrt{11}i}{88}$ 0 0 0 0 $\frac{\sqrt{165}}{220}$ $\frac{\sqrt{165}i}{440}$ 0
	$-\frac{\sqrt{11}}{44}$	0 0 $\frac{\sqrt{165}i}{440}$ 0 $-\frac{3\sqrt{165}}{220}$ 0 0 0 $\frac{3\sqrt{11}i}{88}$ 0 $-\frac{\sqrt{11}}{44}$ 0 0
	0	$\frac{\sqrt{11}}{44}$ $-\frac{\sqrt{165}i}{440}$ 0 $-\frac{3\sqrt{165}}{220}$ 0 0 0 $-\frac{3\sqrt{11}i}{88}$ 0 $-\frac{\sqrt{11}}{44}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{165}}{220}$ 0 0 $-\frac{\sqrt{165}}{220}$ 0 0 $-\frac{\sqrt{11}}{44}$ 0 $-\frac{\sqrt{11}i}{22}$ $-\frac{\sqrt{11}}{44}$ 0
	0	0 0 $\frac{\sqrt{165}}{220}$ 0 0 0 0 $\frac{\sqrt{165}}{220}$ $-\frac{\sqrt{11}}{44}$ 0 $\frac{\sqrt{11}i}{22}$ 0 0 $\frac{\sqrt{11}}{44}$
	0	$\frac{\sqrt{11}}{44}$ 0 0 $\frac{3\sqrt{165}}{220}$ 0 0 $-\frac{\sqrt{165}i}{440}$ 0 0 $-\frac{\sqrt{11}}{44}$ 0 0 0 $\frac{3\sqrt{11}i}{88}$
		$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

982 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(A', 5)$	0 0 0 0 0 0 0 0 $\frac{\sqrt{33}}{33}$ 0 0 0 0 $\frac{\sqrt{33}}{33}$	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{33}i}{33}$ 0 0 0 $\frac{\sqrt{33}}{33}$ 0	
	0 0 0 $-\frac{\sqrt{33}i}{44}$ 0 0 0 0 0 0 $-\frac{\sqrt{55}i}{220}$ 0 $-\frac{\sqrt{55}}{55}$ 0 0	
	0 0 $\frac{\sqrt{33}i}{44}$ 0 0 0 0 0 0 $\frac{\sqrt{55}i}{220}$ 0 $-\frac{\sqrt{55}}{55}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{55}}{55}$ 0 $\frac{\sqrt{55}i}{110}$ $-\frac{\sqrt{55}}{55}$ 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{55}}{55}$ 0 $-\frac{\sqrt{55}i}{110}$ 0 0 $\frac{\sqrt{55}}{55}$	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{33}i}{44}$ 0 0 0 $-\frac{\sqrt{55}}{55}$ 0 0 $-\frac{\sqrt{55}i}{220}$	
	0 0 0 0 0 0 0 $-\frac{\sqrt{33}i}{44}$ 0 0 0 0 $\frac{\sqrt{55}}{55}$ $\frac{\sqrt{55}i}{220}$ 0	
	$\frac{\sqrt{33}}{33}$ 0 0 $-\frac{\sqrt{55}i}{220}$ 0 $-\frac{\sqrt{55}}{55}$ 0 0 0 $\frac{7\sqrt{33}i}{132}$ 0 0 0 0	
	0 $-\frac{\sqrt{33}}{33}$ $\frac{\sqrt{55}i}{220}$ 0 $-\frac{\sqrt{55}}{55}$ 0 0 0 $-\frac{7\sqrt{33}i}{132}$ 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{55}}{55}$ 0 $\frac{\sqrt{55}i}{110}$ $-\frac{\sqrt{55}}{55}$ 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{55}}{55}$ 0 $-\frac{\sqrt{55}i}{110}$ 0 0 $\frac{\sqrt{55}}{55}$ 0 0 0 0 0 0	
	0 $\frac{\sqrt{33}}{33}$ 0 0 $-\frac{\sqrt{55}}{55}$ 0 0 $-\frac{\sqrt{55}i}{220}$ 0 0 0 0 0 $-\frac{7\sqrt{33}i}{132}$	
	$\frac{\sqrt{33}}{33}$ 0 0 0 0 $\frac{\sqrt{55}}{55}$ $\frac{\sqrt{55}i}{220}$ 0 0 0 0 0 $0 \frac{7\sqrt{33}i}{132}$ 0	
983	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
$M_5^{(1,-1;a)}(A'', 1)$	$0 - \frac{\sqrt{385}}{66} 0 0 -\frac{\sqrt{231}}{924} 0 0 \frac{\sqrt{231}i}{924} 0 0 0 \frac{\sqrt{385}}{132} 0 0 \frac{\sqrt{385}i}{132}$	
	$-\frac{\sqrt{385}}{66} 0 0 0 0 \frac{\sqrt{231}}{924} -\frac{\sqrt{231}i}{924} 0 0 0 0 -\frac{\sqrt{385}}{132} -\frac{\sqrt{385}i}{132} 0$	
	$0 0 0 \frac{\sqrt{385}}{77} 0 -\frac{\sqrt{385}i}{308} \frac{\sqrt{385}}{308} 0 0 0 0 -\frac{5\sqrt{231}i}{924} -\frac{5\sqrt{231}}{924} 0$	
	$0 0 \frac{\sqrt{385}}{77} 0 \frac{\sqrt{385}i}{308} 0 0 -\frac{\sqrt{385}}{308} 0 0 \frac{5\sqrt{231}i}{924} 0 0 \frac{5\sqrt{231}}{924}$	
	$-\frac{\sqrt{231}}{924} 0 0 -\frac{\sqrt{385}i}{308} 0 \frac{3\sqrt{385}}{616} 0 0 0 -\frac{3\sqrt{231}i}{308} 0 -\frac{5\sqrt{231}}{1848} 0 0$	
	$0 \frac{\sqrt{231}}{924} \frac{\sqrt{385}i}{308} 0 \frac{3\sqrt{385}}{616} 0 0 0 \frac{3\sqrt{231}i}{308} 0 -\frac{5\sqrt{231}}{1848} 0 0 0$	
	$0 \frac{\sqrt{231}i}{924} \frac{\sqrt{385}}{308} 0 0 0 0 \frac{3\sqrt{385}}{616} -\frac{3\sqrt{231}}{308} 0 0 0 0 \frac{5\sqrt{231}}{1848}$	
	$-\frac{\sqrt{231}i}{924} 0 0 -\frac{\sqrt{385}}{308} 0 0 \frac{3\sqrt{385}}{616} 0 0 \frac{3\sqrt{231}}{308} 0 0 0 \frac{5\sqrt{231}}{1848}$	
	$0 0 0 0 0 -\frac{3\sqrt{231}i}{308} -\frac{3\sqrt{231}}{308} 0 0 -\frac{\sqrt{385}}{66} 0 -\frac{\sqrt{385}i}{924} \frac{\sqrt{385}}{924} 0$	
	$0 0 0 0 \frac{3\sqrt{231}i}{308} 0 0 \frac{3\sqrt{231}}{308} -\frac{\sqrt{385}}{66} 0 \frac{\sqrt{385}i}{924} 0 0 -\frac{\sqrt{385}}{924}$	
	$\frac{\sqrt{385}}{132} 0 0 -\frac{5\sqrt{231}i}{924} 0 -\frac{5\sqrt{231}}{1848} 0 0 0 -\frac{\sqrt{385}i}{924} 0 \frac{\sqrt{385}}{264} 0 0$	
	$0 -\frac{\sqrt{385}}{132} \frac{5\sqrt{231}i}{924} 0 -\frac{5\sqrt{231}}{1848} 0 0 0 \frac{\sqrt{385}i}{924} 0 \frac{\sqrt{385}}{264} 0 0 0$	
	$0 \frac{\sqrt{385}i}{132} -\frac{5\sqrt{231}}{924} 0 0 0 0 \frac{5\sqrt{231}}{1848} \frac{\sqrt{385}}{924} 0 0 0 0 \frac{\sqrt{385}}{264}$	
	$-\frac{\sqrt{385}i}{132} 0 0 \frac{5\sqrt{231}}{924} 0 0 \frac{5\sqrt{231}}{1848} 0 0 -\frac{\sqrt{385}}{924} 0 0 \frac{\sqrt{385}}{264} 0$	
$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$		
984	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$M_5^{(1,-1;a)}(A'', 2)$	$-\frac{\sqrt{385}}{66} \quad 0 \quad 0 \quad \frac{\sqrt{231}i}{924} \quad 0 \quad -\frac{\sqrt{231}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{385}i}{132} \quad 0 \quad -\frac{\sqrt{385}}{132} \quad 0 \quad 0 \quad 0$														
	$0 \quad \frac{\sqrt{385}}{66} \quad -\frac{\sqrt{231}i}{924} \quad 0 \quad -\frac{\sqrt{231}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}i}{132} \quad 0 \quad -\frac{\sqrt{385}}{132} \quad 0 \quad 0 \quad 0 \quad 0$														
	$0 \quad \frac{\sqrt{231}i}{924} \quad \frac{3\sqrt{385}}{616} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}}{308} \quad -\frac{5\sqrt{231}}{1848} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{231}}{308}$														
	$-\frac{\sqrt{231}i}{924} \quad 0 \quad 0 \quad -\frac{3\sqrt{385}}{616} \quad 0 \quad 0 \quad \frac{\sqrt{385}}{308} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{231}}{1848} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{231}}{308} \quad 0$														
	$0 \quad -\frac{\sqrt{231}}{924} \quad 0 \quad 0 \quad \frac{3\sqrt{385}}{616} \quad 0 \quad 0 \quad -\frac{\sqrt{385}i}{308} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{231}}{1848} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{231}i}{308}$														
	$-\frac{\sqrt{231}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{385}}{616} \quad \frac{\sqrt{385}i}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{231}}{1848} \quad -\frac{3\sqrt{231}i}{308} \quad 0 \quad 0 \quad 0$														
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{385}}{308} \quad 0 \quad -\frac{\sqrt{385}i}{308} \quad \frac{\sqrt{385}}{77} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{231}}{924} \quad 0 \quad \frac{5\sqrt{231}i}{924} \quad 0 \quad 0 \quad 0$														
	$0 \quad 0 \quad \frac{\sqrt{385}}{308} \quad 0 \quad \frac{\sqrt{385}i}{308} \quad 0 \quad 0 \quad -\frac{\sqrt{385}}{77} \quad \frac{5\sqrt{231}}{924} \quad 0 \quad -\frac{5\sqrt{231}i}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$														
	$0 \quad -\frac{\sqrt{385}i}{132} \quad -\frac{5\sqrt{231}}{1848} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{231}}{924} \quad \frac{\sqrt{385}}{264} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}}{924}$														
	$\frac{\sqrt{385}i}{132} \quad 0 \quad 0 \quad \frac{5\sqrt{231}}{1848} \quad 0 \quad 0 \quad \frac{5\sqrt{231}}{924} \quad 0 \quad 0 \quad -\frac{\sqrt{385}}{264} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}}{924} \quad 0 \quad 0$														
	$0 \quad -\frac{\sqrt{385}}{132} \quad 0 \quad 0 \quad \frac{5\sqrt{231}}{1848} \quad 0 \quad 0 \quad \frac{5\sqrt{231}i}{924} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}}{264} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{385}i}{924}$														
	$-\frac{\sqrt{385}}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{231}}{1848} \quad -\frac{5\sqrt{231}i}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{385}}{264} \quad \frac{\sqrt{385}i}{924} \quad 0 \quad 0 \quad 0$														
	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{231}}{308} \quad 0 \quad \frac{3\sqrt{231}i}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}}{924} \quad 0 \quad -\frac{\sqrt{385}i}{924} \quad -\frac{\sqrt{385}}{66} \quad 0 \quad 0$														
	$0 \quad 0 \quad \frac{3\sqrt{231}}{308} \quad 0 \quad -\frac{3\sqrt{231}i}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}}{924} \quad 0 \quad \frac{\sqrt{385}i}{924} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}}{66}$														
985	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$													

continued ...

Table 10

No.	multipole	matrix
$M_5^{(1,-1;a)}(A'', 3)$	0	$-\frac{\sqrt{11}}{22}$
	$-\frac{\sqrt{11}}{22}$	0
	0	0
	0	$\frac{\sqrt{165}}{220}$
	$\frac{\sqrt{165}}{220}$	0
	0	$-\frac{3\sqrt{11}i}{44}$
	$\frac{\sqrt{165}i}{220}$	0
	0	$-\frac{3\sqrt{11}i}{44}$
	$-\frac{\sqrt{11}}{44}$	$-\frac{3\sqrt{165}i}{220}$
	$-\frac{\sqrt{11}}{44}$	$-\frac{3\sqrt{11}i}{44}$
	$\frac{\sqrt{11}i}{44}$	$-\frac{3\sqrt{165}i}{220}$
	$-\frac{\sqrt{11}i}{44}$	$-\frac{3\sqrt{11}i}{88}$
	$-\frac{\sqrt{11}i}{44}$	$-\frac{3\sqrt{11}i}{220}$
$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$		

986 symmetry

continued ...

Table 10

No.	multipole	matrix
$M_5^{(1,-1;a)}(A'', 4)$	$-\frac{\sqrt{11}}{22} \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{220} \quad 0 \quad \frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad -\frac{\sqrt{11}}{44} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{11}}{22} \quad \frac{\sqrt{165}i}{220} \quad 0 \quad \frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{44} \quad 0 \quad -\frac{\sqrt{11}}{44} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{165}i}{220} \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{44} \quad \frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{220}$	
	$\frac{\sqrt{165}i}{220} \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{44} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{220} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}i}{44} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{220}$	
	$\frac{\sqrt{165}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{88} \quad -\frac{3\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{440} \quad \frac{\sqrt{165}i}{220} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{44} \quad 0 \quad \frac{3\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{165}}{220} \quad 0 \quad \frac{3\sqrt{165}i}{220} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{3\sqrt{11}}{44} \quad 0 \quad -\frac{3\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{165}}{220} \quad 0 \quad -\frac{3\sqrt{165}i}{220} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{11}i}{44} \quad \frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{165}}{220} \quad -\frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{44} \quad 0$	
	$\frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad \frac{3\sqrt{165}}{220} \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{44} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{11}}{44} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{165}i}{220} \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{88} \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{44} \quad 0$	
	$-\frac{\sqrt{11}}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{440} \quad -\frac{3\sqrt{165}i}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}}{88} \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{220} \quad 0 \quad -\frac{\sqrt{165}i}{220} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{44} \quad 0 \quad \frac{\sqrt{11}i}{44} \quad \frac{\sqrt{11}}{22} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{165}}{220} \quad 0 \quad \frac{\sqrt{165}i}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{44} \quad 0 \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{22}$	
987	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,-1:a)}(A'', 5)$	0	0	0	0	0	0	0	0	0	$\frac{\sqrt{33}}{33}$	0	0	- $\frac{\sqrt{33}i}{33}$		
	0	0	0	0	0	0	0	0	0	0	- $\frac{\sqrt{33}}{33}$	$\frac{\sqrt{33}i}{33}$	0		
	0	0	0	0	0	0	0	0	- $\frac{\sqrt{55}}{110}$	0	$\frac{\sqrt{55}i}{55}$	- $\frac{\sqrt{55}}{55}$	0		
	0	0	0	0	0	0	0	- $\frac{\sqrt{55}}{110}$	0	- $\frac{\sqrt{55}i}{55}$	0	0	$\frac{\sqrt{55}}{55}$		
	0	0	0	0	0	- $\frac{\sqrt{33}}{44}$	0	0	0	$\frac{\sqrt{55}i}{55}$	0	$\frac{\sqrt{55}}{220}$	0	0	
	0	0	0	0	- $\frac{\sqrt{33}}{44}$	0	0	0	- $\frac{\sqrt{55}i}{55}$	0	$\frac{\sqrt{55}}{220}$	0	0	0	
	0	0	0	0	0	0	$\frac{\sqrt{33}}{44}$	- $\frac{\sqrt{55}}{55}$	0	0	0	0	$\frac{\sqrt{55}}{220}$		
	0	0	0	- $\frac{\sqrt{55}}{110}$	0	$\frac{\sqrt{55}i}{55}$	- $\frac{\sqrt{55}}{55}$	0	0	0	0	0	0	0	
	0	0	- $\frac{\sqrt{55}}{110}$	0	- $\frac{\sqrt{55}i}{55}$	0	0	$\frac{\sqrt{55}}{55}$	0	0	0	0	0	0	
	$\frac{\sqrt{33}}{33}$	0	0	$\frac{\sqrt{55}i}{55}$	0	$\frac{\sqrt{55}}{220}$	0	0	0	0	0	$\frac{7\sqrt{33}}{132}$	0	0	
	0	- $\frac{\sqrt{33}}{33}$	- $\frac{\sqrt{55}i}{55}$	0	$\frac{\sqrt{55}}{220}$	0	0	0	0	0	$\frac{7\sqrt{33}}{132}$	0	0	0	
	0	- $\frac{\sqrt{33}i}{33}$	- $\frac{\sqrt{55}}{55}$	0	0	0	0	$\frac{\sqrt{55}}{220}$	0	0	0	0	0	- $\frac{7\sqrt{33}}{132}$	
	$\frac{\sqrt{33}i}{33}$	0	0	$\frac{\sqrt{55}}{55}$	0	0	$\frac{\sqrt{55}}{220}$	0	0	0	0	0	- $\frac{7\sqrt{33}}{132}$	0	
$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$															

988 symmetry

continued ...

