

PG No. 9 C_4 4 [tetragonal] (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	z
	$\mathbb{M}_1^{(1,-1;a)}(A)$	$\begin{bmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & -\frac{\sqrt{2}}{2} \end{bmatrix}$
3	symmetry	x
	$\mathbb{M}_{1,1}^{(1,-1;a)}(E)$	$\begin{bmatrix} 0 & \frac{\sqrt{2}}{2} \\ \frac{\sqrt{2}}{2} & 0 \end{bmatrix}$
4	symmetry	y
	$\mathbb{M}_{1,2}^{(1,-1;a)}(E)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{2} \\ \frac{\sqrt{2}i}{2} & 0 \end{bmatrix}$

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

continued ...

Table 2

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

continued ...

Table 2

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

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

Table 3: (s,d) block.

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

continued ...

Table 3

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

continued ...

Table 3

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

continued ...

Table 3

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

continued ...

Table 3

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

continued ...

Table 3

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

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

Table 4: (s,f) block.

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

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{Q}_{3,2}^{(a)}(E, 2)$	$\begin{bmatrix} -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
76	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(A)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{bmatrix}$
77	symmetry	$\sqrt{15}xyz$
	$\mathbb{Q}_3^{(1,0;a)}(B, 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{2}}{8} & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{24} & 0 & 0 \\ -\frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 \end{bmatrix}$
78	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{Q}_3^{(1,0;a)}(B, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 \\ \frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 \end{bmatrix}$
79	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{Q}_{3,1}^{(1,0;a)}(E, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & -\frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & \frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
80	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{Q}_{3,2}^{(1,0;a)}(E, 1)$	$\begin{bmatrix} -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} \\ 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
81	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{Q}_{3,1}^{(1,0;a)}(E, 2)$	$\begin{bmatrix} -\frac{3\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} \\ 0 & \frac{3\sqrt{2}i}{16} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 \end{bmatrix}$
82	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{Q}_{3,2}^{(1,0;a)}(E, 2)$	$\begin{bmatrix} 0 & 0 & \frac{3\sqrt{2}i}{16} & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & -\frac{3\sqrt{2}i}{16} & -\frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{48} & \frac{\sqrt{5}}{8} & 0 & 0 \end{bmatrix}$
83	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$
	$\mathbb{G}_4^{(1,-1;a)}(A, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{30}i}{24} & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & -\frac{\sqrt{2}}{8} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & -\frac{\sqrt{3}i}{6} \end{bmatrix}$
84	symmetry	$-\frac{\sqrt{15}(x^4-12x^2y^2+6x^2z^2+y^4+6y^2z^2-2z^4)}{12}$

continued ...

Table 4

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

continued ...

Table 4

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

continued ...

Table 4

No.	multipole	matrix
	$\mathbb{T}_{3,1}^{(a)}(E, 2)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{8} & 0 & 0 \end{bmatrix}$
103	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{T}_{3,2}^{(a)}(E, 2)$	$\begin{bmatrix} -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{8} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{8} & 0 & 0 & 0 \end{bmatrix}$
104	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(A)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
105	symmetry	$\sqrt{15}xyz$
	$\mathbb{T}_3^{(1,0;a)}(B, 1)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}}{8} & 0 & \frac{\sqrt{2}i}{8} & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 \\ -\frac{\sqrt{2}}{8} & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 \end{bmatrix}$
106	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{T}_3^{(1,0;a)}(B, 2)$	$\begin{bmatrix} 0 & \frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{24} & 0 & 0 \\ -\frac{\sqrt{2}i}{8} & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & \frac{\sqrt{30}i}{24} & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 \end{bmatrix}$
107	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
	$\mathbb{T}_{3,1}^{(1,0;a)}(E, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & \frac{\sqrt{3}i}{8} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{16} & \frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & -\frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
108	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{T}_{3,2}^{(1,0;a)}(E, 1)$	$\begin{bmatrix} -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & \frac{\sqrt{3}}{8} \\ 0 & \frac{\sqrt{30}}{16} & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & \frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
109	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{T}_{3,1}^{(1,0;a)}(E, 2)$	$\begin{bmatrix} -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & \frac{\sqrt{3}i}{6} & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{30}}{48} & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 \end{bmatrix}$
110	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{T}_{3,2}^{(1,0;a)}(E, 2)$	$\begin{bmatrix} 0 & 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & -\frac{3\sqrt{2}}{16} & \frac{\sqrt{3}i}{24} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & -\frac{\sqrt{30}}{48} & -\frac{\sqrt{5}i}{8} & 0 \end{bmatrix}$
111	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$

continued ...