Table 10

No.	multipole	matrix
$M_5^{(1,-1:a)}(A'', 6)$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{33}i}{33}$ 0 $\frac{\sqrt{33}}{33}$ 0 0	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{33}i}{33}$ 0 $\frac{\sqrt{33}}{33}$ 0 0 0	
	0 0 $-\frac{\sqrt{33}}{44}$ 0 0 0 0 0 $\frac{\sqrt{55}}{220}$ 0 0 0 0 $-\frac{\sqrt{55}}{55}$	
	0 0 0 $\frac{\sqrt{33}}{44}$ 0 0 0 0 0 $-\frac{\sqrt{55}}{220}$ 0 0 $-\frac{\sqrt{55}}{55}$ 0	
	0 0 0 0 $\frac{\sqrt{33}}{44}$ 0 0 0 0 0 $\frac{\sqrt{55}}{220}$ 0 0 $\frac{\sqrt{55}i}{55}$	
	0 0 0 0 0 $-\frac{\sqrt{33}}{44}$ 0 0 0 0 0 $-\frac{\sqrt{55}}{220}$ $-\frac{\sqrt{55}i}{55}$ 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{55}}{55}$ 0 $\frac{\sqrt{55}i}{55}$ $-\frac{\sqrt{55}}{110}$ 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{55}}{55}$ 0 $-\frac{\sqrt{55}i}{55}$ 0 0 $\frac{\sqrt{55}}{110}$	
	0 $-\frac{\sqrt{33}i}{33}$ $\frac{\sqrt{55}}{220}$ 0 0 0 0 0 $-\frac{\sqrt{55}}{55}$ $\frac{7\sqrt{33}}{132}$ 0 0 0 0	
	$\frac{\sqrt{33}i}{33}$ 0 0 $-\frac{\sqrt{55}}{220}$ 0 0 $-\frac{\sqrt{55}}{55}$ 0 0 $-\frac{7\sqrt{33}}{132}$ 0 0 0 0	
	0 $\frac{\sqrt{33}}{33}$ 0 0 $\frac{\sqrt{55}}{220}$ 0 0 $\frac{\sqrt{55}i}{55}$ 0 0 $-\frac{7\sqrt{33}}{132}$ 0 0 0 0	
	$\frac{\sqrt{33}}{33}$ 0 0 0 0 $-\frac{\sqrt{55}}{220}$ $-\frac{\sqrt{55}i}{55}$ 0 0 0 0 $\frac{7\sqrt{33}}{132}$ 0 0	
	0 0 0 $-\frac{\sqrt{55}}{55}$ 0 $\frac{\sqrt{55}i}{55}$ $-\frac{\sqrt{55}}{110}$ 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{55}}{55}$ 0 $-\frac{\sqrt{55}i}{55}$ 0 0 $\frac{\sqrt{55}}{110}$ 0 0 0 0 0 0 0	
989	symmetry	$\frac{\sqrt{91xyz}(3x^4 - 5x^2y^2 - 5x^2z^2 + 3y^4 - 5y^2z^2 + 3z^4)}{2}$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_7^{(1,-1;a)}(A', 1)$	0 0 0 $\frac{\sqrt{770}}{154}$ 0 $-\frac{\sqrt{770}i}{154}$ $\frac{\sqrt{770}}{154}$ 0 0 0 0 0 0 0 0														
	0 0 $\frac{\sqrt{770}}{154}$ 0 $-\frac{\sqrt{770}i}{154}$ 0 0 $-\frac{\sqrt{770}}{154}$ 0 0 0 0 0 0 0														
	0 $\frac{\sqrt{770}}{154}$ 0 0 $-\frac{5\sqrt{462}}{1848}$ 0 0 $\frac{5\sqrt{462}i}{1848}$ 0 0 $-\frac{3\sqrt{770}}{616}$ 0 0 $-\frac{3\sqrt{770}i}{616}$														
	$\frac{\sqrt{770}}{154}$ 0 0 0 0 $\frac{5\sqrt{462}}{1848}$ $-\frac{5\sqrt{462}i}{1848}$ 0 0 0 $\frac{3\sqrt{770}}{616}$ $\frac{3\sqrt{770}i}{616}$ 0														
	0 $-\frac{\sqrt{770}i}{154}$ $-\frac{5\sqrt{462}}{1848}$ 0 0 0 0 $-\frac{5\sqrt{462}}{1848}$ $\frac{3\sqrt{770}}{616}$ 0 0 0 $-\frac{3\sqrt{770}}{616}$														
	$\frac{\sqrt{770}i}{154}$ 0 0 $\frac{5\sqrt{462}}{1848}$ 0 0 $-\frac{5\sqrt{462}}{1848}$ 0 0 $-\frac{3\sqrt{770}}{616}$ 0 0 $-\frac{3\sqrt{770}}{616}$ 0														
	$\frac{\sqrt{770}}{154}$ 0 0 $\frac{5\sqrt{462}i}{1848}$ 0 $-\frac{5\sqrt{462}}{1848}$ 0 0 0 $\frac{3\sqrt{770}i}{616}$ 0 $\frac{3\sqrt{770}}{616}$ 0 0														
	0 $-\frac{\sqrt{770}}{154}$ $-\frac{5\sqrt{462}i}{1848}$ 0 $-\frac{5\sqrt{462}}{1848}$ 0 0 0 $-\frac{3\sqrt{770}i}{616}$ 0 $\frac{3\sqrt{770}}{616}$ 0 0 0														
	0 0 0 0 $\frac{3\sqrt{770}}{616}$ 0 0 $\frac{3\sqrt{770}i}{616}$ 0 0 $-\frac{3\sqrt{462}}{616}$ 0 0 $-\frac{3\sqrt{462}i}{616}$														
	0 0 0 0 0 $-\frac{3\sqrt{770}}{616}$ $-\frac{3\sqrt{770}i}{616}$ 0 0 0 0 $\frac{3\sqrt{462}}{616}$ $-\frac{3\sqrt{462}i}{616}$ 0														
	0 0 $-\frac{3\sqrt{770}}{616}$ 0 0 0 0 $\frac{3\sqrt{770}}{616}$ $-\frac{3\sqrt{462}}{616}$ 0 0 0 0 $-\frac{3\sqrt{462}}{616}$														
	0 0 0 $\frac{3\sqrt{770}}{616}$ 0 $-\frac{3\sqrt{770}}{616}$ 0 0 0 $-\frac{3\sqrt{462}i}{616}$ 0 $-\frac{3\sqrt{462}}{616}$ 0 0 0														
$-\frac{\sqrt{231}xyz(x-y)(x+y)(3x^2+3y^2-10z^2)}{4}$															
990	symmetry														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_7^{(1,-1;a)}(A', 2)$	0 0 0 $-\frac{\sqrt{2730}}{364}$ 0 $-\frac{\sqrt{2730}i}{364}$ 0 0 0 0 $-\frac{3\sqrt{182}}{364}$ 0 $\frac{3\sqrt{182}i}{364}$ $\frac{3\sqrt{182}}{182}$ 0	
	0 0 $-\frac{\sqrt{2730}}{364}$ 0 $\frac{\sqrt{2730}i}{364}$ 0 0 0 $-\frac{3\sqrt{182}}{364}$ 0 $-\frac{3\sqrt{182}i}{364}$ 0 0 $-\frac{3\sqrt{182}}{182}$	
	0 $-\frac{\sqrt{2730}}{364}$ 0 0 0 0 0 $-\frac{5\sqrt{182}i}{728}$ 0 0 $\frac{\sqrt{2730}}{364}$ 0 0 $\frac{\sqrt{2730}i}{728}$	
	$-\frac{\sqrt{2730}}{364}$ 0 0 0 0 0 $\frac{5\sqrt{182}i}{728}$ 0 0 0 0 $-\frac{\sqrt{2730}}{364}$ $-\frac{\sqrt{2730}i}{728}$ 0	
	0 $-\frac{\sqrt{2730}i}{364}$ 0 0 0 0 0 $-\frac{5\sqrt{182}}{728}$ $\frac{\sqrt{2730}}{364}$ 0 0 0 0 $-\frac{\sqrt{2730}}{728}$	
	$\frac{\sqrt{2730}i}{364}$ 0 0 0 0 0 $-\frac{5\sqrt{182}}{728}$ 0 0 $-\frac{\sqrt{2730}}{364}$ 0 0 $-\frac{\sqrt{2730}}{728}$ 0	
	0 0 0 $-\frac{5\sqrt{182}i}{728}$ 0 $-\frac{5\sqrt{182}}{728}$ 0 0 0 $\frac{\sqrt{2730}i}{728}$ 0 $-\frac{\sqrt{2730}}{728}$ 0 0	
	0 0 $\frac{5\sqrt{182}i}{728}$ 0 $-\frac{5\sqrt{182}}{728}$ 0 0 0 $-\frac{\sqrt{2730}i}{728}$ 0 $-\frac{\sqrt{2730}}{728}$ 0 0 0	
	0 $-\frac{3\sqrt{182}}{364}$ 0 0 $\frac{\sqrt{2730}}{364}$ 0 0 $\frac{\sqrt{2730}i}{728}$ 0 0 0 0 0 $\frac{9\sqrt{182}i}{728}$	
	$-\frac{3\sqrt{182}}{364}$ 0 0 0 0 $-\frac{\sqrt{2730}}{364}$ $-\frac{\sqrt{2730}i}{728}$ 0 0 0 0 0 $-\frac{9\sqrt{182}i}{728}$ 0	
	0 $\frac{3\sqrt{182}i}{364}$ $\frac{\sqrt{2730}}{364}$ 0 0 0 0 $-\frac{\sqrt{2730}}{728}$ 0 0 0 0 0 $\frac{9\sqrt{182}}{728}$	
	$-\frac{3\sqrt{182}i}{364}$ 0 0 $-\frac{\sqrt{2730}}{364}$ 0 0 $-\frac{\sqrt{2730}}{728}$ 0 0 0 0 0 $\frac{9\sqrt{182}}{728}$ 0	
	$\frac{3\sqrt{182}}{182}$ 0 0 $\frac{\sqrt{2730}i}{728}$ 0 $-\frac{\sqrt{2730}}{728}$ 0 0 0 $\frac{9\sqrt{182}i}{728}$ 0 $\frac{9\sqrt{182}}{728}$ 0 0	
	0 $-\frac{3\sqrt{182}}{182}$ $-\frac{\sqrt{2730}i}{728}$ 0 $-\frac{\sqrt{2730}}{728}$ 0 0 0 $-\frac{9\sqrt{182}i}{728}$ 0 $\frac{9\sqrt{182}}{728}$ 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	0	$-\frac{\sqrt{910}}{364}$	0	$\frac{\sqrt{910}i}{364}$	$\frac{\sqrt{910}}{182}$	0	0	$\frac{3\sqrt{546}}{364}$	0	$\frac{3\sqrt{546}i}{364}$	0	0	0	
	0	0	$-\frac{\sqrt{910}}{364}$	0	$-\frac{\sqrt{910}i}{364}$	0	0	$-\frac{\sqrt{910}}{182}$	$\frac{3\sqrt{546}}{364}$	0	$-\frac{3\sqrt{546}i}{364}$	0	0	0	0	
	0	$-\frac{\sqrt{910}}{364}$	0	0	$\frac{5\sqrt{546}}{1092}$	0	0	$\frac{5\sqrt{546}i}{2184}$	0	0	0	0	0	0	$\frac{3\sqrt{910}i}{728}$	
	$-\frac{\sqrt{910}}{364}$	0	0	0	0	$-\frac{5\sqrt{546}}{1092}$	$-\frac{5\sqrt{546}i}{2184}$	0	0	0	0	0	$-\frac{3\sqrt{910}i}{728}$	0	0	
	0	$\frac{\sqrt{910}i}{364}$	$\frac{5\sqrt{546}}{1092}$	0	0	0	0	$-\frac{5\sqrt{546}}{2184}$	0	0	0	0	0	0	$\frac{3\sqrt{910}}{728}$	
	$-\frac{\sqrt{910}i}{364}$	0	0	$-\frac{5\sqrt{546}}{1092}$	0	0	$-\frac{5\sqrt{546}}{2184}$	0	0	0	0	0	$\frac{3\sqrt{910}}{728}$	0	0	
	$\frac{\sqrt{910}}{182}$	0	0	$\frac{5\sqrt{546}i}{2184}$	0	$-\frac{5\sqrt{546}}{2184}$	0	0	0	$\frac{3\sqrt{910}i}{728}$	0	$\frac{3\sqrt{910}}{728}$	0	0	0	
	0	$-\frac{\sqrt{910}}{182}$	$-\frac{5\sqrt{546}i}{2184}$	0	$-\frac{5\sqrt{546}}{2184}$	0	0	0	$-\frac{3\sqrt{910}i}{728}$	0	$\frac{3\sqrt{910}}{728}$	0	0	0	0	
	0	$\frac{3\sqrt{546}}{364}$	0	0	0	0	0	$\frac{3\sqrt{910}i}{728}$	0	0	$-\frac{3\sqrt{546}}{364}$	0	0	0	$-\frac{3\sqrt{546}i}{728}$	
	$\frac{3\sqrt{546}}{364}$	0	0	0	0	0	$-\frac{3\sqrt{910}i}{728}$	0	0	0	0	$\frac{3\sqrt{546}}{364}$	$\frac{3\sqrt{546}i}{728}$	0	0	
	0	$\frac{3\sqrt{546}i}{364}$	0	0	0	0	0	$\frac{3\sqrt{910}}{728}$	$-\frac{3\sqrt{546}}{364}$	0	0	0	0	$\frac{3\sqrt{546}}{728}$	0	
	$-\frac{3\sqrt{546}i}{364}$	0	0	0	0	0	$\frac{3\sqrt{910}}{728}$	0	0	$\frac{3\sqrt{546}}{364}$	0	0	$\frac{3\sqrt{546}}{728}$	0	0	
	0	0	0	$\frac{3\sqrt{910}i}{728}$	0	$\frac{3\sqrt{910}}{728}$	0	0	0	$-\frac{3\sqrt{546}i}{728}$	0	$\frac{3\sqrt{546}}{728}$	0	0	0	
	0	0	$-\frac{3\sqrt{910}i}{728}$	0	$\frac{3\sqrt{910}}{728}$	0	0	0	$\frac{3\sqrt{546}i}{728}$	0	$\frac{3\sqrt{546}}{728}$	0	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
$\mathbb{M}_7^{(1,-1;a)}(A', 4)$	$0 - \frac{\sqrt{858}i}{286} - \frac{\sqrt{1430}}{1144} 0 0 0 0 - \frac{\sqrt{1430}}{1144} \frac{3\sqrt{858}}{1144} 0 0 0 0 - \frac{3\sqrt{858}}{1144}$	
	$\frac{\sqrt{858}i}{286} 0 0 \frac{\sqrt{1430}}{1144} 0 0 - \frac{\sqrt{1430}}{1144} 0 0 - \frac{3\sqrt{858}}{1144} 0 0 - \frac{3\sqrt{858}}{1144} 0 0$	
	$- \frac{\sqrt{1430}}{1144} 0 0 \frac{25\sqrt{858}i}{6864} 0 \frac{5\sqrt{858}}{1144} 0 0 0 - \frac{7\sqrt{1430}i}{2288} 0 \frac{\sqrt{1430}}{572} 0 0 0$	
	$0 \frac{\sqrt{1430}}{1144} - \frac{25\sqrt{858}i}{6864} 0 \frac{5\sqrt{858}}{1144} 0 0 0 \frac{7\sqrt{1430}i}{2288} 0 \frac{\sqrt{1430}}{572} 0 0 0 0$	
	$0 0 0 \frac{5\sqrt{858}}{1144} 0 - \frac{5\sqrt{858}i}{429} \frac{5\sqrt{858}}{1144} 0 0 - \frac{5\sqrt{1430}}{1144} 0 0 \frac{5\sqrt{1430}}{1144} 0 0 \frac{5\sqrt{1430}}{1144} 0$	
	$0 0 \frac{5\sqrt{858}}{1144} 0 \frac{5\sqrt{858}i}{429} 0 0 - \frac{5\sqrt{858}}{1144} - \frac{5\sqrt{1430}}{1144} 0 0 0 0 0 - \frac{5\sqrt{1430}}{1144}$	
	$0 - \frac{\sqrt{1430}}{1144} 0 0 \frac{5\sqrt{858}}{1144} 0 0 \frac{25\sqrt{858}i}{6864} 0 0 - \frac{\sqrt{1430}}{572} 0 0 \frac{7\sqrt{1430}i}{2288} 0$	
	$- \frac{\sqrt{1430}}{1144} 0 0 0 0 - \frac{5\sqrt{858}}{1144} - \frac{25\sqrt{858}i}{6864} 0 0 0 0 \frac{\sqrt{1430}}{572} - \frac{7\sqrt{1430}i}{2288} 0$	
	$\frac{3\sqrt{858}}{1144} 0 0 - \frac{7\sqrt{1430}i}{2288} 0 - \frac{5\sqrt{1430}}{1144} 0 0 0 \frac{\sqrt{858}i}{176} 0 - \frac{\sqrt{858}}{572} 0 0 0$	
	$0 - \frac{3\sqrt{858}}{1144} \frac{7\sqrt{1430}i}{2288} 0 - \frac{5\sqrt{1430}}{1144} 0 0 0 - \frac{\sqrt{858}i}{176} 0 - \frac{\sqrt{858}}{572} 0 0 0 0$	
	$0 0 0 \frac{\sqrt{1430}}{572} 0 0 - \frac{\sqrt{1430}}{572} 0 0 - \frac{\sqrt{858}}{572} 0 - \frac{\sqrt{858}i}{286} - \frac{\sqrt{858}}{572} 0 0$	
	$0 0 \frac{\sqrt{1430}}{572} 0 0 0 0 \frac{\sqrt{1430}}{572} - \frac{\sqrt{858}}{572} 0 \frac{\sqrt{858}i}{286} 0 0 \frac{\sqrt{858}}{572} 0$	
	$0 - \frac{3\sqrt{858}}{1144} 0 0 \frac{5\sqrt{1430}}{1144} 0 0 \frac{7\sqrt{1430}i}{2288} 0 0 - \frac{\sqrt{858}}{572} 0 0 0 \frac{\sqrt{858}i}{176} 0$	
	$- \frac{3\sqrt{858}}{1144} 0 0 0 0 - \frac{5\sqrt{1430}}{1144} - \frac{7\sqrt{1430}i}{2288} 0 0 0 0 \frac{\sqrt{858}}{572} - \frac{\sqrt{858}i}{176} 0$	
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	$\frac{3\sqrt{182}i}{182}$	$\frac{\sqrt{2730}}{728}$	0	0	0	0	$\frac{\sqrt{2730}}{728}$	$-\frac{9\sqrt{182}}{728}$	0	0	0	0	$\frac{9\sqrt{182}}{728}$	
	$-\frac{3\sqrt{182}i}{182}$	0	0	$-\frac{\sqrt{2730}}{728}$	0	0	$\frac{\sqrt{2730}}{728}$	0	0	$\frac{9\sqrt{182}}{728}$	0	0	$\frac{9\sqrt{182}}{728}$	0	
	$\frac{\sqrt{2730}}{728}$	0	0	$\frac{15\sqrt{182}i}{1456}$	0	$\frac{5\sqrt{182}}{728}$	0	0	0	$-\frac{\sqrt{2730}i}{1456}$	0	$\frac{\sqrt{2730}}{364}$	0	0	
	0	$-\frac{\sqrt{2730}}{728}$	$-\frac{15\sqrt{182}i}{1456}$	0	$\frac{5\sqrt{182}}{728}$	0	0	0	$\frac{\sqrt{2730}i}{1456}$	0	$\frac{\sqrt{2730}}{364}$	0	0	0	
	0	0	0	$\frac{5\sqrt{182}}{728}$	0	0	$\frac{5\sqrt{182}}{728}$	0	0	$\frac{\sqrt{2730}}{728}$	0	0	0	$-\frac{\sqrt{2730}}{728}$	
	0	0	$\frac{5\sqrt{182}}{728}$	0	0	0	0	$-\frac{5\sqrt{182}}{728}$	$\frac{\sqrt{2730}}{728}$	0	0	0	0	$\frac{\sqrt{2730}}{728}$	
	0	$\frac{\sqrt{2730}}{728}$	0	0	$\frac{5\sqrt{182}}{728}$	0	0	$\frac{15\sqrt{182}i}{1456}$	0	0	$-\frac{\sqrt{2730}}{364}$	0	0	$\frac{\sqrt{2730}i}{1456}$	
	$\frac{\sqrt{2730}}{728}$	0	0	0	0	$-\frac{5\sqrt{182}}{728}$	$-\frac{15\sqrt{182}i}{1456}$	0	0	0	$\frac{\sqrt{2730}}{364}$	$-\frac{\sqrt{2730}i}{1456}$	0		
	$-\frac{9\sqrt{182}}{728}$	0	0	$-\frac{\sqrt{2730}i}{1456}$	0	$\frac{\sqrt{2730}}{728}$	0	0	0	$-\frac{15\sqrt{182}i}{1456}$	0	$-\frac{3\sqrt{182}}{364}$	0	0	
	0	$\frac{9\sqrt{182}}{728}$	$\frac{\sqrt{2730}i}{1456}$	0	$\frac{\sqrt{2730}}{728}$	0	0	0	$\frac{15\sqrt{182}i}{1456}$	0	$-\frac{3\sqrt{182}}{364}$	0	0	0	
	0	0	0	$\frac{\sqrt{2730}}{364}$	0	0	$-\frac{\sqrt{2730}}{364}$	0	0	$-\frac{3\sqrt{182}}{364}$	0	$-\frac{3\sqrt{182}i}{182}$	$-\frac{3\sqrt{182}}{364}$	0	
	0	0	$\frac{\sqrt{2730}}{364}$	0	0	0	0	$\frac{\sqrt{2730}}{364}$	$-\frac{3\sqrt{182}}{364}$	0	$\frac{3\sqrt{182}i}{182}$	0	0	$\frac{3\sqrt{182}}{364}$	
	0	$\frac{9\sqrt{182}}{728}$	0	0	$-\frac{\sqrt{2730}}{728}$	0	0	$\frac{\sqrt{2730}i}{1456}$	0	0	$-\frac{3\sqrt{182}}{364}$	0	0	$-\frac{15\sqrt{182}i}{1456}$	
	$\frac{9\sqrt{182}}{728}$	0	0	0	0	$\frac{\sqrt{2730}}{728}$	$-\frac{\sqrt{2730}i}{1456}$	0	0	0	0	$\frac{3\sqrt{182}}{364}$	$\frac{15\sqrt{182}i}{1456}$	0	
994	symmetry	$-\frac{\sqrt{6006}y(x-z)(x+z)(x^2-4xz+z^2)(x^2+4xz+z^2)}{32}$													

continued ...