Table 4

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

continued ...

Table 4

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

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

Table 5: (p,p) block.

No.	multipole	matrix
125	symmetry	1 $\begin{bmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \end{bmatrix}$

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	$\sqrt{3}xy$ $\begin{bmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
129	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{bmatrix}$
130	symmetry	$\sqrt{3}yz$

continued ...

Table 5

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{bmatrix}$
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	$\sqrt{3}xy$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
134	symmetry	$\sqrt{3}xz$

continued ...

Table 5

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{bmatrix}$
135	symmetry	$\sqrt{3}yz$
		$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$
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	z
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{bmatrix}$
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	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{bmatrix}$
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	$\begin{bmatrix} \sqrt{3}(x-y)(x+y) \\ \sqrt{3}xy \end{bmatrix}$

continued ...

Table 5

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

continued ...

Table 5

No.	multipole	matrix
	$\mathbb{M}_{1,2}^{(1,-1;a)}(E)$	$\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 \end{bmatrix}$
151	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(A)$	$\begin{bmatrix} -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{5} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{5} \end{bmatrix}$
152	symmetry	$\sqrt{15}xyz$
	$\mathbb{M}_3^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \end{bmatrix}$
153	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	$\mathbb{M}_3^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{bmatrix}$
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	$-\frac{y(3x^2 - 2y^2 + 3z^2)}{2}$
		$\begin{bmatrix} 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{5} & -\frac{\sqrt{5}}{10} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$
156	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
		$\begin{bmatrix} 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$
157	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \end{bmatrix}$
158	symmetry	z

continued ...

Table 5

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & \frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & -\frac{\sqrt{30}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{30} & \frac{\sqrt{30}i}{20} & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{15} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{15} \end{bmatrix}$
159	symmetry	$\begin{bmatrix} 0 & \frac{\sqrt{30}}{15} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{15} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 \\ \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & 0 \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{30} \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}}{30} & 0 \end{bmatrix}$
160	symmetry	$\begin{bmatrix} 0 & \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \\ -\frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{15} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{15} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{30}i}{30} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & -\frac{\sqrt{30}i}{30} & 0 \end{bmatrix}$
		$\begin{bmatrix} x & & & & & \\ & y & & & & \\ & & z & & & \end{bmatrix}$

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

Table 6: (p,d) block.