Table 10

No.	multipole	matrix												
$\mathbb{M}_7^{(1,-1;a)}(A', 6)$	0	0	$\frac{\sqrt{105}}{56}$	0	0	0	0	$-\frac{\sqrt{105}}{56}$	$\frac{3\sqrt{7}}{56}$	0	0	0	0	$\frac{3\sqrt{7}}{56}$
	0	0	0	$-\frac{\sqrt{105}}{56}$	0	0	$-\frac{\sqrt{105}}{56}$	0	0	$-\frac{3\sqrt{7}}{56}$	0	0	$\frac{3\sqrt{7}}{56}$	0
	$\frac{\sqrt{105}}{56}$	0	0	$\frac{5\sqrt{7}i}{112}$	0	0	0	0	$\frac{\sqrt{105}i}{112}$	0	$\frac{\sqrt{105}}{56}$	0	0	0
	0	$-\frac{\sqrt{105}}{56}$	$-\frac{5\sqrt{7}i}{112}$	0	0	0	0	$-\frac{\sqrt{105}i}{112}$	0	$\frac{\sqrt{105}}{56}$	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	0
	0	$-\frac{\sqrt{105}}{56}$	0	0	0	0	0	$-\frac{5\sqrt{7}i}{112}$	0	0	$\frac{\sqrt{105}}{56}$	0	0	$\frac{\sqrt{105}i}{112}$
	$-\frac{\sqrt{105}}{56}$	0	0	0	0	0	$\frac{5\sqrt{7}i}{112}$	0	0	0	$-\frac{\sqrt{105}}{56}$	$-\frac{\sqrt{105}i}{112}$	0	0
	$\frac{3\sqrt{7}}{56}$	0	0	$\frac{\sqrt{105}i}{112}$	0	0	0	0	$\frac{3\sqrt{7}i}{112}$	0	$\frac{3\sqrt{7}}{56}$	0	0	0
	0	$-\frac{3\sqrt{7}}{56}$	$-\frac{\sqrt{105}i}{112}$	0	0	0	0	$-\frac{3\sqrt{7}i}{112}$	0	$\frac{3\sqrt{7}}{56}$	0	0	0	0
	0	0	0	$\frac{\sqrt{105}}{56}$	0	0	$\frac{\sqrt{105}}{56}$	0	0	$\frac{3\sqrt{7}}{56}$	0	0	$-\frac{3\sqrt{7}}{56}$	0
	0	0	$\frac{\sqrt{105}}{56}$	0	0	0	0	$-\frac{\sqrt{105}}{56}$	$\frac{3\sqrt{7}}{56}$	0	0	0	0	$\frac{3\sqrt{7}}{56}$
	0	$\frac{3\sqrt{7}}{56}$	0	0	0	0	0	$\frac{\sqrt{105}i}{112}$	0	0	$-\frac{3\sqrt{7}}{56}$	0	0	$-\frac{3\sqrt{7}i}{112}$
	$\frac{3\sqrt{7}}{56}$	0	0	0	0	0	$-\frac{\sqrt{105}i}{112}$	0	0	0	$\frac{3\sqrt{7}}{56}$	$\frac{3\sqrt{7}i}{112}$	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	0	$-\frac{\sqrt{15015}}{8008}$	0	0	0	$\frac{\sqrt{15015}}{8008}$	$-\frac{3\sqrt{1001}}{8008}$	0	0	0	0	0	$-\frac{3\sqrt{1001}}{8008}$	
	0	0	0	$\frac{\sqrt{15015}}{8008}$	0	0	$\frac{\sqrt{15015}}{8008}$	0	0	$\frac{3\sqrt{1001}}{8008}$	0	0	$-\frac{3\sqrt{1001}}{8008}$	0	
	$-\frac{\sqrt{15015}}{8008}$	0	0	$\frac{75\sqrt{1001}i}{16016}$	0	$\frac{5\sqrt{1001}}{1001}$	0	0	0	$-\frac{17\sqrt{15015}i}{16016}$	0	$\frac{\sqrt{15015}}{1144}$	0	0	
	0	$\frac{\sqrt{15015}}{8008}$	$-\frac{75\sqrt{1001}i}{16016}$	0	$\frac{5\sqrt{1001}}{1001}$	0	0	$\frac{17\sqrt{15015}i}{16016}$	0	$\frac{\sqrt{15015}}{1144}$	0	0	0		
	0	0	0	$\frac{5\sqrt{1001}}{1001}$	0	0	$-\frac{5\sqrt{1001}}{1001}$	0	0	$-\frac{\sqrt{15015}}{1001}$	0	$-\frac{2\sqrt{15015}i}{1001}$	$-\frac{\sqrt{15015}}{1001}$	0	
	0	0	$\frac{5\sqrt{1001}}{1001}$	0	0	0	$\frac{5\sqrt{1001}}{1001}$	$-\frac{\sqrt{15015}}{1001}$	0	$\frac{2\sqrt{15015}i}{1001}$	0	0	$\frac{\sqrt{15015}}{1001}$		
	0	$\frac{\sqrt{15015}}{8008}$	0	0	$-\frac{5\sqrt{1001}}{1001}$	0	0	$-\frac{75\sqrt{1001}i}{16016}$	0	0	$\frac{\sqrt{15015}}{1144}$	0	0	$-\frac{17\sqrt{15015}i}{16016}$	
	$\frac{\sqrt{15015}}{8008}$	0	0	0	$\frac{5\sqrt{1001}}{1001}$	$\frac{75\sqrt{1001}i}{16016}$	0	0	0	0	$-\frac{\sqrt{15015}}{1144}$	$\frac{17\sqrt{15015}i}{16016}$	0		
	$-\frac{3\sqrt{1001}}{8008}$	0	0	$-\frac{17\sqrt{15015}i}{16016}$	0	$-\frac{\sqrt{15015}}{1001}$	0	0	0	$\frac{45\sqrt{1001}i}{16016}$	0	$-\frac{27\sqrt{1001}}{8008}$	0	0	
	0	$\frac{3\sqrt{1001}}{8008}$	$\frac{17\sqrt{15015}i}{16016}$	0	$-\frac{\sqrt{15015}}{1001}$	0	0	0	$-\frac{45\sqrt{1001}i}{16016}$	0	$-\frac{27\sqrt{1001}}{8008}$	0	0	0	
	0	0	0	$\frac{\sqrt{15015}}{1144}$	0	$-\frac{2\sqrt{15015}i}{1001}$	$\frac{\sqrt{15015}}{1144}$	0	0	$-\frac{27\sqrt{1001}}{8008}$	0	0	$\frac{27\sqrt{1001}}{8008}$	0	
	0	0	$\frac{\sqrt{15015}}{1144}$	0	$\frac{2\sqrt{15015}i}{1001}$	0	0	$-\frac{\sqrt{15015}}{1144}$	$-\frac{27\sqrt{1001}}{8008}$	0	0	0	$-\frac{27\sqrt{1001}}{8008}$		
	0	$-\frac{3\sqrt{1001}}{8008}$	0	0	$-\frac{\sqrt{15015}}{1001}$	0	0	$-\frac{17\sqrt{15015}i}{16016}$	0	0	$\frac{27\sqrt{1001}}{8008}$	0	0	$-\frac{45\sqrt{1001}i}{16016}$	
	$-\frac{3\sqrt{1001}}{8008}$	0	0	0	$\frac{\sqrt{15015}}{1001}$	$\frac{17\sqrt{15015}i}{16016}$	0	0	0	0	$-\frac{27\sqrt{1001}}{8008}$	$\frac{45\sqrt{1001}i}{16016}$	0		

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

continued ...

Table 10

No.	multipole	matrix														
$M_7^{(1,-1;a)}(A'', 1)$	0	$\frac{\sqrt{858}}{286}$	0	0	$-\frac{\sqrt{1430}}{1144}$	0	0	$\frac{\sqrt{1430}i}{1144}$	0	0	$-\frac{3\sqrt{858}}{1144}$	0	0	$-\frac{3\sqrt{858}i}{1144}$		
	$\frac{\sqrt{858}}{286}$	0	0	0	0	$\frac{\sqrt{1430}}{1144}$	$-\frac{\sqrt{1430}i}{1144}$	0	0	0	0	$\frac{3\sqrt{858}}{1144}$	$\frac{3\sqrt{858}i}{1144}$	0		
	0	0	0	$\frac{5\sqrt{858}}{429}$	0	$-\frac{5\sqrt{858}i}{1144}$	$\frac{5\sqrt{858}}{1144}$	0	0	0	0	$-\frac{5\sqrt{1430}i}{1144}$	$-\frac{5\sqrt{1430}}{1144}$	0		
	0	0	$\frac{5\sqrt{858}}{429}$	0	$\frac{5\sqrt{858}i}{1144}$	0	0	$-\frac{5\sqrt{858}}{1144}$	0	0	$\frac{5\sqrt{1430}i}{1144}$	0	0	$\frac{5\sqrt{1430}}{1144}$		
	$-\frac{\sqrt{1430}}{1144}$	0	0	$-\frac{5\sqrt{858}i}{1144}$	0	$-\frac{25\sqrt{858}}{6864}$	0	0	0	$\frac{\sqrt{1430}i}{572}$	0	$-\frac{7\sqrt{1430}}{2288}$	0	0	0	
	0	$\frac{\sqrt{1430}}{1144}$	$\frac{5\sqrt{858}i}{1144}$	0	$-\frac{25\sqrt{858}}{6864}$	0	0	0	$-\frac{\sqrt{1430}i}{572}$	0	$-\frac{7\sqrt{1430}}{2288}$	0	0	0	0	
	0	$\frac{\sqrt{1430}i}{1144}$	$\frac{5\sqrt{858}}{1144}$	0	0	0	0	$-\frac{25\sqrt{858}}{6864}$	$\frac{\sqrt{1430}}{572}$	0	0	0	0	$\frac{7\sqrt{1430}}{2288}$		
	$-\frac{\sqrt{1430}i}{1144}$	0	0	$-\frac{5\sqrt{858}}{1144}$	0	0	$-\frac{25\sqrt{858}}{6864}$	0	0	$-\frac{\sqrt{1430}i}{572}$	0	0	$\frac{7\sqrt{1430}}{2288}$	0		
	0	0	0	0	$\frac{\sqrt{1430}i}{572}$	$\frac{\sqrt{1430}}{572}$	0	0	$\frac{\sqrt{858}}{286}$	0	$\frac{\sqrt{858}i}{572}$	$-\frac{\sqrt{858}}{572}$	0			
	0	0	0	0	$-\frac{\sqrt{1430}i}{572}$	0	0	$-\frac{\sqrt{1430}}{572}$	$\frac{\sqrt{858}}{286}$	0	$-\frac{\sqrt{858}i}{572}$	0	0	$\frac{\sqrt{858}}{572}$		
	$-\frac{3\sqrt{858}}{1144}$	0	0	$-\frac{5\sqrt{1430}i}{1144}$	0	$-\frac{7\sqrt{1430}}{2288}$	0	0	0	$\frac{\sqrt{858}i}{572}$	0	$-\frac{\sqrt{858}}{176}$	0	0	0	
	0	$\frac{3\sqrt{858}}{1144}$	$\frac{5\sqrt{1430}i}{1144}$	0	$-\frac{7\sqrt{1430}}{2288}$	0	0	0	$-\frac{\sqrt{858}i}{572}$	0	$-\frac{\sqrt{858}}{176}$	0	0	0	0	
	0	$-\frac{3\sqrt{858}i}{1144}$	$-\frac{5\sqrt{1430}}{1144}$	0	0	0	0	$\frac{7\sqrt{1430}}{2288}$	$-\frac{\sqrt{858}}{572}$	0	0	0	0	$-\frac{\sqrt{858}}{176}$		
	$\frac{3\sqrt{858}i}{1144}$	0	0	$\frac{5\sqrt{1430}}{1144}$	0	0	$\frac{7\sqrt{1430}}{2288}$	0	0	$\frac{\sqrt{858}}{572}$	0	0	0	$-\frac{\sqrt{858}}{176}$	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													
$M_7^{(1,-1;a)}(A'', 2)$	$\frac{\sqrt{858}}{286}$	0	0	$\frac{\sqrt{1430}i}{1144}$	0	$-\frac{\sqrt{1430}}{1144}$	0	0	0	$\frac{3\sqrt{858}i}{1144}$	0	$\frac{3\sqrt{858}}{1144}$	0	0	
	0	$-\frac{\sqrt{858}}{286}$	$-\frac{\sqrt{1430}i}{1144}$	0	$-\frac{\sqrt{1430}}{1144}$	0	0	0	$-\frac{3\sqrt{858}i}{1144}$	0	$\frac{3\sqrt{858}}{1144}$	0	0	0	
	0	$\frac{\sqrt{1430}i}{1144}$	$-\frac{25\sqrt{858}}{6864}$	0	0	0	0	$\frac{5\sqrt{858}}{1144}$	$-\frac{7\sqrt{1430}}{2288}$	0	0	0	0	$-\frac{\sqrt{1430}}{572}$	
	$-\frac{\sqrt{1430}i}{1144}$	0	0	$\frac{25\sqrt{858}}{6864}$	0	0	$\frac{5\sqrt{858}}{1144}$	0	0	$\frac{7\sqrt{1430}}{2288}$	0	0	$-\frac{\sqrt{1430}}{572}$	0	
	0	$-\frac{\sqrt{1430}}{1144}$	0	0	$-\frac{25\sqrt{858}}{6864}$	0	0	$-\frac{5\sqrt{858}i}{1144}$	0	0	$\frac{7\sqrt{1430}}{2288}$	0	0	$-\frac{\sqrt{1430}i}{572}$	
	$-\frac{\sqrt{1430}}{1144}$	0	0	0	0	$\frac{25\sqrt{858}}{6864}$	$\frac{5\sqrt{858}i}{1144}$	0	0	0	0	$-\frac{7\sqrt{1430}}{2288}$	$\frac{\sqrt{1430}i}{572}$	0	
	0	0	0	$\frac{5\sqrt{858}}{1144}$	0	$-\frac{5\sqrt{858}i}{1144}$	$\frac{5\sqrt{858}}{429}$	0	0	$\frac{5\sqrt{1430}}{1144}$	0	$\frac{5\sqrt{1430}i}{1144}$	0	0	
	0	0	$\frac{5\sqrt{858}}{1144}$	0	$\frac{5\sqrt{858}i}{1144}$	0	0	$-\frac{5\sqrt{858}}{429}$	$\frac{5\sqrt{1430}}{1144}$	0	$-\frac{5\sqrt{1430}i}{1144}$	0	0	0	
	0	$\frac{3\sqrt{858}i}{1144}$	$-\frac{7\sqrt{1430}}{2288}$	0	0	0	0	$\frac{5\sqrt{1430}}{1144}$	$-\frac{\sqrt{858}}{176}$	0	0	0	0	$-\frac{\sqrt{858}}{572}$	
	$-\frac{3\sqrt{858}i}{1144}$	0	0	$\frac{7\sqrt{1430}}{2288}$	0	0	$\frac{5\sqrt{1430}}{1144}$	0	0	$\frac{\sqrt{858}}{176}$	0	0	$-\frac{\sqrt{858}}{572}$	0	
	0	$\frac{3\sqrt{858}}{1144}$	0	0	$\frac{7\sqrt{1430}}{2288}$	0	0	$\frac{5\sqrt{1430}i}{1144}$	0	0	$-\frac{\sqrt{858}}{176}$	0	0	$\frac{\sqrt{858}i}{572}$	
	$\frac{3\sqrt{858}}{1144}$	0	0	0	0	$-\frac{7\sqrt{1430}}{2288}$	$-\frac{5\sqrt{1430}i}{1144}$	0	0	0	0	$\frac{\sqrt{858}}{176}$	$-\frac{\sqrt{858}i}{572}$	0	
	0	0	0	$-\frac{\sqrt{1430}}{572}$	0	$-\frac{\sqrt{1430}i}{572}$	0	0	0	$-\frac{\sqrt{858}}{572}$	0	$\frac{\sqrt{858}i}{572}$	$\frac{\sqrt{858}}{286}$	0	
	0	0	$-\frac{\sqrt{1430}}{572}$	0	$\frac{\sqrt{1430}i}{572}$	0	0	0	$-\frac{\sqrt{858}}{572}$	0	$-\frac{\sqrt{858}i}{572}$	0	0	$-\frac{\sqrt{858}}{286}$	

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													
$M_7^{(1,-1;a)}(A'', 3)$	0	$-\frac{3\sqrt{182}}{182}$	0	0	$\frac{\sqrt{2730}}{728}$	0	0	$-\frac{\sqrt{2730}i}{728}$	0	0	$\frac{9\sqrt{182}}{728}$	0	0	$\frac{9\sqrt{182}i}{728}$	
	$-\frac{3\sqrt{182}}{182}$	0	0	0	0	$-\frac{\sqrt{2730}}{728}$	$\frac{\sqrt{2730}i}{728}$	0	0	0	$-\frac{9\sqrt{182}}{728}$	$-\frac{9\sqrt{182}i}{728}$	0		
	0	0	0	0	0	$-\frac{5\sqrt{182}i}{728}$	$\frac{5\sqrt{182}}{728}$	0	0	0	$\frac{\sqrt{2730}i}{728}$	$\frac{\sqrt{2730}}{728}$	0		
	0	0	0	0	$\frac{5\sqrt{182}i}{728}$	0	0	$-\frac{5\sqrt{182}}{728}$	0	0	$-\frac{\sqrt{2730}i}{728}$	0	0	$-\frac{\sqrt{2730}}{728}$	
	$\frac{\sqrt{2730}}{728}$	0	0	$-\frac{5\sqrt{182}i}{728}$	0	$-\frac{15\sqrt{182}}{1456}$	0	0	0	$\frac{\sqrt{2730}i}{364}$	0	$-\frac{\sqrt{2730}}{1456}$	0	0	
	0	$-\frac{\sqrt{2730}}{728}$	$\frac{5\sqrt{182}i}{728}$	0	$-\frac{15\sqrt{182}}{1456}$	0	0	0	$-\frac{\sqrt{2730}i}{364}$	0	$-\frac{\sqrt{2730}}{1456}$	0	0	0	
	0	$-\frac{\sqrt{2730}i}{728}$	$\frac{5\sqrt{182}}{728}$	0	0	0	0	$-\frac{15\sqrt{182}}{1456}$	$\frac{\sqrt{2730}}{364}$	0	0	0	0	$\frac{\sqrt{2730}}{1456}$	
	$\frac{\sqrt{2730}i}{728}$	0	0	$-\frac{5\sqrt{182}}{728}$	0	0	$-\frac{15\sqrt{182}}{1456}$	0	0	$-\frac{\sqrt{2730}}{364}$	0	0	$\frac{\sqrt{2730}}{1456}$	0	
	0	0	0	0	0	$\frac{\sqrt{2730}i}{364}$	$\frac{\sqrt{2730}}{364}$	0	0	$\frac{3\sqrt{182}}{182}$	0	$\frac{3\sqrt{182}i}{364}$	$-\frac{3\sqrt{182}}{364}$	0	
	0	0	0	0	$-\frac{\sqrt{2730}i}{364}$	0	0	$-\frac{\sqrt{2730}}{364}$	$\frac{3\sqrt{182}}{182}$	0	$-\frac{3\sqrt{182}i}{364}$	0	0	$\frac{3\sqrt{182}}{364}$	
	$\frac{9\sqrt{182}}{728}$	0	0	$\frac{\sqrt{2730}i}{728}$	0	$-\frac{\sqrt{2730}}{1456}$	0	0	0	$\frac{3\sqrt{182}i}{364}$	0	$\frac{15\sqrt{182}}{1456}$	0	0	
	0	$-\frac{9\sqrt{182}}{728}$	$-\frac{\sqrt{2730}i}{728}$	0	$-\frac{\sqrt{2730}}{1456}$	0	0	0	$-\frac{3\sqrt{182}i}{364}$	0	$\frac{15\sqrt{182}}{1456}$	0	0	0	
	0	$\frac{9\sqrt{182}i}{728}$	$\frac{\sqrt{2730}}{728}$	0	0	0	0	$\frac{\sqrt{2730}}{1456}$	$-\frac{3\sqrt{182}}{364}$	0	0	0	0	$\frac{15\sqrt{182}}{1456}$	
	$-\frac{9\sqrt{182}i}{728}$	0	0	$-\frac{\sqrt{2730}}{728}$	0	0	$\frac{\sqrt{2730}}{1456}$	0	0	$\frac{3\sqrt{182}}{364}$	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													
$M_7^{(1,-1;a)}(A'', 4)$	$-\frac{3\sqrt{182}}{182} \quad 0 \quad 0 \quad -\frac{\sqrt{2730}i}{728} \quad 0 \quad \frac{\sqrt{2730}}{728} \quad 0 \quad 0 \quad 0 \quad -\frac{9\sqrt{182}i}{728} \quad 0 \quad -\frac{9\sqrt{182}}{728} \quad 0 \quad 0 \quad 0$														
	$0 \quad \frac{3\sqrt{182}}{182} \quad \frac{\sqrt{2730}i}{728} \quad 0 \quad \frac{\sqrt{2730}}{728} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{9\sqrt{182}i}{728} \quad 0 \quad -\frac{9\sqrt{182}}{728} \quad 0 \quad 0 \quad 0$														
	$0 \quad -\frac{\sqrt{2730}i}{728} \quad -\frac{15\sqrt{182}}{1456} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{182}}{728} \quad -\frac{\sqrt{2730}}{1456} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2730}}{364}$														
	$\frac{\sqrt{2730}i}{728} \quad 0 \quad 0 \quad \frac{15\sqrt{182}}{1456} \quad 0 \quad 0 \quad \frac{5\sqrt{182}}{728} \quad 0 \quad 0 \quad \frac{\sqrt{2730}}{1456} \quad 0 \quad 0 \quad -\frac{\sqrt{2730}}{364} \quad 0$														
	$0 \quad \frac{\sqrt{2730}}{728} \quad 0 \quad 0 \quad -\frac{15\sqrt{182}}{1456} \quad 0 \quad 0 \quad -\frac{5\sqrt{182}i}{728} \quad 0 \quad 0 \quad \frac{\sqrt{2730}}{1456} \quad 0 \quad 0 \quad -\frac{\sqrt{2730}i}{364}$														
	$\frac{\sqrt{2730}}{728} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{15\sqrt{182}}{1456} \quad \frac{5\sqrt{182}i}{728} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2730}}{1456} \quad \frac{\sqrt{2730}i}{364} \quad 0$														
	$0 \quad 0 \quad 0 \quad \frac{5\sqrt{182}}{728} \quad 0 \quad -\frac{5\sqrt{182}i}{728} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2730}}{728} \quad 0 \quad -\frac{\sqrt{2730}i}{728} \quad 0 \quad 0$														
	$0 \quad 0 \quad \frac{5\sqrt{182}}{728} \quad 0 \quad \frac{5\sqrt{182}i}{728} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2730}}{728} \quad 0 \quad \frac{\sqrt{2730}i}{728} \quad 0 \quad 0 \quad 0$														
	$0 \quad -\frac{9\sqrt{182}i}{728} \quad -\frac{\sqrt{2730}}{1456} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2730}}{728} \quad \frac{15\sqrt{182}}{1456} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{182}}{364}$														
	$\frac{9\sqrt{182}i}{728} \quad 0 \quad 0 \quad \frac{\sqrt{2730}}{1456} \quad 0 \quad 0 \quad -\frac{\sqrt{2730}}{728} \quad 0 \quad 0 \quad -\frac{15\sqrt{182}}{1456} \quad 0 \quad 0 \quad -\frac{3\sqrt{182}}{364} \quad 0$														
	$0 \quad -\frac{9\sqrt{182}}{728} \quad 0 \quad 0 \quad \frac{\sqrt{2730}}{1456} \quad 0 \quad 0 \quad -\frac{\sqrt{2730}i}{728} \quad 0 \quad 0 \quad \frac{15\sqrt{182}}{1456} \quad 0 \quad 0 \quad \frac{3\sqrt{182}i}{364}$														
	$-\frac{9\sqrt{182}}{728} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2730}}{1456} \quad \frac{\sqrt{2730}i}{728} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{15\sqrt{182}}{1456} \quad -\frac{3\sqrt{182}i}{364} \quad 0$														
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{2730}}{364} \quad 0 \quad \frac{\sqrt{2730}i}{364} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{182}}{364} \quad 0 \quad \frac{3\sqrt{182}i}{364} \quad \frac{3\sqrt{182}}{182} \quad 0$														
	$0 \quad 0 \quad -\frac{\sqrt{2730}}{364} \quad 0 \quad \frac{\sqrt{2730}i}{364} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{182}}{364} \quad 0 \quad -\frac{3\sqrt{182}i}{364} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{182}}{182}$														
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
$\mathbb{M}_7^{(1,-1:a)}(A'', 5)$	0	0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 $\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{3\sqrt{7}i}{56}$
	0	0 0 0 0 0 $\frac{\sqrt{105}}{56}$ $\frac{\sqrt{105}i}{56}$ 0 0 0 0 $-\frac{3\sqrt{7}}{56}$ $\frac{3\sqrt{7}i}{56}$ 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
	$-\frac{\sqrt{105}}{56}$	0 0 0 0 0 $\frac{5\sqrt{7}}{112}$ 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 $-\frac{\sqrt{105}}{112}$ 0 0
	0	$\frac{\sqrt{105}}{56}$ 0 0 $\frac{5\sqrt{7}}{112}$ 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 $-\frac{\sqrt{105}}{112}$ 0 0 0
	0	$-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0 $-\frac{5\sqrt{7}}{112}$ $\frac{\sqrt{105}}{56}$ 0 0 0 0 $-\frac{\sqrt{105}}{112}$
	$\frac{\sqrt{105}i}{56}$	0 0 0 0 0 $-\frac{5\sqrt{7}}{112}$ 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 $-\frac{\sqrt{105}}{112}$ 0
	0	0 0 0 0 $-\frac{\sqrt{105}i}{56}$ $\frac{\sqrt{105}}{56}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ $\frac{3\sqrt{7}}{56}$ 0
	0	0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{3\sqrt{7}}{56}$
	$\frac{3\sqrt{7}}{56}$	0 0 0 0 $-\frac{\sqrt{105}}{112}$ 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{112}$ 0 0
	0	$-\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{105}}{112}$ 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{112}$ 0 0 0
	0	$-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{112}$ $\frac{3\sqrt{7}}{56}$ 0 0 0 0 $-\frac{3\sqrt{7}}{112}$
	$\frac{3\sqrt{7}i}{56}$	0 0 0 0 0 $-\frac{\sqrt{105}}{112}$ 0 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{3\sqrt{7}}{112}$ 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
$\mathbb{M}_7^{(1,-1:a)}(A'', 6)$	0	0 0 0 $\frac{\sqrt{105}i}{56}$ 0 $\frac{\sqrt{105}}{56}$ 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ 0 0
	0	0 0 $-\frac{\sqrt{105}i}{56}$ 0 $\frac{\sqrt{105}}{56}$ 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{3\sqrt{7}}{56}$ 0 0 0
	0	$\frac{\sqrt{105}i}{56}$ $\frac{5\sqrt{7}}{112}$ 0 0 0 0 0 0 $-\frac{\sqrt{105}}{112}$ 0 0 0 0 $\frac{\sqrt{105}}{56}$
	$-\frac{\sqrt{105}i}{56}$	0 0 0 $-\frac{5\sqrt{7}}{112}$ 0 0 0 0 0 $\frac{\sqrt{105}}{112}$ 0 0 $\frac{\sqrt{105}}{56}$ 0
	0	$\frac{\sqrt{105}}{56}$ 0 0 0 $-\frac{5\sqrt{7}}{112}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{112}$ 0 0 $-\frac{\sqrt{105}i}{56}$
	$\frac{\sqrt{105}}{56}$	0 0 0 0 0 $\frac{5\sqrt{7}}{112}$ 0 0 0 0 0 0 $\frac{\sqrt{105}}{112}$ $\frac{\sqrt{105}i}{56}$ 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
	0	$-\frac{3\sqrt{7}i}{56}$ $-\frac{\sqrt{105}}{112}$ 0 0 0 0 0 0 $\frac{3\sqrt{7}}{112}$ 0 0 0 0 $-\frac{3\sqrt{7}}{56}$
	$\frac{3\sqrt{7}i}{56}$	0 0 $\frac{\sqrt{105}}{112}$ 0 0 0 0 0 0 $-\frac{3\sqrt{7}}{112}$ 0 0 $-\frac{3\sqrt{7}}{56}$ 0
	0	$\frac{3\sqrt{7}}{56}$ 0 0 0 $-\frac{\sqrt{105}}{112}$ 0 0 0 0 0 $-\frac{3\sqrt{7}}{112}$ 0 0 $-\frac{3\sqrt{7}i}{56}$
	$\frac{3\sqrt{7}}{56}$	0 0 0 0 0 $\frac{\sqrt{105}}{112}$ 0 0 0 0 0 0 $\frac{3\sqrt{7}}{112}$ $\frac{3\sqrt{7}i}{56}$ 0
	0	0 0 0 $\frac{\sqrt{105}}{56}$ 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0
	0	0 0 $\frac{\sqrt{105}}{56}$ 0 $\frac{\sqrt{105}i}{56}$ 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0
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														
$M_7^{(1,-1;a)}(A'', 7)$	0	0	0	0	$\frac{\sqrt{15015}}{8008}$	0	0	$\frac{\sqrt{15015}i}{8008}$	0	0	$-\frac{3\sqrt{1001}}{8008}$	0	0	$\frac{3\sqrt{1001}i}{8008}$		
	0	0	0	0	0	$-\frac{\sqrt{15015}}{8008}$	$-\frac{\sqrt{15015}i}{8008}$	0	0	0	0	$\frac{3\sqrt{1001}}{8008}$	$-\frac{3\sqrt{1001}i}{8008}$	0		
	0	0	0	0	0	$\frac{5\sqrt{1001}i}{1001}$	$\frac{5\sqrt{1001}}{1001}$	0	0	$\frac{2\sqrt{15015}}{1001}$	0	$\frac{\sqrt{15015}i}{1001}$	$-\frac{\sqrt{15015}}{1001}$	0		
	0	0	0	0	$-\frac{5\sqrt{1001}i}{1001}$	0	0	$-\frac{5\sqrt{1001}}{1001}$	$\frac{2\sqrt{15015}}{1001}$	0	$-\frac{\sqrt{15015}i}{1001}$	0	0	$\frac{\sqrt{15015}}{1001}$		
	$\frac{\sqrt{15015}}{8008}$	0	0	$\frac{5\sqrt{1001}i}{1001}$	0	$\frac{75\sqrt{1001}}{16016}$	0	0	0	$-\frac{\sqrt{15015}i}{1144}$	0	$\frac{17\sqrt{15015}}{16016}$	0	0		
	0	$-\frac{\sqrt{15015}}{8008}$	$-\frac{5\sqrt{1001}i}{1001}$	0	$\frac{75\sqrt{1001}}{16016}$	0	0	0	$\frac{\sqrt{15015}i}{1144}$	0	$\frac{17\sqrt{15015}}{16016}$	0	0	0	0	
	0	$\frac{\sqrt{15015}i}{8008}$	$\frac{5\sqrt{1001}}{1001}$	0	0	0	0	$-\frac{75\sqrt{1001}}{16016}$	$\frac{\sqrt{15015}}{1144}$	0	0	0	0	$\frac{17\sqrt{15015}}{16016}$	0	
	$-\frac{\sqrt{15015}i}{8008}$	0	0	$-\frac{5\sqrt{1001}}{1001}$	0	0	$-\frac{75\sqrt{1001}}{16016}$	0	0	$-\frac{\sqrt{15015}}{1144}$	0	0	$\frac{17\sqrt{15015}}{16016}$	0		
	0	0	0	$\frac{2\sqrt{15015}}{1001}$	0	$-\frac{\sqrt{15015}i}{1144}$	$\frac{\sqrt{15015}}{1144}$	0	0	0	0	$-\frac{27\sqrt{1001}i}{8008}$	$-\frac{27\sqrt{1001}}{8008}$	0		
	0	0	$\frac{2\sqrt{15015}}{1001}$	0	$\frac{\sqrt{15015}i}{1144}$	0	0	$-\frac{\sqrt{15015}}{1144}$	0	0	0	$\frac{27\sqrt{1001}i}{8008}$	0	0	$\frac{27\sqrt{1001}}{8008}$	
1003 symmetry	$-\frac{3\sqrt{1001}}{8008}$	0	0	$\frac{\sqrt{15015}}{1001}$	0	$\frac{17\sqrt{15015}}{16016}$	0	0	0	$-\frac{27\sqrt{1001}i}{8008}$	0	$\frac{45\sqrt{1001}}{16016}$	0	0	0	
	0	$\frac{3\sqrt{1001}}{8008}$	$-\frac{\sqrt{15015}i}{1001}$	0	$\frac{17\sqrt{15015}}{16016}$	0	0	0	$\frac{27\sqrt{1001}i}{8008}$	0	$\frac{45\sqrt{1001}}{16016}$	0	0	0		
	0	$\frac{3\sqrt{1001}i}{8008}$	$-\frac{\sqrt{15015}}{1001}$	0	0	0	0	$\frac{17\sqrt{15015}}{16016}$	$-\frac{27\sqrt{1001}}{8008}$	0	0	0	0	$-\frac{45\sqrt{1001}}{16016}$		
	$-\frac{3\sqrt{1001}i}{8008}$	0	0	$\frac{\sqrt{15015}}{1001}$	0	0	$\frac{17\sqrt{15015}}{16016}$	0	0	$\frac{27\sqrt{1001}}{8008}$	0	0	0	$-\frac{45\sqrt{1001}}{16016}$	0	

$$\frac{\sqrt{42z(x-y)(x+y)(15x^4+30x^2y^2-80x^2z^2+15y^4-80y^2z^2+48z^4)}}{32}$$

continued ...

Table 10

No.	multipole	matrix														
$M_7^{(1,-1;a)}(A'', 8)$	0	0	0	$-\frac{\sqrt{15015}i}{8008}$	0	$-\frac{\sqrt{15015}}{8008}$	0	0	0	$\frac{3\sqrt{1001}i}{8008}$	0	$-\frac{3\sqrt{1001}}{8008}$	0	0	0	
	0	0	$\frac{\sqrt{15015}i}{8008}$	0	$-\frac{\sqrt{15015}}{8008}$	0	0	0	$-\frac{3\sqrt{1001}i}{8008}$	0	$-\frac{3\sqrt{1001}}{8008}$	0	0	0	0	
	0	$-\frac{\sqrt{15015}i}{8008}$	$\frac{75\sqrt{1001}}{16016}$	0	0	0	0	$-\frac{5\sqrt{1001}}{1001}$	$\frac{17\sqrt{15015}}{16016}$	0	0	0	0	0	$\frac{\sqrt{15015}}{1144}$	
	$\frac{\sqrt{15015}i}{8008}$	0	0	$-\frac{75\sqrt{1001}}{16016}$	0	0	$-\frac{5\sqrt{1001}}{1001}$	0	0	$-\frac{17\sqrt{15015}}{16016}$	0	0	$\frac{\sqrt{15015}}{1144}$	0	0	
	0	$-\frac{\sqrt{15015}}{8008}$	0	0	$-\frac{75\sqrt{1001}}{16016}$	0	0	$-\frac{5\sqrt{1001}i}{1001}$	0	0	$\frac{17\sqrt{15015}}{16016}$	0	0	0	$-\frac{\sqrt{15015}i}{1144}$	
	$-\frac{\sqrt{15015}}{8008}$	0	0	0	0	$\frac{75\sqrt{1001}}{16016}$	$\frac{5\sqrt{1001}i}{1001}$	0	0	0	0	$-\frac{17\sqrt{15015}}{16016}$	$\frac{\sqrt{15015}i}{1144}$	0	0	
	0	0	0	$-\frac{5\sqrt{1001}}{1001}$	0	$-\frac{5\sqrt{1001}i}{1001}$	0	0	0	$-\frac{\sqrt{15015}}{1001}$	0	$\frac{\sqrt{15015}i}{1001}$	$\frac{2\sqrt{15015}}{1001}$	0	0	
	0	0	$-\frac{5\sqrt{1001}}{1001}$	0	$\frac{5\sqrt{1001}i}{1001}$	0	0	0	$-\frac{\sqrt{15015}}{1001}$	0	$-\frac{\sqrt{15015}i}{1001}$	0	0	$-\frac{2\sqrt{15015}}{1001}$		
	0	$\frac{3\sqrt{1001}i}{8008}$	$\frac{17\sqrt{15015}}{16016}$	0	0	0	0	$-\frac{\sqrt{15015}}{1001}$	$\frac{45\sqrt{1001}}{16016}$	0	0	0	0	$\frac{27\sqrt{1001}}{8008}$		
	$-\frac{3\sqrt{1001}i}{8008}$	0	0	$-\frac{17\sqrt{15015}}{16016}$	0	0	$-\frac{\sqrt{15015}}{1001}$	0	0	$-\frac{45\sqrt{1001}}{16016}$	0	0	$\frac{27\sqrt{1001}}{8008}$	0	0	
	0	$-\frac{3\sqrt{1001}}{8008}$	0	0	$\frac{17\sqrt{15015}}{16016}$	0	0	$\frac{\sqrt{15015}i}{1001}$	0	0	$-\frac{45\sqrt{1001}}{16016}$	0	0	$\frac{27\sqrt{1001}i}{8008}$	0	
	$-\frac{3\sqrt{1001}}{8008}$	0	0	0	0	$-\frac{17\sqrt{15015}}{16016}$	$-\frac{\sqrt{15015}i}{1001}$	0	0	0	0	$\frac{45\sqrt{1001}}{16016}$	$-\frac{27\sqrt{1001}i}{8008}$	0		
	0	0	0	$\frac{\sqrt{15015}}{1144}$	0	$-\frac{\sqrt{15015}i}{1144}$	$\frac{2\sqrt{15015}}{1001}$	0	0	$\frac{27\sqrt{1001}}{8008}$	0	$\frac{27\sqrt{1001}i}{8008}$	0	0		
	0	0	$\frac{\sqrt{15015}}{1144}$	0	$\frac{\sqrt{15015}i}{1144}$	0	0	$-\frac{2\sqrt{15015}}{1001}$	$\frac{27\sqrt{1001}}{8008}$	0	$-\frac{27\sqrt{1001}i}{8008}$	0	0	0		