No.	multipole	matrix
161	symmetry	z

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
166	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
167	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$
		$\begin{bmatrix} \frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 \\ 0 & \frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 \end{bmatrix}$
168	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 \\ 0 & -\frac{3\sqrt{5}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \end{bmatrix}$
169	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{Q}_3^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ \frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{12} & \frac{\sqrt{6}}{12} & 0 \\ 0 & \frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ \frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{6} & -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 \end{bmatrix}$
174	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & \frac{\sqrt{30}}{60} & \frac{\sqrt{10}i}{20} & 0 \\ 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{10}i}{20} \\ 0 & \frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 \end{bmatrix}$
175	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{30}}{20} & -\frac{\sqrt{10}i}{20} & 0 \\ 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{10}i}{20} \\ 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{30} & 0 & -\frac{\sqrt{30}}{20} & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 \end{bmatrix}$
176	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} \frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & \frac{\sqrt{2}}{6} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & -\frac{\sqrt{2}}{6} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{6} & 0 & -\frac{\sqrt{2}}{12} & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{6} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
177	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & -\frac{\sqrt{2}}{6} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 \\ \frac{\sqrt{2}}{6} & 0 & -\frac{\sqrt{2}i}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 \end{bmatrix}$
178	symmetry	$\begin{bmatrix} 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} \\ \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 \end{bmatrix}$
179	symmetry	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & \frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & -\frac{\sqrt{5}}{10} & 0 \end{bmatrix}$
180	symmetry	$\begin{bmatrix} \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} \\ 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \end{bmatrix}$
181	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{G}_2^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
194	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 \end{bmatrix}$
195	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
196	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{60} \\ -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{15}i}{60} & 0 \\ 0 & \frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{15}}{60} \\ -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & -\frac{\sqrt{15}}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & \frac{\sqrt{15}i}{15} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & -\frac{\sqrt{15}i}{15} \end{bmatrix}$
197	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} -\frac{i}{12} & 0 & 0 & 0 & 0 & \frac{i}{12} & 0 & -\frac{1}{6} & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & \frac{i}{12} & 0 & 0 & \frac{i}{12} & 0 & \frac{1}{6} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & 0 & -\frac{i}{12} & 0 & 0 & \frac{1}{3} & 0 & -\frac{i}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{12} & -\frac{1}{3} & 0 & -\frac{i}{12} & 0 & 0 & 0 \\ 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & \frac{i}{12} & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 & -\frac{i}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
214	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & -\frac{i}{12} & 0 & 0 & -\frac{1}{12} & 0 & \frac{i}{3} & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{12} & \frac{1}{12} & 0 & \frac{i}{3} & 0 & 0 & 0 \\ \frac{i}{12} & 0 & 0 & 0 & 0 & -\frac{i}{6} & 0 & \frac{1}{12} & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & -\frac{i}{12} & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{12} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ 0 & \frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & \frac{i}{12} & 0 & 0 & 0 \\ -\frac{1}{6} & 0 & -\frac{i}{6} & 0 & 0 & 0 & 0 & -\frac{i}{12} & 0 & 0 \end{bmatrix}$
215	symmetry	1 $\begin{bmatrix} 0 & \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{60} \\ \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 \\ 0 & -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{60} \\ \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & \frac{\sqrt{30}}{60} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & \frac{\sqrt{30}i}{30} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{30}i}{30} \end{bmatrix}$
216	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & -\frac{\sqrt{105}i}{210} & 0 & -\frac{\sqrt{105}}{210} & -\frac{\sqrt{105}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} \\ -\frac{\sqrt{105}i}{210} & 0 & \frac{\sqrt{105}}{210} & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 \\ 0 & \frac{\sqrt{105}}{210} & 0 & -\frac{\sqrt{105}i}{210} & 0 & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & \frac{\sqrt{35}}{35} \\ -\frac{\sqrt{105}}{210} & 0 & -\frac{\sqrt{105}i}{210} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{70} & -\frac{\sqrt{35}}{35} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{105}i}{105} & 0 & \frac{2\sqrt{105}}{105} & \frac{3\sqrt{35}i}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{2\sqrt{105}i}{105} & 0 & -\frac{2\sqrt{105}}{105} & 0 & -\frac{3\sqrt{35}i}{70} \end{bmatrix}$
217	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{T}_1^{(a)}(A)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{10} \end{bmatrix}$
222	symmetry	x $\begin{bmatrix} \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 \\ 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} \\ 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 \end{bmatrix}$
223	symmetry	y $\begin{bmatrix} 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 \end{bmatrix}$
224	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} \end{bmatrix}$
225	symmetry	$\sqrt{15}xyz$

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{T}_3^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ \frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{12} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & -\frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & \frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ -\frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{6} & 0 & 0 & \frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{6} & -\frac{\sqrt{2}i}{12} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 \end{bmatrix}$
234	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{60} & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{60} & -\frac{\sqrt{10}}{20} & 0 \\ 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{60} & 0 & \frac{\sqrt{10}}{20} \\ 0 & \frac{\sqrt{30}i}{30} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{30} & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 \end{bmatrix}$
235	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & \frac{\sqrt{30}i}{20} & \frac{\sqrt{10}}{20} & 0 \\ 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{10}}{20} \\ 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{30} & 0 & -\frac{\sqrt{30}i}{20} & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{30} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 \end{bmatrix}$
236	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} -\frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & -\frac{\sqrt{2}i}{12} & -\frac{\sqrt{6}}{12} & 0 \\ 0 & \frac{\sqrt{2}}{12} & 0 & 0 & 0 & \frac{\sqrt{2}}{12} & 0 & \frac{\sqrt{2}i}{12} & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & \frac{\sqrt{2}i}{6} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{12} & -\frac{\sqrt{2}i}{6} & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{6} & 0 & -\frac{\sqrt{2}i}{12} & \frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{6} & 0 & \frac{\sqrt{2}i}{12} & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 & 0 & 0 & 0 \end{bmatrix}$
237	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
	$\mathbb{T}_{3,2}^{(1,0;a)}(E, 1)$	$\begin{bmatrix} -\frac{7\sqrt{15}}{120} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 \\ 0 & \frac{7\sqrt{15}}{120} & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{40} \\ 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{15}}{60} & 0 & 0 & 0 & 0 & \frac{3\sqrt{5}}{40} \\ \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{60} & 0 & 0 & \frac{3\sqrt{5}}{40} & 0 \end{bmatrix}$
246	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
	$\mathbb{T}_{3,1}^{(1,0;a)}(E, 2)$	$\begin{bmatrix} -\frac{5}{24} & 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & \frac{i}{6} & \frac{\sqrt{3}}{24} & 0 \\ 0 & \frac{5}{24} & 0 & 0 & \frac{1}{12} & 0 & -\frac{i}{6} & 0 & 0 & -\frac{\sqrt{3}}{24} \\ 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{6} & -\frac{i}{6} & 0 & \frac{1}{6} & 0 & 0 & 0 \\ 0 & -\frac{1}{24} & 0 & \frac{i}{6} & \frac{1}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} \\ -\frac{1}{24} & 0 & -\frac{i}{6} & 0 & 0 & -\frac{1}{12} & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 \end{bmatrix}$
247	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
	$\mathbb{T}_{3,2}^{(1,0;a)}(E, 2)$	$\begin{bmatrix} 0 & 0 & \frac{1}{6} & 0 & 0 & -\frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{6} & \frac{i}{6} & 0 & -\frac{1}{6} & 0 & 0 & 0 \\ \frac{5}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{12} & \frac{\sqrt{3}}{24} \\ 0 & -\frac{5}{24} & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{12} & 0 & 0 & -\frac{\sqrt{3}}{24} \\ 0 & -\frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & \frac{1}{12} & 0 & 0 & \frac{\sqrt{3}i}{8} \\ \frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{1}{12} & -\frac{\sqrt{3}i}{8} & 0 \end{bmatrix}$
248	symmetry	z
	$\mathbb{T}_1^{(1,1;a)}(A)$	$\begin{bmatrix} 0 & \frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ -\frac{\sqrt{5}i}{20} & 0 & \frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & -\frac{\sqrt{5}}{20} & 0 & \frac{\sqrt{5}i}{20} & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ -\frac{\sqrt{5}}{20} & 0 & -\frac{\sqrt{5}i}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & 0 \end{bmatrix}$
249	symmetry	x

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

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

continued ...

Table 6

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & \frac{\sqrt{7}i}{14} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{\sqrt{7}i}{28} & -\frac{\sqrt{21}}{56} & 0 \\ 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{21}}{56} \\ 0 & -\frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{21}i}{56} \\ \frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & -\frac{\sqrt{21}i}{56} & 0 \end{bmatrix}$
270	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ $\begin{bmatrix} 0 & -\frac{\sqrt{3}}{12} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ -\frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 \\ 0 & -\frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ \frac{\sqrt{3}i}{12} & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 \end{bmatrix}$
271	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & -\frac{1}{12} & 0 & -\frac{i}{12} & \frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ -\frac{1}{12} & 0 & \frac{i}{12} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 \\ 0 & \frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}i}{12} \\ -\frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & 0 & 0 & \frac{1}{6} & \frac{\sqrt{3}i}{12} & 0 \\ -\frac{1}{3} & 0 & 0 & 0 & 0 & 0 & \frac{1}{12} & 0 & \frac{i}{12} & 0 \\ 0 & \frac{1}{3} & 0 & 0 & \frac{1}{12} & 0 & -\frac{i}{12} & 0 & 0 & 0 \end{bmatrix}$
272	symmetry	$\sqrt{3}xy$ $\begin{bmatrix} 0 & \frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{\sqrt{3}i}{12} \\ -\frac{i}{12} & 0 & -\frac{1}{12} & 0 & 0 & 0 & 0 & -\frac{1}{6} & -\frac{\sqrt{3}i}{12} & 0 \\ 0 & \frac{1}{12} & 0 & \frac{i}{12} & \frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} \\ \frac{1}{12} & 0 & -\frac{i}{12} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 \\ 0 & 0 & -\frac{1}{3} & 0 & 0 & -\frac{i}{12} & 0 & \frac{1}{12} & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{3} & \frac{i}{12} & 0 & \frac{1}{12} & 0 & 0 & 0 \end{bmatrix}$
273	symmetry	$\sqrt{3}xz$