1004 symmetry

y

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_1^{(1,1;a)}(A')$	0 0 $-\frac{\sqrt{7}}{14}$ 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 $-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 0 0 0 0															
	$-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{105}i}{105}$ 0 $-\frac{\sqrt{105}}{280}$ 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{56}$ 0 0 0															
	0 $\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{105}i}{105}$ 0 $-\frac{\sqrt{105}}{280}$ 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{56}$ 0 0 0															
	0 0 0 $-\frac{\sqrt{105}}{280}$ 0 $-\frac{2\sqrt{105}i}{105}$ $-\frac{\sqrt{105}}{280}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 0 $-\frac{\sqrt{7}}{56}$ 0															
	0 0 $-\frac{\sqrt{105}}{280}$ 0 $\frac{2\sqrt{105}i}{105}$ 0 0 $\frac{\sqrt{105}}{280}$ $\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}}{56}$															
	0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{105}}{280}$ 0 0 $\frac{\sqrt{105}i}{105}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$															
	$-\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{105}}{280}$ $-\frac{\sqrt{105}i}{105}$ 0 0 0 0 $-\frac{\sqrt{7}}{56}$ $\frac{\sqrt{7}i}{14}$ 0															
	0 0 0 $\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 0															
	0 0 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 0															
	0 0 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 0 $\frac{\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 $-\frac{\sqrt{105}}{56}$ 0															
	0 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{105}}{56}$ 0 0 0 $\frac{\sqrt{105}}{56}$															
	0 0 0 0 $-\frac{\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{105}}{56}$ 0 0 0															

1005 symmetry

x

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_1^{(1,1;a)}(A'', 1)$	0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0															
	0 0 0 0 0 $\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 0															
	0 0 0 $\frac{2\sqrt{105}}{105}$ 0 $\frac{\sqrt{105}i}{280}$ $-\frac{\sqrt{105}}{280}$ 0 0 0 0 0 $\frac{\sqrt{7}i}{56}$ $\frac{\sqrt{7}}{56}$ 0															
	0 0 $\frac{2\sqrt{105}}{105}$ 0 $-\frac{\sqrt{105}i}{280}$ 0 0 $\frac{\sqrt{105}}{280}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{7}}{56}$															
	$-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{105}i}{280}$ 0 $-\frac{\sqrt{105}}{105}$ 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 0															
	0 $\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{105}i}{280}$ 0 $-\frac{\sqrt{105}}{105}$ 0 0 0 $\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0															
	0 $\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{105}}{280}$ 0 0 0 0 $-\frac{\sqrt{105}}{105}$ $-\frac{\sqrt{7}}{56}$ 0 0 0 0 $-\frac{\sqrt{7}}{14}$															
	$-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{105}}{280}$ 0 0 $-\frac{\sqrt{105}}{105}$ 0 0 $\frac{\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0															
	0 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ $-\frac{\sqrt{7}}{56}$ 0 0 0 0 $\frac{\sqrt{105}i}{56}$ $-\frac{\sqrt{105}}{56}$ 0															
	0 0 0 0 $\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 $\frac{\sqrt{105}}{56}$															
	0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0 0															
	0 0 $\frac{\sqrt{7}}{56}$ 0 0 0 0 $-\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{105}}{56}$ 0 0 0 0 0															
	0 0 0 $-\frac{\sqrt{7}}{56}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{105}}{56}$ 0 0 0 0 0															

1006 symmetry

z

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_1^{(1,1;a)}(A'', 2)$	0 0 0 $\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 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 0 0															
	0 $\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{105}}{105}$ 0 0 0 0 $-\frac{\sqrt{105}}{280}$ $\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $\frac{\sqrt{7}}{56}$															
	$-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{105}}{105}$ 0 0 $-\frac{\sqrt{105}}{280}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{7}}{56}$ 0															
	0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{105}}{105}$ 0 0 $\frac{\sqrt{105}i}{280}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{7}}{56}$ 0															
	$-\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{105}}{105}$ $-\frac{\sqrt{105}i}{280}$ 0 0 0 0 $\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{7}i}{56}$ 0															
	0 0 0 $-\frac{\sqrt{105}}{280}$ 0 $\frac{\sqrt{105}i}{280}$ $\frac{2\sqrt{105}}{105}$ 0 0 $-\frac{\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0															
	0 0 $-\frac{\sqrt{105}}{280}$ 0 $-\frac{\sqrt{105}i}{280}$ 0 0 $-\frac{2\sqrt{105}}{105}$ $-\frac{\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 0 0															
	0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0															
	0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0															
	0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{105}i}{56}$ 0															
	0 0 0 0 0 $\frac{\sqrt{7}}{14}$ $\frac{\sqrt{7}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 $\frac{\sqrt{105}i}{56}$ 0															
	0 0 0 $\frac{\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{56}$ 0 0 0 $-\frac{\sqrt{105}}{56}$ 0 $-\frac{\sqrt{105}i}{56}$ 0 0 0 0															

1007 symmetry

 $\sqrt{15}xyz$ 

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(A', 1)$	0 0 0 $-\frac{\sqrt{77}}{154}$ 0 $\frac{\sqrt{77}i}{154}$ $-\frac{\sqrt{77}}{154}$ 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{77}}{154}$ 0 $-\frac{\sqrt{77}i}{154}$ 0 0 $\frac{\sqrt{77}}{154}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{77}}{154}$ 0 0 $\frac{\sqrt{1155}}{154}$ 0 0 $-\frac{\sqrt{1155}i}{154}$ 0 0 $-\frac{\sqrt{77}}{77}$ 0 0 $-\frac{\sqrt{77}i}{77}$	
	$-\frac{\sqrt{77}}{154}$ 0 0 0 0 $-\frac{\sqrt{1155}}{154}$ $\frac{\sqrt{1155}i}{154}$ 0 0 0 0 $\frac{\sqrt{77}}{77}$ $\frac{\sqrt{77}i}{77}$ 0	
	0 $\frac{\sqrt{77}i}{154}$ $\frac{\sqrt{1155}}{154}$ 0 0 0 0 $\frac{\sqrt{1155}}{154}$ $\frac{\sqrt{77}}{77}$ 0 0 0 0 $-\frac{\sqrt{77}}{77}$	
	$-\frac{\sqrt{77}i}{154}$ 0 0 $-\frac{\sqrt{1155}}{154}$ 0 0 $\frac{\sqrt{1155}}{154}$ 0 0 $-\frac{\sqrt{77}}{77}$ 0 0 $-\frac{\sqrt{77}}{77}$ 0	
	$-\frac{\sqrt{77}}{154}$ 0 0 $-\frac{\sqrt{1155}i}{154}$ 0 $\frac{\sqrt{1155}}{154}$ 0 0 0 $\frac{\sqrt{77}i}{77}$ 0 $\frac{\sqrt{77}}{77}$ 0 0	
	0 $\frac{\sqrt{77}}{154}$ $\frac{\sqrt{1155}i}{154}$ 0 $\frac{\sqrt{1155}}{154}$ 0 0 0 $-\frac{\sqrt{77}i}{77}$ 0 $\frac{\sqrt{77}}{77}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{77}}{77}$ 0 0 $\frac{\sqrt{77}i}{77}$ 0 0 $\frac{\sqrt{1155}}{462}$ 0 0 $-\frac{\sqrt{1155}i}{462}$	
	0 0 0 0 0 $-\frac{\sqrt{77}}{77}$ $-\frac{\sqrt{77}i}{77}$ 0 0 0 0 $-\frac{\sqrt{1155}}{462}$ $\frac{\sqrt{1155}i}{462}$ 0	
	0 0 $-\frac{\sqrt{77}}{77}$ 0 0 0 0 $\frac{\sqrt{77}}{77}$ $\frac{\sqrt{1155}}{462}$ 0 0 0 0 $\frac{\sqrt{1155}}{462}$	
	0 0 0 $\frac{\sqrt{77}}{77}$ 0 0 $\frac{\sqrt{77}}{77}$ 0 0 $-\frac{\sqrt{1155}}{462}$ 0 0 $\frac{\sqrt{1155}}{462}$ 0 0	
	0 0 0 $-\frac{\sqrt{77}i}{77}$ 0 $-\frac{\sqrt{77}}{77}$ 0 0 0 $-\frac{\sqrt{1155}i}{462}$ 0 $\frac{\sqrt{1155}}{462}$ 0 0 0	
	0 0 $\frac{\sqrt{77}i}{77}$ 0 $-\frac{\sqrt{77}}{77}$ 0 0 0 $\frac{\sqrt{1155}i}{462}$ 0 $\frac{\sqrt{1155}}{462}$ 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	$\frac{\sqrt{77}i}{33}$	$\frac{\sqrt{1155}}{1848}$	0	0	0	0	$\frac{\sqrt{1155}}{1848}$	$\frac{5\sqrt{77}}{264}$	0	0	0	0	$-\frac{5\sqrt{77}}{264}$	
	$-\frac{\sqrt{77}i}{33}$	0	0	$-\frac{\sqrt{1155}}{1848}$	0	0	$\frac{\sqrt{1155}}{1848}$	0	0	$-\frac{5\sqrt{77}}{264}$	0	0	$-\frac{5\sqrt{77}}{264}$	0	
	$\frac{\sqrt{1155}}{1848}$	0	0	$-\frac{3\sqrt{77}i}{308}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	0	$-\frac{\sqrt{1155}i}{924}$	0	$\frac{3\sqrt{1155}}{616}$	0	0	
	0	$-\frac{\sqrt{1155}}{1848}$	$\frac{3\sqrt{77}i}{308}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	0	$\frac{\sqrt{1155}i}{924}$	0	$\frac{3\sqrt{1155}}{616}$	0	0	0	
	0	0	0	$-\frac{5\sqrt{77}}{616}$	0	$-\frac{2\sqrt{77}i}{77}$	$-\frac{5\sqrt{77}}{616}$	0	0	$\frac{5\sqrt{1155}}{1848}$	0	0	$-\frac{5\sqrt{1155}}{1848}$	0	
	0	0	$-\frac{5\sqrt{77}}{616}$	0	$\frac{2\sqrt{77}i}{77}$	0	0	$\frac{5\sqrt{77}}{616}$	$\frac{5\sqrt{1155}}{1848}$	0	0	0	0	$\frac{5\sqrt{1155}}{1848}$	
	0	$\frac{\sqrt{1155}}{1848}$	0	0	$-\frac{5\sqrt{77}}{616}$	0	0	$-\frac{3\sqrt{77}i}{308}$	0	0	$-\frac{3\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{1155}i}{924}$	
	$\frac{\sqrt{1155}}{1848}$	0	0	0	0	$\frac{5\sqrt{77}}{616}$	$\frac{3\sqrt{77}i}{308}$	0	0	0	0	$\frac{3\sqrt{1155}}{616}$	$-\frac{\sqrt{1155}i}{924}$	0	
	$\frac{5\sqrt{77}}{264}$	0	0	$-\frac{\sqrt{1155}i}{924}$	0	$\frac{5\sqrt{1155}}{1848}$	0	0	0	$-\frac{\sqrt{77}i}{132}$	0	$-\frac{5\sqrt{77}}{1848}$	0	0	
	0	$-\frac{5\sqrt{77}}{264}$	$\frac{\sqrt{1155}i}{924}$	0	$\frac{5\sqrt{1155}}{1848}$	0	0	0	$\frac{\sqrt{77}i}{132}$	0	$-\frac{5\sqrt{77}}{1848}$	0	0	0	
	0	0	0	$\frac{3\sqrt{1155}}{616}$	0	0	$-\frac{3\sqrt{1155}}{616}$	0	0	$-\frac{5\sqrt{77}}{1848}$	0	$\frac{\sqrt{77}i}{33}$	$-\frac{5\sqrt{77}}{1848}$	0	
	0	0	$\frac{3\sqrt{1155}}{616}$	0	0	0	0	$\frac{3\sqrt{1155}}{616}$	$-\frac{5\sqrt{77}}{1848}$	0	$-\frac{\sqrt{77}i}{33}$	0	0	$\frac{5\sqrt{77}}{1848}$	
	0	$-\frac{5\sqrt{77}}{264}$	0	0	$-\frac{5\sqrt{1155}}{1848}$	0	0	$\frac{\sqrt{1155}i}{924}$	0	0	$-\frac{5\sqrt{77}}{1848}$	0	0	$-\frac{\sqrt{77}i}{132}$	
	$-\frac{5\sqrt{77}}{264}$	0	0	0	0	$\frac{5\sqrt{1155}}{1848}$	$-\frac{\sqrt{1155}i}{924}$	0	0	0	0	$\frac{5\sqrt{77}}{1848}$	$\frac{\sqrt{77}i}{132}$	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	0	$\frac{3\sqrt{77}}{616}$	0	0	0	0	$-\frac{3\sqrt{77}}{616}$	$-\frac{\sqrt{1155}}{264}$	0	0	0	0	$-\frac{\sqrt{1155}}{264}$		
	0	0	0	$-\frac{3\sqrt{77}}{616}$	0	0	$-\frac{3\sqrt{77}}{616}$	0	0	$\frac{\sqrt{1155}}{264}$	0	0	$-\frac{\sqrt{1155}}{264}$	0		
	$\frac{3\sqrt{77}}{616}$	0	0	$-\frac{\sqrt{1155}i}{308}$	0	$\frac{3\sqrt{1155}}{616}$	0	0	0	$-\frac{\sqrt{77}i}{308}$	0	$\frac{\sqrt{77}}{616}$	0	0	0	
	0	$-\frac{3\sqrt{77}}{616}$	$\frac{\sqrt{1155}i}{308}$	0	$\frac{3\sqrt{1155}}{616}$	0	0	0	$\frac{\sqrt{77}i}{308}$	0	$\frac{\sqrt{77}}{616}$	0	0	0		
	0	0	0	$\frac{3\sqrt{1155}}{616}$	0	0	$-\frac{3\sqrt{1155}}{616}$	0	0	$\frac{13\sqrt{77}}{616}$	0	$\frac{\sqrt{77}i}{154}$	$\frac{13\sqrt{77}}{616}$	0		
	0	0	$\frac{3\sqrt{1155}}{616}$	0	0	0	0	$\frac{3\sqrt{1155}}{616}$	$\frac{13\sqrt{77}}{616}$	0	$-\frac{\sqrt{77}i}{154}$	0	0	$-\frac{13\sqrt{77}}{616}$		
	0	$-\frac{3\sqrt{77}}{616}$	0	0	$-\frac{3\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{1155}i}{308}$	0	0	$\frac{\sqrt{77}}{616}$	0	0	$-\frac{\sqrt{77}i}{308}$		
	$-\frac{3\sqrt{77}}{616}$	0	0	0	0	$\frac{3\sqrt{1155}}{616}$	$-\frac{\sqrt{1155}i}{308}$	0	0	0	0	$-\frac{\sqrt{77}}{616}$	$\frac{\sqrt{77}i}{308}$	0		
	$-\frac{\sqrt{1155}}{264}$	0	0	$-\frac{\sqrt{77}i}{308}$	0	$\frac{13\sqrt{77}}{616}$	0	0	0	$\frac{\sqrt{1155}i}{132}$	0	$\frac{\sqrt{1155}}{616}$	0	0		
	0	$\frac{\sqrt{1155}}{264}$	$\frac{\sqrt{77}i}{308}$	0	$\frac{13\sqrt{77}}{616}$	0	0	0	$-\frac{\sqrt{1155}i}{132}$	0	$\frac{\sqrt{1155}}{616}$	0	0	0		
	0	0	0	$\frac{\sqrt{77}}{616}$	0	$\frac{\sqrt{77}i}{154}$	$\frac{\sqrt{77}}{616}$	0	0	$\frac{\sqrt{1155}}{616}$	0	0	$-\frac{\sqrt{1155}}{616}$	0		
	0	0	$\frac{\sqrt{77}}{616}$	0	$-\frac{\sqrt{77}i}{154}$	0	0	$-\frac{\sqrt{77}}{616}$	$\frac{\sqrt{1155}}{616}$	0	0	0	0	$\frac{\sqrt{1155}}{616}$		
	0	$-\frac{\sqrt{1155}}{264}$	0	0	$\frac{13\sqrt{77}}{616}$	0	0	$-\frac{\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{1155}}{616}$	0	0	$-\frac{\sqrt{1155}i}{132}$		
	$-\frac{\sqrt{1155}}{264}$	0	0	0	0	$-\frac{13\sqrt{77}}{616}$	$\frac{\sqrt{77}i}{308}$	0	0	0	0	$\frac{\sqrt{1155}}{616}$	$\frac{\sqrt{1155}i}{132}$	0		