continued ...

Table 6

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

continued ...

Table 6

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

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

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

Table 7: (p,f) block.

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_{2,1}^{(a)}(E)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 \end{bmatrix}$
285	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{21} & 0 & 0 \end{bmatrix}$
286	symmetry	$\begin{bmatrix} \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \end{bmatrix}$
287	symmetry	$\begin{bmatrix} -\frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{42} & 0 \end{bmatrix}$
288	symmetry	$\begin{bmatrix} \frac{\sqrt{35}xy(x-y)(x+y)}{2} \end{bmatrix}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_4^{(a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
289	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{56} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{56} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
290	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 \\ \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
291	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 \end{bmatrix}$
292	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_{4,2}^{(a)}(E, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{16} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{16} & 0 & 0 & 0 \end{bmatrix}$
293	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 & 0 \end{bmatrix}$
294	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & \frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{112} & 0 & 0 & 0 \end{bmatrix}$
295	symmetry	$\frac{\sqrt{21}(x^4-3x^2y^2-3x^2z^2+y^4-3y^2z^2+z^4)}{6}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{1}{8} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & \frac{1}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 & \frac{i}{8} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & \frac{i}{8} \\ 0 & \frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{48} & 0 & -\frac{\sqrt{6}i}{48} & 0 & 0 \\ -\frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{48} & 0 & -\frac{\sqrt{6}i}{48} & 0 & 0 \end{bmatrix}$
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
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{168} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}}{56} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{168} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & \frac{\sqrt{35}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{168} & 0 & -\frac{\sqrt{21}}{28} & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{56} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{168} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & \frac{\sqrt{35}i}{56} & 0 \\ 0 & -\frac{\sqrt{14}}{16} & 0 & -\frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{210}i}{336} & 0 & 0 \\ \frac{\sqrt{14}}{16} & 0 & -\frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{336} & 0 & -\frac{\sqrt{210}i}{336} & 0 & 0 & 0 \end{bmatrix}$
297	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{8} & 0 & \frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{8} & 0 & -\frac{\sqrt{6}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
298	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & -\frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & -\frac{\sqrt{105}}{56} & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{28} & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} \\ 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 \\ 0 & -\frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 \\ \frac{\sqrt{42}}{112} & 0 & \frac{\sqrt{42}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 \end{bmatrix}$
299	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
		$\begin{bmatrix} \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{56} & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} \\ 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{56} \\ 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & -\frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & \frac{\sqrt{105}}{56} & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{112} & 0 & \frac{\sqrt{42}}{112} & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 \\ \frac{\sqrt{42}i}{112} & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 \end{bmatrix}$
300	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_{4,1}^{(1,-1;a)}(E, 1)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}}{32} & -\frac{3i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{32} & -\frac{\sqrt{15}i}{16} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & 0 & \frac{\sqrt{15}i}{16} \\ 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & 0 & -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{8} & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 \end{bmatrix}$
301	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{32} & 0 & 0 & -\frac{\sqrt{15}i}{16} & 0 \\ -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & -\frac{3i}{16} & 0 & 0 & \frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{16} \\ 0 & 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 \end{bmatrix}$
302	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{42}}{56} & 0 & \frac{3\sqrt{42}i}{224} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 \\ -\frac{\sqrt{42}}{56} & 0 & \frac{3\sqrt{42}i}{224} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & -\frac{\sqrt{70}}{56} & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{42}i}{224} & 0 & \frac{\sqrt{42}}{56} & \frac{\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{224} & 0 & -\frac{\sqrt{70}}{56} & \frac{\sqrt{105}i}{112} & 0 \\ -\frac{3\sqrt{42}i}{224} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{112} \\ 0 & 0 & -\frac{\sqrt{42}i}{32} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{32} & \frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & \frac{\sqrt{70}i}{224} & 0 & 0 & 0 \end{bmatrix}$
303	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{3\sqrt{42}}{224} & \frac{\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & -\frac{\sqrt{70}}{224} & -\frac{\sqrt{105}i}{112} & 0 \\ \frac{\sqrt{42}i}{56} & 0 & \frac{3\sqrt{42}}{224} & 0 & 0 & -\frac{\sqrt{7}i}{112} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & \frac{\sqrt{70}}{224} & 0 & 0 & \frac{\sqrt{105}i}{112} \\ 0 & \frac{3\sqrt{42}}{224} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{5\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 \\ -\frac{3\sqrt{42}}{224} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} & \frac{5\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{3\sqrt{7}}{56} & \frac{\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{32} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{70}i}{224} & 0 & 0 & 0 & 0 \end{bmatrix}$
304	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_{2,2}^{(1,0;a)}(E)$	$\begin{bmatrix} 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & \frac{\sqrt{70}i}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & \frac{\sqrt{7}}{84} & -\frac{\sqrt{42}i}{84} & 0 \\ -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{5\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{84} & 0 & 0 & \frac{\sqrt{42}i}{84} \\ 0 & \frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & \frac{\sqrt{70}i}{84} & 0 & 0 & \frac{\sqrt{7}}{84} & 0 & -\frac{\sqrt{7}i}{12} & 0 & 0 \\ -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & -\frac{\sqrt{7}}{84} & 0 & -\frac{\sqrt{7}i}{12} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & -\frac{\sqrt{70}}{84} & \frac{\sqrt{7}i}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{84} & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{7}i}{21} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 \end{bmatrix}$
309	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & -\frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \\ 0 & \frac{\sqrt{6}}{48} & 0 & \frac{\sqrt{6}i}{48} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 \\ -\frac{\sqrt{6}}{48} & 0 & \frac{\sqrt{6}i}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
310	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{210}i}{60} & 0 & 0 & -\frac{\sqrt{35}}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{168} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{60} & \frac{\sqrt{35}}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 \\ \frac{\sqrt{210}i}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{280} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} \\ 0 & -\frac{\sqrt{210}i}{60} & 0 & 0 & -\frac{\sqrt{35}i}{280} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} & 0 \\ 0 & -\frac{\sqrt{210}}{240} & 0 & -\frac{\sqrt{210}i}{240} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{112} & 0 & \frac{5\sqrt{14}i}{112} & 0 & 0 \\ \frac{\sqrt{210}}{240} & 0 & -\frac{\sqrt{210}i}{240} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{112} & 0 & \frac{5\sqrt{14}i}{112} & 0 & 0 & 0 \end{bmatrix}$
311	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & -\frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{10} & -\frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}i}{40} & 0 & -\frac{\sqrt{10}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
312	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
$\mathbb{Q}_{4,1}^{(1,0;a)}(E, 2)$	0	$\begin{bmatrix} 0 & \frac{\sqrt{70}}{70} & 0 & -\frac{9\sqrt{70}i}{1120} & 0 & 0 & \frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & 0 \\ -\frac{\sqrt{70}}{70} & 0 & -\frac{9\sqrt{70}i}{1120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & 0 & 0 \\ 0 & -\frac{19\sqrt{70}i}{1120} & 0 & -\frac{3\sqrt{70}}{280} & \frac{11\sqrt{105}i}{560} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & \frac{\sqrt{42}}{56} & \frac{\sqrt{7}i}{112} & 0 \\ -\frac{19\sqrt{70}i}{1120} & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & -\frac{11\sqrt{105}i}{560} & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{7}i}{112} \\ 0 & 0 & \frac{3\sqrt{70}i}{160} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & \frac{\sqrt{42}i}{224} & 0 & 0 & -\frac{\sqrt{7}}{28} \\ 0 & 0 & 0 & -\frac{3\sqrt{70}i}{160} & \frac{\sqrt{105}}{140} & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{224} & \frac{\sqrt{7}}{28} & 0 \end{bmatrix}$
	317 symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$
	$\mathbb{Q}_{4,2}^{(1,0;a)}(E, 2)$	$\begin{bmatrix} 0 & -\frac{3\sqrt{70}i}{280} & 0 & -\frac{19\sqrt{70}}{1120} & \frac{11\sqrt{105}i}{560} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & \frac{5\sqrt{42}}{224} & -\frac{\sqrt{7}i}{112} & 0 \\ -\frac{3\sqrt{70}i}{280} & 0 & \frac{19\sqrt{70}}{1120} & 0 & 0 & -\frac{11\sqrt{105}i}{560} & 0 & 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{5\sqrt{42}}{224} & 0 & 0 & \frac{\sqrt{7}i}{112} \\ 0 & -\frac{9\sqrt{70}}{1120} & 0 & \frac{\sqrt{70}i}{70} & 0 & 0 & -\frac{\sqrt{105}i}{56} & 0 & 0 & \frac{5\sqrt{42}}{224} & 0 & 0 & 0 & 0 \\ \frac{9\sqrt{70}}{1120} & 0 & \frac{\sqrt{70}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{56} & -\frac{5\sqrt{42}}{224} & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{70}i}{160} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & \frac{\sqrt{105}}{56} & -\frac{\sqrt{42}i}{224} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} \\ 0 & -\frac{3\sqrt{70}i}{160} & 0 & 0 & -\frac{\sqrt{105}i}{140} & 0 & -\frac{\sqrt{105}}{56} & 0 & 0 & \frac{\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 \end{bmatrix}$
		318 symmetry
		$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{28} & -\frac{\sqrt{7}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{42}i}{28} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 \end{bmatrix}$
		319 symmetry
$\mathbb{Q}_2^{(1,1;a)}(A)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{84} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{168} & -\frac{\sqrt{21}}{84} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{84} & -\frac{5\sqrt{14}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{84} & 0 & 0 & \frac{5\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 \\ 0 & -\frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{14}}{168} & 0 & -\frac{\sqrt{14}i}{168} & 0 & 0 \\ \frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{14}}{168} & 0 & -\frac{\sqrt{14}i}{168} & 0 & 0 & 0 \end{bmatrix}$	