1010 symmetry

$$\frac{x(2x^2 - 3y^2 - 3z^2)}{2}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,1;a)}(A'', 1)$	0	$-\frac{\sqrt{77}}{33}$	0	0	$\frac{\sqrt{1155}}{1848}$	0	0	$-\frac{\sqrt{1155}i}{1848}$	0	0	$-\frac{5\sqrt{77}}{264}$	0	0	$-\frac{5\sqrt{77}i}{264}$	
	$-\frac{\sqrt{77}}{33}$	0	0	0	0	$-\frac{\sqrt{1155}}{1848}$	$\frac{\sqrt{1155}i}{1848}$	0	0	0	0	$\frac{5\sqrt{77}}{264}$	$\frac{5\sqrt{77}i}{264}$	0	
	0	0	0	$\frac{2\sqrt{77}}{77}$	0	$\frac{5\sqrt{77}i}{616}$	$-\frac{5\sqrt{77}}{616}$	0	0	0	0	$\frac{5\sqrt{1155}i}{1848}$	$\frac{5\sqrt{1155}}{1848}$	0	
	0	0	$\frac{2\sqrt{77}}{77}$	0	$-\frac{5\sqrt{77}i}{616}$	0	0	$\frac{5\sqrt{77}}{616}$	0	0	$-\frac{5\sqrt{1155}i}{1848}$	0	0	$-\frac{5\sqrt{1155}}{1848}$	
	$\frac{\sqrt{1155}}{1848}$	0	0	$\frac{5\sqrt{77}i}{616}$	0	$\frac{3\sqrt{77}}{308}$	0	0	0	$\frac{3\sqrt{1155}i}{616}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	
	0	$-\frac{\sqrt{1155}}{1848}$	$-\frac{5\sqrt{77}i}{616}$	0	$\frac{3\sqrt{77}}{308}$	0	0	0	$-\frac{3\sqrt{1155}i}{616}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	
	0	$-\frac{\sqrt{1155}i}{1848}$	$-\frac{5\sqrt{77}}{616}$	0	0	0	0	$\frac{3\sqrt{77}}{308}$	$\frac{3\sqrt{1155}}{616}$	0	0	0	0	$\frac{\sqrt{1155}}{924}$	
	$\frac{\sqrt{1155}i}{1848}$	0	0	$\frac{5\sqrt{77}}{616}$	0	0	$\frac{3\sqrt{77}}{308}$	0	0	$-\frac{3\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{1155}}{924}$	0	
	0	0	0	0	0	$\frac{3\sqrt{1155}i}{616}$	$\frac{3\sqrt{1155}}{616}$	0	0	$-\frac{\sqrt{77}}{33}$	0	$\frac{5\sqrt{77}i}{1848}$	$-\frac{5\sqrt{77}}{1848}$	0	
	0	0	0	0	$-\frac{3\sqrt{1155}i}{616}$	0	0	$-\frac{3\sqrt{1155}}{616}$	$-\frac{\sqrt{77}}{33}$	0	$-\frac{5\sqrt{77}i}{1848}$	0	0	$\frac{5\sqrt{77}}{1848}$	
	$-\frac{5\sqrt{77}}{264}$	0	0	$\frac{5\sqrt{1155}i}{1848}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	$\frac{5\sqrt{77}i}{1848}$	0	$\frac{\sqrt{77}}{132}$	0	0	
	0	$\frac{5\sqrt{77}}{264}$	$-\frac{5\sqrt{1155}i}{1848}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	$-\frac{5\sqrt{77}i}{1848}$	0	$\frac{\sqrt{77}}{132}$	0	0	0	
	0	$-\frac{5\sqrt{77}i}{264}$	$\frac{5\sqrt{1155}}{1848}$	0	0	0	$\frac{\sqrt{1155}}{924}$	$-\frac{5\sqrt{77}}{1848}$	0	0	0	0	$\frac{\sqrt{77}}{132}$	0	
	$\frac{5\sqrt{77}i}{264}$	0	0	$-\frac{5\sqrt{1155}}{1848}$	0	0	$\frac{\sqrt{1155}}{924}$	0	0	$\frac{5\sqrt{77}}{1848}$	0	0	$\frac{\sqrt{77}}{132}$	0	
1011	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_3^{(1,1;a)}(A'', 2)$	$-\frac{\sqrt{77}}{33}$	0	0	$-\frac{\sqrt{1155}i}{1848}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	0	$\frac{5\sqrt{77}i}{264}$	0	$\frac{5\sqrt{77}}{264}$	0	0	0	
	0	$\frac{\sqrt{77}}{33}$	$\frac{\sqrt{1155}i}{1848}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	0	$-\frac{5\sqrt{77}i}{264}$	0	$\frac{5\sqrt{77}}{264}$	0	0	0	0	
	0	$-\frac{\sqrt{1155}i}{1848}$	$\frac{3\sqrt{77}}{308}$	0	0	0	0	$-\frac{5\sqrt{77}}{616}$	$-\frac{\sqrt{1155}}{924}$	0	0	0	0	0	$-\frac{3\sqrt{1155}}{616}$	
	$\frac{\sqrt{1155}i}{1848}$	0	0	$-\frac{3\sqrt{77}}{308}$	0	0	$-\frac{5\sqrt{77}}{616}$	0	0	$\frac{\sqrt{1155}}{924}$	0	0	$-\frac{3\sqrt{1155}}{616}$	0	0	
	0	$\frac{\sqrt{1155}}{1848}$	0	0	$\frac{3\sqrt{77}}{308}$	0	0	$\frac{5\sqrt{77}i}{616}$	0	0	$\frac{\sqrt{1155}}{924}$	0	0	$-\frac{3\sqrt{1155}i}{616}$	0	
	$\frac{\sqrt{1155}}{1848}$	0	0	0	0	$-\frac{3\sqrt{77}}{308}$	$-\frac{5\sqrt{77}i}{616}$	0	0	0	0	$-\frac{\sqrt{1155}}{924}$	$\frac{3\sqrt{1155}i}{616}$	0	0	
	0	0	0	$-\frac{5\sqrt{77}}{616}$	0	$\frac{5\sqrt{77}i}{616}$	$\frac{2\sqrt{77}}{77}$	0	0	$-\frac{5\sqrt{1155}}{1848}$	0	$-\frac{5\sqrt{1155}i}{1848}$	0	0	0	
	0	$-\frac{5\sqrt{77}}{616}$	0	$-\frac{5\sqrt{77}i}{616}$	0	0	$-\frac{2\sqrt{77}}{77}$	$-\frac{5\sqrt{1155}}{1848}$	0	$\frac{5\sqrt{1155}i}{1848}$	0	0	0	0	0	
	0	$\frac{5\sqrt{77}i}{264}$	$-\frac{\sqrt{1155}}{924}$	0	0	0	0	$-\frac{5\sqrt{1155}}{1848}$	$\frac{\sqrt{77}}{132}$	0	0	0	0	0	$-\frac{5\sqrt{77}}{1848}$	
	$-\frac{5\sqrt{77}i}{264}$	0	0	$\frac{\sqrt{1155}}{924}$	0	0	$-\frac{5\sqrt{1155}}{1848}$	0	0	$-\frac{\sqrt{77}}{132}$	0	0	$-\frac{5\sqrt{77}}{1848}$	0	0	
	0	$\frac{5\sqrt{77}}{264}$	0	0	$\frac{\sqrt{1155}}{924}$	0	0	$-\frac{5\sqrt{1155}i}{1848}$	0	0	$\frac{\sqrt{77}}{132}$	0	0	$\frac{5\sqrt{77}i}{1848}$	0	
	$\frac{5\sqrt{77}}{264}$	0	0	0	0	$-\frac{\sqrt{1155}}{924}$	$\frac{5\sqrt{1155}i}{1848}$	0	0	0	0	$-\frac{\sqrt{77}}{132}$	$-\frac{5\sqrt{77}i}{1848}$	0	0	
	0	0	0	$-\frac{3\sqrt{1155}}{616}$	0	$-\frac{3\sqrt{1155}i}{616}$	0	0	0	$-\frac{5\sqrt{77}}{1848}$	0	$\frac{5\sqrt{77}i}{1848}$	$-\frac{\sqrt{77}}{33}$	0	0	
	0	0	$-\frac{3\sqrt{1155}}{616}$	0	$\frac{3\sqrt{1155}i}{616}$	0	0	0	$-\frac{5\sqrt{77}}{1848}$	0	$-\frac{5\sqrt{77}i}{1848}$	0	0	$\frac{\sqrt{77}}{33}$	0	
$\frac{\sqrt{15}x(y-z)(y+z)}{2}$																

1012 symmetry

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_3^{(1,1;a)}(A'', 3)$	0	0	0	0	$-\frac{3\sqrt{77}}{616}$	0	0	$-\frac{3\sqrt{77}i}{616}$	0	0	$-\frac{\sqrt{1155}}{264}$	0	0	$\frac{\sqrt{1155}i}{264}$		
	0	0	0	0	0	$\frac{3\sqrt{77}}{616}$	$\frac{3\sqrt{77}i}{616}$	0	0	0	$\frac{\sqrt{1155}}{264}$	$-\frac{\sqrt{1155}i}{264}$	0			
	0	0	0	0	0	$\frac{3\sqrt{1155}i}{616}$	$\frac{3\sqrt{1155}}{616}$	0	0	$-\frac{\sqrt{77}}{154}$	0	$-\frac{13\sqrt{77}i}{616}$	$\frac{13\sqrt{77}}{616}$	0		
	0	0	0	0	$-\frac{3\sqrt{1155}i}{616}$	0	0	$-\frac{3\sqrt{1155}}{616}$	$-\frac{\sqrt{77}}{154}$	0	$\frac{13\sqrt{77}i}{616}$	0	0	$-\frac{13\sqrt{77}}{616}$		
	$-\frac{3\sqrt{77}}{616}$	0	0	$\frac{3\sqrt{1155}i}{616}$	0	$-\frac{\sqrt{1155}}{308}$	0	0	0	$-\frac{\sqrt{77}i}{616}$	0	$\frac{\sqrt{77}}{308}$	0	0	0	
	0	$\frac{3\sqrt{77}}{616}$	$-\frac{3\sqrt{1155}i}{616}$	0	$-\frac{\sqrt{1155}}{308}$	0	0	0	$\frac{\sqrt{77}i}{616}$	0	$\frac{\sqrt{77}}{308}$	0	0	0	0	
	0	$-\frac{3\sqrt{77}i}{616}$	$\frac{3\sqrt{1155}}{616}$	0	0	0	0	$\frac{\sqrt{1155}}{308}$	$\frac{\sqrt{77}}{616}$	0	0	0	0	$\frac{\sqrt{77}}{308}$		
	$\frac{3\sqrt{77}i}{616}$	0	0	$-\frac{3\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{1155}}{308}$	0	0	$-\frac{\sqrt{77}}{616}$	0	0	$\frac{\sqrt{77}}{308}$	0		
	0	0	0	$-\frac{\sqrt{77}}{154}$	0	$-\frac{\sqrt{77}i}{616}$	$\frac{\sqrt{77}}{616}$	0	0	0	0	$\frac{\sqrt{1155}i}{616}$	$\frac{\sqrt{1155}}{616}$	0		
	0	0	$-\frac{\sqrt{77}}{154}$	0	$\frac{\sqrt{77}i}{616}$	0	0	$-\frac{\sqrt{77}}{616}$	0	0	$-\frac{\sqrt{1155}i}{616}$	0	0	$-\frac{\sqrt{1155}}{616}$		
	$-\frac{\sqrt{1155}}{264}$	0	0	$-\frac{13\sqrt{77}i}{616}$	0	$\frac{\sqrt{77}}{308}$	0	0	0	$\frac{\sqrt{1155}i}{616}$	0	$\frac{\sqrt{1155}}{132}$	0	0	0	
	0	$\frac{\sqrt{1155}}{264}$	$\frac{13\sqrt{77}i}{616}$	0	$\frac{\sqrt{77}}{308}$	0	0	0	$-\frac{\sqrt{1155}i}{616}$	0	$\frac{\sqrt{1155}}{132}$	0	0	0	0	
	0	$\frac{\sqrt{1155}i}{264}$	$\frac{13\sqrt{77}}{616}$	0	0	0	$\frac{\sqrt{77}}{308}$	$\frac{\sqrt{1155}}{616}$	0	0	0	0	0	$-\frac{\sqrt{1155}}{132}$		
	$-\frac{\sqrt{1155}i}{264}$	0	0	$-\frac{13\sqrt{77}}{616}$	0	0	$\frac{\sqrt{77}}{308}$	0	0	$-\frac{\sqrt{1155}}{616}$	0	0	0	$-\frac{\sqrt{1155}}{132}$	0	

1013 symmetry

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,1;a)}(A'', 4)$	0 0 0 $\frac{3\sqrt{77}i}{616}$ 0 $\frac{3\sqrt{77}}{616}$ 0 0 0 $\frac{\sqrt{1155}i}{264}$ 0 $-\frac{\sqrt{1155}}{264}$ 0 0														
	0 0 $-\frac{3\sqrt{77}i}{616}$ 0 $\frac{3\sqrt{77}}{616}$ 0 0 0 $-\frac{\sqrt{1155}i}{264}$ 0 $-\frac{\sqrt{1155}}{264}$ 0 0 0														
	0 $\frac{3\sqrt{77}i}{616}$ $-\frac{\sqrt{1155}}{308}$ 0 0 0 0 $-\frac{3\sqrt{1155}}{616}$ $\frac{\sqrt{77}}{308}$ 0 0 0 0 $\frac{\sqrt{77}}{616}$														
	$-\frac{3\sqrt{77}i}{616}$ 0 0 $\frac{\sqrt{1155}}{308}$ 0 0 $-\frac{3\sqrt{1155}}{616}$ 0 0 $-\frac{\sqrt{77}}{308}$ 0 0 $\frac{\sqrt{77}}{616}$ 0														
	0 $\frac{3\sqrt{77}}{616}$ 0 0 $\frac{\sqrt{1155}}{308}$ 0 0 $-\frac{3\sqrt{1155}i}{616}$ 0 0 $\frac{\sqrt{77}}{308}$ 0 0 $-\frac{\sqrt{77}i}{616}$														
	$\frac{3\sqrt{77}}{616}$ 0 0 0 0 $-\frac{\sqrt{1155}}{308}$ $\frac{3\sqrt{1155}i}{616}$ 0 0 0 0 $-\frac{\sqrt{77}}{308}$ $\frac{\sqrt{77}i}{616}$ 0														
	0 0 0 $-\frac{3\sqrt{1155}}{616}$ 0 $-\frac{3\sqrt{1155}i}{616}$ 0 0 0 $\frac{13\sqrt{77}}{616}$ 0 $-\frac{13\sqrt{77}i}{616}$ $-\frac{\sqrt{77}}{154}$ 0														
	0 0 $-\frac{3\sqrt{1155}}{616}$ 0 $\frac{3\sqrt{1155}i}{616}$ 0 0 0 $\frac{13\sqrt{77}}{616}$ 0 $\frac{13\sqrt{77}i}{616}$ 0 0 $\frac{\sqrt{77}}{154}$														
	0 $\frac{\sqrt{1155}i}{264}$ $\frac{\sqrt{77}}{308}$ 0 0 0 0 $\frac{13\sqrt{77}}{616}$ $\frac{\sqrt{1155}}{132}$ 0 0 0 0 $-\frac{\sqrt{1155}}{616}$														
	$-\frac{\sqrt{1155}i}{264}$ 0 0 $-\frac{\sqrt{77}}{308}$ 0 0 $\frac{13\sqrt{77}}{616}$ 0 0 $-\frac{\sqrt{1155}}{132}$ 0 0 $-\frac{\sqrt{1155}}{616}$ 0														
	0 $-\frac{\sqrt{1155}}{264}$ 0 0 $\frac{\sqrt{77}}{308}$ 0 0 $-\frac{13\sqrt{77}i}{616}$ 0 0 $-\frac{\sqrt{1155}}{132}$ 0 0 $-\frac{\sqrt{1155}i}{616}$														
	$-\frac{\sqrt{1155}}{264}$ 0 0 0 0 $-\frac{\sqrt{77}}{308}$ $\frac{13\sqrt{77}i}{616}$ 0 0 0 0 $\frac{\sqrt{1155}}{132}$ $\frac{\sqrt{1155}i}{616}$ 0														
	0 0 0 $\frac{\sqrt{77}}{616}$ 0 $-\frac{\sqrt{77}i}{616}$ $-\frac{\sqrt{77}}{154}$ 0 0 $-\frac{\sqrt{1155}}{616}$ 0 $-\frac{\sqrt{1155}i}{616}$ 0 0														
	0 0 $\frac{\sqrt{77}}{616}$ 0 $\frac{\sqrt{77}i}{616}$ 0 0 $\frac{\sqrt{77}}{154}$ $-\frac{\sqrt{1155}}{616}$ 0 $\frac{\sqrt{1155}i}{616}$ 0 0 0														
$\frac{3\sqrt{35xyz(x-y)(x+y)}}{2}$															

1014 symmetry

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

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,1;a)}(A', 1)$	0	0	0	$\frac{4\sqrt{429}}{429}$	0	$\frac{4\sqrt{429}i}{429}$	0	0	0	$-\frac{\sqrt{715}}{286}$	0	$\frac{\sqrt{715}i}{286}$	$\frac{\sqrt{715}}{143}$	0	0	
	0	0	$\frac{4\sqrt{429}}{429}$	0	$-\frac{4\sqrt{429}i}{429}$	0	0	0	$-\frac{\sqrt{715}}{286}$	0	$-\frac{\sqrt{715}i}{286}$	0	0	$-\frac{\sqrt{715}}{143}$		
	0	$\frac{4\sqrt{429}}{429}$	0	0	0	0	0	$\frac{\sqrt{715}i}{1144}$	0	0	$\frac{5\sqrt{429}}{858}$	0	0	$\frac{23\sqrt{429}i}{3432}$		
	$\frac{4\sqrt{429}}{429}$	0	0	0	0	0	$-\frac{\sqrt{715}i}{1144}$	0	0	0	0	$-\frac{5\sqrt{429}}{858}$	$-\frac{23\sqrt{429}i}{3432}$	0		
	0	$\frac{4\sqrt{429}i}{429}$	0	0	0	0	0	$\frac{\sqrt{715}}{1144}$	$\frac{5\sqrt{429}}{858}$	0	0	0	0	$-\frac{23\sqrt{429}}{3432}$		
	$-\frac{4\sqrt{429}i}{429}$	0	0	0	0	0	$\frac{\sqrt{715}}{1144}$	0	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{23\sqrt{429}}{3432}$	0		
	0	0	0	$\frac{\sqrt{715}i}{1144}$	0	$\frac{\sqrt{715}}{1144}$	0	0	0	$-\frac{\sqrt{429}i}{1144}$	0	$\frac{\sqrt{429}}{1144}$	0	0		
	0	0	$-\frac{\sqrt{715}i}{1144}$	0	$\frac{\sqrt{715}}{1144}$	0	0	0	$\frac{\sqrt{429}i}{1144}$	0	$\frac{\sqrt{429}}{1144}$	0	0	0		
	0	$-\frac{\sqrt{715}}{286}$	0	0	$\frac{5\sqrt{429}}{858}$	0	0	$-\frac{\sqrt{429}i}{1144}$	0	0	0	0	0	$-\frac{7\sqrt{715}i}{1144}$		
	$-\frac{\sqrt{715}}{286}$	0	0	0	0	$-\frac{5\sqrt{429}}{858}$	$\frac{\sqrt{429}i}{1144}$	0	0	0	0	0	$\frac{7\sqrt{715}i}{1144}$	0		
	0	$\frac{\sqrt{715}i}{286}$	$\frac{5\sqrt{429}}{858}$	0	0	0	0	$\frac{\sqrt{429}}{1144}$	0	0	0	0	0	$-\frac{7\sqrt{715}}{1144}$		
	$-\frac{\sqrt{715}i}{286}$	0	0	$-\frac{5\sqrt{429}}{858}$	0	0	$\frac{\sqrt{429}}{1144}$	0	0	0	0	0	$-\frac{7\sqrt{715}}{1144}$	0		
	$\frac{\sqrt{715}}{143}$	0	0	$\frac{23\sqrt{429}i}{3432}$	0	$-\frac{23\sqrt{429}}{3432}$	0	0	0	$-\frac{7\sqrt{715}i}{1144}$	0	$-\frac{7\sqrt{715}}{1144}$	0	0		
	0	$-\frac{\sqrt{715}}{143}$	$-\frac{23\sqrt{429}i}{3432}$	0	$-\frac{23\sqrt{429}}{3432}$	0	0	0	$\frac{7\sqrt{715}i}{1144}$	0	$-\frac{7\sqrt{715}}{1144}$	0	0	0		
1015	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$														

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,1;a)}(A', 2)$	0	0 0 0 $\frac{4\sqrt{143}}{429}$ 0 $-\frac{4\sqrt{143}i}{429}$ $-\frac{8\sqrt{143}}{429}$ 0 0 $\frac{\sqrt{2145}}{286}$ 0 $\frac{\sqrt{2145}i}{286}$ 0 0
	0	0 0 $\frac{4\sqrt{143}}{429}$ 0 $\frac{4\sqrt{143}i}{429}$ 0 0 $\frac{8\sqrt{143}}{429}$ $\frac{\sqrt{2145}}{286}$ 0 $-\frac{\sqrt{2145}i}{286}$ 0 0 0
	0	$\frac{4\sqrt{143}}{429}$ 0 0 $-\frac{\sqrt{2145}}{1716}$ 0 0 $-\frac{\sqrt{2145}i}{3432}$ 0 0 $\frac{\sqrt{143}}{132}$ 0 0 $\frac{17\sqrt{143}i}{3432}$
	$\frac{4\sqrt{143}}{429}$	0 0 0 0 $\frac{\sqrt{2145}}{1716}$ $\frac{\sqrt{2145}i}{3432}$ 0 0 0 0 $-\frac{\sqrt{143}}{132}$ $-\frac{17\sqrt{143}i}{3432}$ 0
	0	$-\frac{4\sqrt{143}i}{429}$ $-\frac{\sqrt{2145}}{1716}$ 0 0 0 0 $\frac{\sqrt{2145}}{3432}$ $-\frac{\sqrt{143}}{132}$ 0 0 0 0 $\frac{17\sqrt{143}}{3432}$
	$\frac{4\sqrt{143}i}{429}$	0 0 $\frac{\sqrt{2145}}{1716}$ 0 0 $\frac{\sqrt{2145}}{3432}$ 0 0 0 $\frac{\sqrt{143}}{132}$ 0 0 $\frac{17\sqrt{143}}{3432}$ 0
	$-\frac{8\sqrt{143}}{429}$	0 0 $-\frac{\sqrt{2145}i}{3432}$ 0 $\frac{\sqrt{2145}}{3432}$ 0 0 0 $\frac{43\sqrt{143}i}{3432}$ 0 $\frac{43\sqrt{143}}{3432}$ 0 0 0
	0	$\frac{8\sqrt{143}}{429}$ $\frac{\sqrt{2145}i}{3432}$ 0 $\frac{\sqrt{2145}}{3432}$ 0 0 0 $-\frac{43\sqrt{143}i}{3432}$ 0 $\frac{43\sqrt{143}}{3432}$ 0 0 0
	0	$\frac{\sqrt{2145}}{286}$ 0 0 $-\frac{\sqrt{143}}{132}$ 0 0 $\frac{43\sqrt{143}i}{3432}$ 0 0 $\frac{7\sqrt{2145}}{1716}$ 0 0 $\frac{7\sqrt{2145}i}{3432}$
	$\frac{\sqrt{2145}}{286}$	0 0 0 0 $\frac{\sqrt{143}}{132}$ $-\frac{43\sqrt{143}i}{3432}$ 0 0 0 0 $-\frac{7\sqrt{2145}}{1716}$ $-\frac{7\sqrt{2145}i}{3432}$ 0
	0	$\frac{\sqrt{2145}i}{286}$ $\frac{\sqrt{143}}{132}$ 0 0 0 0 $\frac{43\sqrt{143}}{3432}$ $\frac{7\sqrt{2145}}{1716}$ 0 0 0 0 $-\frac{7\sqrt{2145}}{3432}$
	$-\frac{\sqrt{2145}i}{286}$	0 0 $-\frac{\sqrt{143}}{132}$ 0 0 $\frac{43\sqrt{143}}{3432}$ 0 0 $-\frac{7\sqrt{2145}}{1716}$ 0 0 $-\frac{7\sqrt{2145}}{3432}$ 0
	0	0 0 0 $\frac{17\sqrt{143}i}{3432}$ 0 $\frac{17\sqrt{143}}{3432}$ 0 0 0 $\frac{7\sqrt{2145}i}{3432}$ 0 $-\frac{7\sqrt{2145}}{3432}$ 0 0 0
	0	0 0 $-\frac{17\sqrt{143}i}{3432}$ 0 $\frac{17\sqrt{143}}{3432}$ 0 0 0 $-\frac{7\sqrt{2145}i}{3432}$ 0 $-\frac{7\sqrt{2145}}{3432}$ 0 0 0