	320 symmetry	$\sqrt{3}xy$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{Q}_2^{(1,1;a)}(B, 2)$	$\begin{bmatrix} \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & \frac{5\sqrt{14}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 \\ 0 & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}}{84} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{168} & -\frac{\sqrt{21}}{84} & 0 \\ 0 & -\frac{\sqrt{210}i}{56} & 0 & -\frac{\sqrt{210}}{56} & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{168} & 0 & -\frac{\sqrt{14}}{168} & 0 & 0 \\ -\frac{\sqrt{210}i}{56} & 0 & \frac{\sqrt{210}}{56} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}i}{168} & 0 & \frac{\sqrt{14}}{168} & 0 & 0 & 0 \end{bmatrix}$
321	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{5\sqrt{14}}{168} & 0 & \frac{\sqrt{14}i}{168} & 0 & 0 \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & -\frac{5\sqrt{14}}{168} & 0 & \frac{\sqrt{14}i}{168} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{14}i}{168} & 0 & -\frac{5\sqrt{14}}{168} & -\frac{\sqrt{21}i}{21} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{11\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & \frac{\sqrt{21}i}{21} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}i}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{42} & 0 & 0 \end{bmatrix}$
322	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{168} & 0 & \frac{11\sqrt{14}}{168} & \frac{\sqrt{21}i}{21} & 0 \\ \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{5\sqrt{14}i}{168} & 0 & -\frac{11\sqrt{14}}{168} & 0 & 0 & -\frac{\sqrt{21}i}{21} \\ 0 & -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{14}}{168} & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 \\ \frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{14}}{168} & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & -\frac{\sqrt{14}i}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}i}{42} & 0 & 0 & 0 & 0 \end{bmatrix}$
323	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
324	symmetry	$\sqrt{15}xyz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(a)}(B, 1)$	$\begin{bmatrix} -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
325	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 \\ -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
326	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 \end{bmatrix}$
327	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
328	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_{3,1}^{(a)}(E, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
329	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} \\ 0 & 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 \end{bmatrix}$
330	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & -\frac{\sqrt{21}}{42} & \frac{\sqrt{210}i}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{70} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{210}i}{70} & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & \frac{\sqrt{210}i}{70} & 0 & 0 & \frac{\sqrt{35}}{70} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{70} & -\frac{\sqrt{35}}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{105} & 0 & -\frac{\sqrt{210}}{105} & \frac{3\sqrt{35}i}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{105} & 0 & \frac{\sqrt{210}}{105} & 0 & 0 & -\frac{3\sqrt{35}i}{70} \end{bmatrix}$
331	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{14}i}{84} & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & -\frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & 0 & \frac{\sqrt{14}i}{84} & \frac{\sqrt{21}}{42} & 0 \\ -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & \frac{\sqrt{35}}{42} & -\frac{\sqrt{14}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}i}{21} & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & -\frac{\sqrt{14}}{21} & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 & 0 \end{bmatrix}$
332	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
$\mathbb{G}_{3,2}^{(1,-1;a)}(E, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{84} & -\frac{\sqrt{35}i}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & -\frac{\sqrt{14}}{84} & \frac{\sqrt{21}i}{42} & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{5\sqrt{14}i}{168} & 0 & \frac{\sqrt{14}}{84} & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & -\frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & -\frac{\sqrt{14}}{84} & 0 & -\frac{\sqrt{14}i}{24} & 0 & 0 \\ \frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & \frac{\sqrt{14}}{84} & 0 & -\frac{\sqrt{14}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & -\frac{\sqrt{14}i}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{84} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}i}{21} & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 \end{bmatrix}$	
	337 symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
	$\mathbb{G}_5^{(1,-1;a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{20} & -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	338 symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$
$\mathbb{G}_5^{(1,-1;a)}(A, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{21}}{84} & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & -\frac{\sqrt{21}}{84} & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}}{42} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & \frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & -\frac{\sqrt{210}}{84} & \frac{\sqrt{35}i}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}i}{21} & 0 \end{bmatrix}$	
	339 symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
	$\mathbb{G}_5^{(1,-1;a)}(A, 3)$	$\begin{bmatrix} \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}i}{20} & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{20} & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	340 symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 7