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

1016 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,1;a)}(A', 3)$	0	$-\frac{3\sqrt{1001}i}{1001}$ $\frac{\sqrt{15015}}{3432}$ 0 0 0 0 $\frac{\sqrt{15015}}{3432}$ $-\frac{3\sqrt{1001}}{1144}$ 0 0 0 0 $\frac{3\sqrt{1001}}{1144}$
	$\frac{3\sqrt{1001}i}{1001}$	0 0 $-\frac{\sqrt{15015}}{3432}$ 0 0 $\frac{\sqrt{15015}}{3432}$ 0 0 $\frac{3\sqrt{1001}}{1144}$ 0 0 $\frac{3\sqrt{1001}}{1144}$ 0
	$\frac{\sqrt{15015}}{3432}$	0 0 $\frac{25\sqrt{1001}i}{8008}$ 0 $-\frac{5\sqrt{1001}}{1144}$ 0 0 0 $-\frac{\sqrt{15015}i}{1144}$ 0 $-\frac{\sqrt{15015}}{1716}$ 0 0
	0	$-\frac{\sqrt{15015}}{3432}$ $-\frac{25\sqrt{1001}i}{8008}$ 0 $-\frac{5\sqrt{1001}}{1144}$ 0 0 0 $\frac{\sqrt{15015}i}{1144}$ 0 $-\frac{\sqrt{15015}}{1716}$ 0 0 0
	0	0 $-\frac{5\sqrt{1001}}{1144}$ 0 $-\frac{10\sqrt{1001}i}{1001}$ $-\frac{5\sqrt{1001}}{1144}$ 0 0 $\frac{5\sqrt{15015}}{3432}$ 0 0 $-\frac{5\sqrt{15015}}{3432}$ 0
	0	0 $-\frac{5\sqrt{1001}}{1144}$ 0 $\frac{10\sqrt{1001}i}{1001}$ 0 0 $\frac{5\sqrt{1001}}{1144}$ $\frac{5\sqrt{15015}}{3432}$ 0 0 0 $\frac{5\sqrt{15015}}{3432}$
	0	$\frac{\sqrt{15015}}{3432}$ 0 0 $-\frac{5\sqrt{1001}i}{1144}$ 0 0 $\frac{25\sqrt{1001}i}{8008}$ 0 0 $\frac{\sqrt{15015}}{1716}$ 0 0 $\frac{\sqrt{15015}i}{1144}$
	$\frac{\sqrt{15015}}{3432}$	0 0 0 0 $\frac{5\sqrt{1001}}{1144}$ $-\frac{25\sqrt{1001}i}{8008}$ 0 0 0 $-\frac{\sqrt{15015}}{1716}$ $-\frac{\sqrt{15015}i}{1144}$ 0
	$-\frac{3\sqrt{1001}}{1144}$	0 0 $-\frac{\sqrt{15015}i}{1144}$ 0 $\frac{5\sqrt{15015}}{3432}$ 0 0 0 $\frac{3\sqrt{1001}i}{616}$ 0 $\frac{\sqrt{1001}}{572}$ 0 0
	0	$\frac{3\sqrt{1001}}{1144}$ $\frac{\sqrt{15015}i}{1144}$ 0 $\frac{5\sqrt{15015}}{3432}$ 0 0 0 $-\frac{3\sqrt{1001}i}{616}$ 0 $\frac{\sqrt{1001}}{572}$ 0 0 0
	0	0 0 $-\frac{\sqrt{15015}}{1716}$ 0 0 0 $\frac{\sqrt{15015}}{1716}$ 0 0 $\frac{\sqrt{1001}}{572}$ 0 $-\frac{3\sqrt{1001}i}{1001}$ $\frac{\sqrt{1001}}{572}$ 0
	0	0 $-\frac{\sqrt{15015}}{1716}$ 0 0 0 0 $-\frac{\sqrt{15015}}{1716}$ $\frac{\sqrt{1001}}{572}$ 0 $\frac{3\sqrt{1001}i}{1001}$ 0 0 $-\frac{\sqrt{1001}}{572}$
	0	$\frac{3\sqrt{1001}}{1144}$ 0 0 $-\frac{5\sqrt{15015}}{3432}$ 0 0 $\frac{\sqrt{15015}i}{1144}$ 0 0 $\frac{\sqrt{1001}}{572}$ 0 0 $\frac{3\sqrt{1001}i}{616}$
	$\frac{3\sqrt{1001}}{1144}$	0 0 0 0 $\frac{5\sqrt{15015}}{3432}$ $-\frac{\sqrt{15015}i}{1144}$ 0 0 0 $-\frac{\sqrt{1001}}{572}$ $-\frac{3\sqrt{1001}i}{616}$ 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	$\frac{\sqrt{715}i}{143}$	$\frac{23\sqrt{429}}{3432}$	0	0	0	0	$\frac{23\sqrt{429}}{3432}$	$\frac{7\sqrt{715}}{1144}$	0	0	0	0	$-\frac{7\sqrt{715}}{1144}$	
	$-\frac{\sqrt{715}i}{143}$	0	0	$-\frac{23\sqrt{429}}{3432}$	0	0	$\frac{23\sqrt{429}}{3432}$	0	0	$-\frac{7\sqrt{715}}{1144}$	0	0	$-\frac{7\sqrt{715}}{1144}$	0	
	$\frac{23\sqrt{429}}{3432}$	0	0	$\frac{5\sqrt{715}i}{1144}$	0	$-\frac{\sqrt{715}}{1144}$	0	0	0	$-\frac{5\sqrt{429}i}{3432}$	0	$-\frac{4\sqrt{429}}{429}$	0	0	
	0	$-\frac{23\sqrt{429}}{3432}$	$-\frac{5\sqrt{715}i}{1144}$	0	$-\frac{\sqrt{715}}{1144}$	0	0	$\frac{5\sqrt{429}i}{3432}$	0	$-\frac{4\sqrt{429}}{429}$	0	0	0	0	
	0	0	0	$-\frac{\sqrt{715}}{1144}$	0	0	$-\frac{\sqrt{715}}{1144}$	0	0	$-\frac{\sqrt{429}}{1144}$	0	0	$\frac{\sqrt{429}}{1144}$	0	
	0	0	$-\frac{\sqrt{715}}{1144}$	0	0	0	0	$\frac{\sqrt{715}}{1144}$	$-\frac{\sqrt{429}}{1144}$	0	0	0	0	$-\frac{\sqrt{429}}{1144}$	
	0	$\frac{23\sqrt{429}}{3432}$	0	0	$-\frac{\sqrt{715}}{1144}$	0	0	$\frac{5\sqrt{715}i}{1144}$	0	0	$\frac{4\sqrt{429}}{429}$	0	0	$\frac{5\sqrt{429}i}{3432}$	
	$\frac{23\sqrt{429}}{3432}$	0	0	0	0	$\frac{\sqrt{715}}{1144}$	$-\frac{5\sqrt{715}i}{1144}$	0	0	0	$-\frac{4\sqrt{429}}{429}$	$-\frac{5\sqrt{429}i}{3432}$	0		
	$\frac{7\sqrt{715}}{1144}$	0	0	$-\frac{5\sqrt{429}i}{3432}$	0	$-\frac{\sqrt{429}}{1144}$	0	0	0	$-\frac{5\sqrt{715}i}{1144}$	0	$-\frac{\sqrt{715}}{286}$	0	0	
	0	$-\frac{7\sqrt{715}}{1144}$	$\frac{5\sqrt{429}i}{3432}$	0	$-\frac{\sqrt{429}}{1144}$	0	0	$\frac{5\sqrt{715}i}{1144}$	0	$-\frac{\sqrt{715}}{286}$	0	0	0	0	
	0	0	0	$-\frac{4\sqrt{429}}{429}$	0	0	$\frac{4\sqrt{429}}{429}$	0	0	$-\frac{\sqrt{715}}{286}$	0	$-\frac{\sqrt{715}i}{143}$	$-\frac{\sqrt{715}}{286}$	0	
	0	0	$-\frac{4\sqrt{429}}{429}$	0	0	0	0	$-\frac{4\sqrt{429}}{429}$	$-\frac{\sqrt{715}}{286}$	0	$\frac{\sqrt{715}i}{143}$	0	0	$\frac{\sqrt{715}}{286}$	
	0	$-\frac{7\sqrt{715}}{1144}$	0	0	$\frac{\sqrt{429}}{1144}$	0	0	$\frac{5\sqrt{429}i}{3432}$	0	0	$-\frac{\sqrt{715}}{286}$	0	0	$-\frac{5\sqrt{715}i}{1144}$	
	$-\frac{7\sqrt{715}}{1144}$	0	0	0	0	$-\frac{\sqrt{429}}{1144}$	$-\frac{5\sqrt{429}i}{3432}$	0	0	0	$\frac{\sqrt{715}}{286}$	$\frac{5\sqrt{715}i}{1144}$	0		
$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$															

1018 symmetry

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,1;a)}(A', 5)$	0	0	$\frac{\sqrt{143}}{156}$	0	0	0	0	$-\frac{\sqrt{143}}{156}$	$-\frac{\sqrt{2145}}{572}$	0	0	0	0	$-\frac{\sqrt{2145}}{572}$		
	0	0	0	$-\frac{\sqrt{143}}{156}$	0	0	$-\frac{\sqrt{143}}{156}$	0	0	$\frac{\sqrt{2145}}{572}$	0	0	$-\frac{\sqrt{2145}}{572}$	0		
	$\frac{\sqrt{143}}{156}$	0	0	$\frac{5\sqrt{2145}i}{1716}$	0	$-\frac{\sqrt{2145}}{312}$	0	0	0	$-\frac{17\sqrt{143}i}{1716}$	0	$-\frac{37\sqrt{143}}{3432}$	0	0		
	0	$-\frac{\sqrt{143}}{156}$	$-\frac{5\sqrt{2145}i}{1716}$	0	$-\frac{\sqrt{2145}}{312}$	0	0	0	$\frac{17\sqrt{143}i}{1716}$	0	$-\frac{37\sqrt{143}}{3432}$	0	0	0		
	0	0	0	$-\frac{\sqrt{2145}}{312}$	0	0	$\frac{\sqrt{2145}}{312}$	0	0	$\frac{7\sqrt{143}}{3432}$	0	$-\frac{8\sqrt{143}i}{429}$	$\frac{7\sqrt{143}}{3432}$	0		
	0	0	$-\frac{\sqrt{2145}}{312}$	0	0	0	0	$-\frac{\sqrt{2145}}{312}$	$\frac{7\sqrt{143}}{3432}$	0	$\frac{8\sqrt{143}i}{429}$	0	0	$-\frac{7\sqrt{143}}{3432}$		
	0	$-\frac{\sqrt{143}}{156}$	0	0	$\frac{\sqrt{2145}}{312}$	0	0	$-\frac{5\sqrt{2145}i}{1716}$	0	0	$-\frac{37\sqrt{143}}{3432}$	0	0	$-\frac{17\sqrt{143}i}{1716}$		
	$-\frac{\sqrt{143}}{156}$	0	0	0	0	$-\frac{\sqrt{2145}}{312}$	$\frac{5\sqrt{2145}i}{1716}$	0	0	0	0	$\frac{37\sqrt{143}}{3432}$	$\frac{17\sqrt{143}i}{1716}$	0		
	$-\frac{\sqrt{2145}}{572}$	0	0	$-\frac{17\sqrt{143}i}{1716}$	0	$\frac{7\sqrt{143}}{3432}$	0	0	0	$\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{312}$	0	0		
	0	$\frac{\sqrt{2145}}{572}$	$\frac{17\sqrt{143}i}{1716}$	0	$\frac{7\sqrt{143}}{3432}$	0	0	0	$-\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{312}$	0	0	0		
	0	0	0	$-\frac{37\sqrt{143}}{3432}$	0	$-\frac{8\sqrt{143}i}{429}$	$-\frac{37\sqrt{143}}{3432}$	0	0	$\frac{\sqrt{2145}}{312}$	0	0	$-\frac{\sqrt{2145}}{312}$	0		
	0	0	$-\frac{37\sqrt{143}}{3432}$	0	$\frac{8\sqrt{143}i}{429}$	0	0	$\frac{37\sqrt{143}}{3432}$	$\frac{\sqrt{2145}}{312}$	0	0	0	0	$\frac{\sqrt{2145}}{312}$		
	0	$-\frac{\sqrt{2145}}{572}$	0	0	$\frac{7\sqrt{143}}{3432}$	0	0	$-\frac{17\sqrt{143}i}{1716}$	0	0	$-\frac{\sqrt{2145}}{312}$	0	0	$-\frac{\sqrt{2145}i}{572}$		
	$-\frac{\sqrt{2145}}{572}$	0	0	0	0	$-\frac{7\sqrt{143}}{3432}$	$\frac{17\sqrt{143}i}{1716}$	0	0	0	0	$\frac{\sqrt{2145}}{312}$	$\frac{\sqrt{2145}i}{572}$	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														
$\mathbb{M}_5^{(1,1;a)}(A'', 1)$	0	$\frac{3\sqrt{1001}}{1001}$	0	0	$\frac{\sqrt{15015}}{3432}$	0	0	$-\frac{\sqrt{15015}i}{3432}$	0	0	$\frac{3\sqrt{1001}}{1144}$	0	0	$\frac{3\sqrt{1001}i}{1144}$		
	$\frac{3\sqrt{1001}}{1001}$	0	0	0	0	$-\frac{\sqrt{15015}}{3432}$	$\frac{\sqrt{15015}i}{3432}$	0	0	0	0	$-\frac{3\sqrt{1001}}{1144}$	$-\frac{3\sqrt{1001}i}{1144}$	0		
	0	0	0	$\frac{10\sqrt{1001}}{1001}$	0	$\frac{5\sqrt{1001}i}{1144}$	$-\frac{5\sqrt{1001}}{1144}$	0	0	0	0	$\frac{5\sqrt{15015}i}{3432}$	$\frac{5\sqrt{15015}}{3432}$	0		
	0	0	$\frac{10\sqrt{1001}}{1001}$	0	$-\frac{5\sqrt{1001}i}{1144}$	0	0	$\frac{5\sqrt{1001}}{1144}$	0	0	$-\frac{5\sqrt{15015}i}{3432}$	0	0	$-\frac{5\sqrt{15015}}{3432}$		
	$\frac{\sqrt{15015}}{3432}$	0	0	$\frac{5\sqrt{1001}i}{1144}$	0	$-\frac{25\sqrt{1001}}{8008}$	0	0	0	$-\frac{\sqrt{15015}i}{1716}$	0	$-\frac{\sqrt{15015}}{1144}$	0	0		
	0	$-\frac{\sqrt{15015}}{3432}$	$-\frac{5\sqrt{1001}i}{1144}$	0	$-\frac{25\sqrt{1001}}{8008}$	0	0	0	$\frac{\sqrt{15015}i}{1716}$	0	$-\frac{\sqrt{15015}}{1144}$	0	0	0		
	0	$-\frac{\sqrt{15015}i}{3432}$	$-\frac{5\sqrt{1001}}{1144}$	0	0	0	0	$-\frac{25\sqrt{1001}}{8008}$	$-\frac{\sqrt{15015}}{1716}$	0	0	0	0	$\frac{\sqrt{15015}}{1144}$		
	$\frac{\sqrt{15015}i}{3432}$	0	0	$\frac{5\sqrt{1001}}{1144}$	0	0	$-\frac{25\sqrt{1001}}{8008}$	0	0	$\frac{\sqrt{15015}}{1716}$	0	0	$\frac{\sqrt{15015}}{1144}$	0		
	0	0	0	0	$-\frac{\sqrt{15015}i}{1716}$	$-\frac{\sqrt{15015}}{1716}$	0	0	$\frac{3\sqrt{1001}}{1001}$	0	$-\frac{\sqrt{1001}i}{572}$	$\frac{\sqrt{1001}}{572}$	0			
	0	0	0	0	$\frac{\sqrt{15015}i}{1716}$	0	0	$\frac{\sqrt{15015}}{1716}$	$\frac{3\sqrt{1001}}{1001}$	0	$\frac{\sqrt{1001}i}{572}$	0	0	$-\frac{\sqrt{1001}}{572}$		
	$\frac{3\sqrt{1001}}{1144}$	0	0	$\frac{5\sqrt{15015}i}{3432}$	0	$-\frac{\sqrt{15015}}{1144}$	0	0	0	$-\frac{\sqrt{1001}i}{572}$	0	$-\frac{3\sqrt{1001}}{616}$	0	0		
	0	$-\frac{3\sqrt{1001}}{1144}$	$-\frac{5\sqrt{15015}i}{3432}$	0	$-\frac{\sqrt{15015}}{1144}$	0	0	0	$\frac{\sqrt{1001}i}{572}$	0	$-\frac{3\sqrt{1001}}{616}$	0	0	0		
	0	$\frac{3\sqrt{1001}i}{1144}$	$\frac{5\sqrt{15015}}{3432}$	0	0	0	$\frac{\sqrt{15015}}{1144}$	$\frac{\sqrt{1001}}{572}$	0	0	0	0	$-\frac{3\sqrt{1001}}{616}$			
	$-\frac{3\sqrt{1001}i}{1144}$	0	0	$-\frac{5\sqrt{15015}}{3432}$	0	0	$\frac{\sqrt{15015}}{1144}$	0	0	$-\frac{\sqrt{1001}}{572}$	0	0	$-\frac{3\sqrt{1001}}{616}$	0		
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												
$\mathbb{M}_5^{(1,1;a)}(A'', 2)$	$\frac{3\sqrt{1001}}{1001}$	0	0	$-\frac{\sqrt{15015}i}{3432}$	0	$\frac{\sqrt{15015}}{3432}$	0	0	0	$-\frac{3\sqrt{1001}i}{1144}$	0	$-\frac{3\sqrt{1001}}{1144}$	0	0
	0	$-\frac{3\sqrt{1001}}{1001}$	$\frac{\sqrt{15015}i}{3432}$	0	$\frac{\sqrt{15015}}{3432}$	0	0	0	$\frac{3\sqrt{1001}i}{1144}$	0	$-\frac{3\sqrt{1001}}{1144}$	0	0	0
	0	$-\frac{\sqrt{15015}i}{3432}$	$-\frac{25\sqrt{1001}}{8008}$	0	0	0	0	$-\frac{5\sqrt{1001}}{1144}$	$-\frac{\sqrt{15015}}{1144}$	0	0	0	0	$\frac{\sqrt{15015}}{1716}$
	$\frac{\sqrt{15015}i}{3432}$	0	0	$\frac{25\sqrt{1001}}{8008}$	0	0	$-\frac{5\sqrt{1001}}{1144}$	0	0	$\frac{\sqrt{15015}}{1144}$	0	0	$\frac{\sqrt{15015}}{1716}$	0
	0	$\frac{\sqrt{15015}}{3432}$	0	0	$-\frac{25\sqrt{1001}}{8008}$	0	0	$\frac{5\sqrt{1001}i}{1144}$	0	0	$\frac{\sqrt{15015}}{1144}$	0	0	$\frac{\sqrt{15015}i}{1716}$
	$\frac{\sqrt{15015}}{3432}$	0	0	0	0	$\frac{25\sqrt{1001}}{8008}$	$-\frac{5\sqrt{1001}i}{1144}$	0	0	0	$-\frac{\sqrt{15015}}{1144}$	$-\frac{\sqrt{15015}i}{1716}$	0	0
	0	0	0	$-\frac{5\sqrt{1001}}{1144}$	0	$\frac{5\sqrt{1001}i}{1144}$	$\frac{10\sqrt{1001}}{1001}$	0	0	$-\frac{5\sqrt{15015}}{3432}$	0	$-\frac{5\sqrt{15015}i}{3432}$	0	0
	0	0	$-\frac{5\sqrt{1001}}{1144}$	0	$-\frac{5\sqrt{1001}i}{1144}$	0	0	$-\frac{10\sqrt{1001}}{1001}$	$-\frac{5\sqrt{15015}}{3432}$	0	$\frac{5\sqrt{15015}i}{3432}$	0	0	0
	0	$-\frac{3\sqrt{1001}i}{1144}$	$-\frac{\sqrt{15015}}{1144}$	0	0	0	0	$-\frac{5\sqrt{15015}}{3432}$	$-\frac{3\sqrt{1001}}{616}$	0	0	0	0	$\frac{\sqrt{1001}}{572}$
	$\frac{3\sqrt{1001}i}{1144}$	0	0	$\frac{\sqrt{15015}}{1144}$	0	0	$-\frac{5\sqrt{15015}}{3432}$	0	0	$\frac{3\sqrt{1001}}{616}$	0	0	$\frac{\sqrt{1001}}{572}$	0
	0	$-\frac{3\sqrt{1001}}{1144}$	0	0	$\frac{\sqrt{15015}}{1144}$	0	0	$-\frac{5\sqrt{15015}i}{3432}$	0	0	$-\frac{3\sqrt{1001}}{616}$	0	0	$-\frac{\sqrt{1001}i}{572}$
	$-\frac{3\sqrt{1001}}{1144}$	0	0	0	0	$-\frac{\sqrt{15015}}{1144}$	$\frac{5\sqrt{15015}i}{3432}$	0	0	0	0	$\frac{3\sqrt{1001}}{616}$	$\frac{\sqrt{1001}i}{572}$	0
	0	0	0	$\frac{\sqrt{15015}}{1716}$	0	$\frac{\sqrt{15015}i}{1716}$	0	0	0	$\frac{\sqrt{1001}}{572}$	0	$-\frac{\sqrt{1001}i}{572}$	$\frac{3\sqrt{1001}}{1001}$	0
	0	0	$\frac{\sqrt{15015}}{1716}$	0	$-\frac{\sqrt{15015}i}{1716}$	0	0	0	$\frac{\sqrt{1001}}{572}$	0	$\frac{\sqrt{1001}i}{572}$	0	0	$-\frac{3\sqrt{1001}}{1001}$
1021	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$												

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,1;a)}(A'', 3)$	0	$-\frac{\sqrt{715}}{143}$	0	0	$\frac{23\sqrt{429}}{3432}$	0	0	$-\frac{23\sqrt{429}i}{3432}$	0	0	$-\frac{7\sqrt{715}}{1144}$	0	0	$-\frac{7\sqrt{715}i}{1144}$		
	$-\frac{\sqrt{715}}{143}$	0	0	0	0	$-\frac{23\sqrt{429}}{3432}$	$\frac{23\sqrt{429}i}{3432}$	0	0	0	0	$\frac{7\sqrt{715}}{1144}$	$\frac{7\sqrt{715}i}{1144}$	0		
	0	0	0	0	0	$\frac{\sqrt{715}i}{1144}$	$-\frac{\sqrt{715}}{1144}$	0	0	0	0	$-\frac{\sqrt{429}i}{1144}$	$-\frac{\sqrt{429}}{1144}$	0		
	0	0	0	0	$-\frac{\sqrt{715}i}{1144}$	0	0	$\frac{\sqrt{715}}{1144}$	0	0	$\frac{\sqrt{429}i}{1144}$	0	0	$\frac{\sqrt{429}}{1144}$		
	$\frac{23\sqrt{429}}{3432}$	0	0	$\frac{\sqrt{715}i}{1144}$	0	$-\frac{5\sqrt{715}}{1144}$	0	0	0	$-\frac{4\sqrt{429}i}{429}$	0	$-\frac{5\sqrt{429}}{3432}$	0	0		
	0	$-\frac{23\sqrt{429}}{3432}$	$-\frac{\sqrt{715}i}{1144}$	0	$-\frac{5\sqrt{715}}{1144}$	0	0	0	$\frac{4\sqrt{429}i}{429}$	0	$-\frac{5\sqrt{429}}{3432}$	0	0	0		
	0	$-\frac{23\sqrt{429}i}{3432}$	$-\frac{\sqrt{715}}{1144}$	0	0	0	0	$-\frac{5\sqrt{715}}{1144}$	$-\frac{4\sqrt{429}}{429}$	0	0	0	0	$\frac{5\sqrt{429}}{3432}$		
	$\frac{23\sqrt{429}i}{3432}$	0	0	$\frac{\sqrt{715}}{1144}$	0	0	$-\frac{5\sqrt{715}}{1144}$	0	0	$\frac{4\sqrt{429}}{429}$	0	0	$\frac{5\sqrt{429}}{3432}$	0		
	0	0	0	0	$-\frac{4\sqrt{429}i}{429}$	$-\frac{4\sqrt{429}}{429}$	0	0	$\frac{\sqrt{715}}{143}$	0	$\frac{\sqrt{715}i}{286}$	$-\frac{\sqrt{715}}{286}$	0	$-\frac{\sqrt{715}}{286}$	0	
	0	0	0	0	$\frac{4\sqrt{429}i}{429}$	0	0	$\frac{4\sqrt{429}}{429}$	$\frac{\sqrt{715}}{143}$	0	$-\frac{\sqrt{715}i}{286}$	0	0	$\frac{\sqrt{715}}{286}$		
	$-\frac{7\sqrt{715}}{1144}$	0	0	$-\frac{\sqrt{429}i}{1144}$	0	$-\frac{5\sqrt{429}}{3432}$	0	0	0	$\frac{\sqrt{715}i}{286}$	0	$\frac{5\sqrt{715}}{1144}$	0	0		
	0	$\frac{7\sqrt{715}}{1144}$	$\frac{\sqrt{429}i}{1144}$	0	$-\frac{5\sqrt{429}}{3432}$	0	0	0	$-\frac{\sqrt{715}i}{286}$	0	$\frac{5\sqrt{715}}{1144}$	0	0	0		
	0	$-\frac{7\sqrt{715}i}{1144}$	$-\frac{\sqrt{429}}{1144}$	0	0	0	0	$\frac{5\sqrt{429}}{3432}$	$-\frac{\sqrt{715}}{286}$	0	0	0	0	$\frac{5\sqrt{715}}{1144}$		
	$\frac{7\sqrt{715}i}{1144}$	0	0	$\frac{\sqrt{429}}{1144}$	0	0	$\frac{5\sqrt{429}}{3432}$	0	0	$\frac{\sqrt{715}}{286}$	0	0	$\frac{5\sqrt{715}}{1144}$	0		
$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$																

1022 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,1;a)}(A'', 4)$	$-\frac{\sqrt{715}}{143} \quad 0 \quad 0 \quad -\frac{23\sqrt{429}i}{3432} \quad 0 \quad \frac{23\sqrt{429}}{3432} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{7\sqrt{715}i}{1144} \quad 0 \quad \frac{7\sqrt{715}}{1144} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{715}}{143} \quad \frac{23\sqrt{429}i}{3432} \quad 0 \quad \frac{23\sqrt{429}}{3432} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{715}i}{1144} \quad 0 \quad \frac{7\sqrt{715}}{1144} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{23\sqrt{429}i}{3432} \quad -\frac{5\sqrt{715}}{1144} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{715}}{1144} \quad -\frac{5\sqrt{429}}{3432} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{4\sqrt{429}}{429}$	
	$\frac{23\sqrt{429}i}{3432} \quad 0 \quad 0 \quad \frac{5\sqrt{715}}{1144} \quad 0 \quad 0 \quad -\frac{\sqrt{715}}{1144} \quad 0 \quad 0 \quad \frac{5\sqrt{429}}{3432} \quad 0 \quad 0 \quad \frac{4\sqrt{429}}{429} \quad 0 \quad 0$	
	$0 \quad \frac{23\sqrt{429}}{3432} \quad 0 \quad 0 \quad -\frac{5\sqrt{715}}{1144} \quad 0 \quad 0 \quad \frac{\sqrt{715}i}{1144} \quad 0 \quad 0 \quad \frac{5\sqrt{429}}{3432} \quad 0 \quad 0 \quad \frac{4\sqrt{429}i}{429} \quad 0$	
	$\frac{23\sqrt{429}}{3432} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{715}}{1144} \quad -\frac{\sqrt{715}i}{1144} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{429}}{3432} \quad -\frac{4\sqrt{429}i}{429} \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{715}}{1144} \quad 0 \quad \frac{\sqrt{715}i}{1144} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{429}}{1144} \quad 0 \quad \frac{\sqrt{429}i}{1144} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{7\sqrt{715}i}{1144} \quad -\frac{5\sqrt{429}}{3432} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{429}}{1144} \quad \frac{5\sqrt{715}}{1144} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{715}}{286} \quad 0$	
	$-\frac{7\sqrt{715}i}{1144} \quad 0 \quad 0 \quad \frac{5\sqrt{429}}{3432} \quad 0 \quad 0 \quad \frac{\sqrt{429}}{1144} \quad 0 \quad 0 \quad -\frac{5\sqrt{715}}{1144} \quad 0 \quad 0 \quad -\frac{\sqrt{715}}{286} \quad 0$	
	$0 \quad \frac{7\sqrt{715}}{1144} \quad 0 \quad 0 \quad \frac{5\sqrt{429}}{3432} \quad 0 \quad 0 \quad \frac{\sqrt{429}i}{1144} \quad 0 \quad 0 \quad \frac{5\sqrt{715}}{1144} \quad 0 \quad 0 \quad \frac{\sqrt{715}i}{286} \quad 0$	
	$\frac{7\sqrt{715}}{1144} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{429}}{3432} \quad -\frac{\sqrt{429}i}{1144} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{715}}{1144} \quad -\frac{\sqrt{715}i}{286} \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{4\sqrt{429}}{429} \quad 0 \quad \frac{4\sqrt{429}i}{429} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{715}}{286} \quad 0 \quad \frac{\sqrt{715}i}{286} \quad \frac{\sqrt{715}}{143} \quad 0$	
	$0 \quad 0 \quad \frac{4\sqrt{429}}{429} \quad 0 \quad -\frac{4\sqrt{429}i}{429} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{715}}{286} \quad 0 \quad -\frac{\sqrt{715}i}{286} \quad 0 \quad 0 \quad -\frac{\sqrt{715}}{143}$	
	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$	
1023	symmetry	

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,1;a)}(A'', 5)$	0	0	0	0	$-\frac{\sqrt{143}}{156}$	0	0	$-\frac{\sqrt{143}i}{156}$	0	0	$-\frac{\sqrt{2145}}{572}$	0	0	$\frac{\sqrt{2145}i}{572}$		
	0	0	0	0	0	$\frac{\sqrt{143}}{156}$	$\frac{\sqrt{143}i}{156}$	0	0	0	$\frac{\sqrt{2145}}{572}$	$-\frac{\sqrt{2145}i}{572}$	0			
	0	0	0	0	0	$-\frac{\sqrt{2145}i}{312}$	$-\frac{\sqrt{2145}}{312}$	0	0	$\frac{8\sqrt{143}}{429}$	0	$-\frac{7\sqrt{143}i}{3432}$	$\frac{7\sqrt{143}}{3432}$	0		
	0	0	0	0	$\frac{\sqrt{2145}i}{312}$	0	0	$\frac{\sqrt{2145}}{312}$	$\frac{8\sqrt{143}}{429}$	0	$\frac{7\sqrt{143}i}{3432}$	0	0	$-\frac{7\sqrt{143}}{3432}$		
	$-\frac{\sqrt{143}}{156}$	0	0	$-\frac{\sqrt{2145}i}{312}$	0	$\frac{5\sqrt{2145}}{1716}$	0	0	0	$\frac{37\sqrt{143}i}{3432}$	0	$\frac{17\sqrt{143}}{1716}$	0	0		
	0	$\frac{\sqrt{143}}{156}$	$\frac{\sqrt{2145}i}{312}$	0	$\frac{5\sqrt{2145}}{1716}$	0	0	0	$-\frac{37\sqrt{143}i}{3432}$	0	$\frac{17\sqrt{143}}{1716}$	0	0	0		
	0	$-\frac{\sqrt{143}i}{156}$	$-\frac{\sqrt{2145}}{312}$	0	0	0	0	$-\frac{5\sqrt{2145}}{1716}$	$-\frac{37\sqrt{143}}{3432}$	0	0	0	0	$\frac{17\sqrt{143}}{1716}$		
	$\frac{\sqrt{143}i}{156}$	0	0	$\frac{\sqrt{2145}}{312}$	0	0	$-\frac{5\sqrt{2145}}{1716}$	0	0	$\frac{37\sqrt{143}}{3432}$	0	0	$\frac{17\sqrt{143}}{1716}$	0		
	0	0	0	$\frac{8\sqrt{143}}{429}$	0	$\frac{37\sqrt{143}i}{3432}$	$-\frac{37\sqrt{143}}{3432}$	0	0	0	0	$\frac{\sqrt{2145}i}{312}$	$\frac{\sqrt{2145}}{312}$	0		
	0	0	$\frac{8\sqrt{143}}{429}$	0	$-\frac{37\sqrt{143}i}{3432}$	0	0	$\frac{37\sqrt{143}}{3432}$	0	0	$-\frac{\sqrt{2145}i}{312}$	0	0	$-\frac{\sqrt{2145}}{312}$		
	$-\frac{\sqrt{2145}}{572}$	0	0	$-\frac{7\sqrt{143}i}{3432}$	0	$\frac{17\sqrt{143}}{1716}$	0	0	0	$\frac{\sqrt{2145}i}{312}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0	
	0	$\frac{\sqrt{2145}}{572}$	$\frac{7\sqrt{143}i}{3432}$	0	$\frac{17\sqrt{143}}{1716}$	0	0	0	$-\frac{\sqrt{2145}i}{312}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0		
	0	$\frac{\sqrt{2145}i}{572}$	$\frac{7\sqrt{143}}{3432}$	0	0	0	$\frac{17\sqrt{143}}{1716}$	$\frac{\sqrt{2145}}{312}$	0	0	0	0	0	$-\frac{\sqrt{2145}}{572}$		
	$-\frac{\sqrt{2145}i}{572}$	0	0	$-\frac{7\sqrt{143}}{3432}$	0	0	$\frac{17\sqrt{143}}{1716}$	0	0	$-\frac{\sqrt{2145}}{312}$	0	0	0	$-\frac{\sqrt{2145}}{572}$	0	

1024 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,1;a)}(A'', 6)$	0	0 0 0 $\frac{\sqrt{143}i}{156}$ 0 $\frac{\sqrt{143}}{156}$ 0 0 0 $\frac{\sqrt{2145}i}{572}$ 0 $-\frac{\sqrt{2145}}{572}$ 0 0
	0	0 0 $-\frac{\sqrt{143}i}{156}$ 0 $\frac{\sqrt{143}}{156}$ 0 0 0 $-\frac{\sqrt{2145}i}{572}$ 0 $-\frac{\sqrt{2145}}{572}$ 0 0 0
	0	$\frac{\sqrt{143}i}{156}$ $\frac{5\sqrt{2145}}{1716}$ 0 0 0 0 $\frac{\sqrt{2145}}{312}$ $\frac{17\sqrt{143}}{1716}$ 0 0 0 0 $-\frac{37\sqrt{143}}{3432}$
	$-\frac{\sqrt{143}i}{156}$	0 0 $-\frac{5\sqrt{2145}}{1716}$ 0 0 $\frac{\sqrt{2145}}{312}$ 0 0 $-\frac{17\sqrt{143}}{1716}$ 0 0 $-\frac{37\sqrt{143}}{3432}$ 0
	0	$\frac{\sqrt{143}}{156}$ 0 0 $-\frac{5\sqrt{2145}}{1716}$ 0 0 $\frac{\sqrt{2145}i}{312}$ 0 0 $\frac{17\sqrt{143}}{1716}$ 0 0 $\frac{37\sqrt{143}i}{3432}$
	$\frac{\sqrt{143}}{156}$	0 0 0 0 0 $\frac{5\sqrt{2145}}{1716}$ $-\frac{\sqrt{2145}i}{312}$ 0 0 0 0 $-\frac{17\sqrt{143}}{1716}$ $-\frac{37\sqrt{143}i}{3432}$ 0
	0	0 0 0 $\frac{\sqrt{2145}}{312}$ 0 $\frac{\sqrt{2145}i}{312}$ 0 0 0 $\frac{7\sqrt{143}}{3432}$ 0 $-\frac{7\sqrt{143}i}{3432}$ $\frac{8\sqrt{143}}{429}$ 0
	0	$\frac{\sqrt{2145}i}{312}$ 0 $-\frac{\sqrt{2145}i}{312}$ 0 0 0 $\frac{7\sqrt{143}}{3432}$ $\frac{\sqrt{2145}}{572}$ 0 0 0 0 $-\frac{\sqrt{2145}}{312}$
	$-\frac{\sqrt{2145}i}{572}$	0 0 $-\frac{17\sqrt{143}}{1716}$ 0 0 $\frac{7\sqrt{143}}{3432}$ 0 0 $-\frac{\sqrt{2145}}{572}$ 0 0 $-\frac{\sqrt{2145}}{312}$ 0
	0	$-\frac{\sqrt{2145}}{572}$ 0 0 $\frac{17\sqrt{143}}{1716}$ 0 0 $-\frac{7\sqrt{143}i}{3432}$ 0 0 $-\frac{\sqrt{2145}}{572}$ 0 0 $-\frac{\sqrt{2145}i}{312}$
	$-\frac{\sqrt{2145}}{572}$	0 0 0 0 $-\frac{17\sqrt{143}}{1716}$ $\frac{7\sqrt{143}i}{3432}$ 0 0 0 0 $\frac{\sqrt{2145}}{572}$ $\frac{\sqrt{2145}i}{312}$ 0
	0	0 0 0 $-\frac{37\sqrt{143}}{3432}$ 0 $\frac{37\sqrt{143}i}{3432}$ $\frac{8\sqrt{143}}{429}$ 0 0 $-\frac{\sqrt{2145}}{312}$ $-\frac{\sqrt{2145}i}{312}$ 0 0
	0	$-\frac{37\sqrt{143}}{3432}$ 0 $-\frac{37\sqrt{143}i}{3432}$ 0 0 $-\frac{8\sqrt{143}}{429}$ $-\frac{\sqrt{2145}}{312}$ 0 $\frac{\sqrt{2145}i}{312}$ 0 0 0