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

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,0;a)}(A)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
349	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & \frac{1}{24} & 0 & \frac{i}{6} & 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & \frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & -\frac{1}{24} & 0 & \frac{i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{24} & -\frac{\sqrt{15}}{24} & 0 & 0 \\ \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & -\frac{i}{24} & 0 & \frac{1}{6} & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & -\frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \\ 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & \frac{i}{6} & 0 & 0 & -\frac{\sqrt{10}}{48} & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & -\frac{i}{6} & \frac{\sqrt{10}}{48} & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
350	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{24} & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{24} & 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & \frac{1}{6} & 0 & \frac{i}{24} & 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & -\frac{1}{6} & 0 & \frac{i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{24} & \frac{\sqrt{15}}{24} & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{16} & 0 & -\frac{\sqrt{6}}{16} & \frac{i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & \frac{\sqrt{10}}{48} & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & -\frac{i}{6} & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & -\frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
351	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}}{32} & -\frac{\sqrt{15}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{96} & \frac{i}{16} & 0 \\ 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{i}{16} & 0 \\ 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{11\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & \frac{11\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & -\frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
352	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_{3,2}^{(1,0;a)}(E, 1)$	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{11\sqrt{6}i}{96} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{11\sqrt{6}i}{96} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & \frac{\sqrt{15}i}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & \frac{i}{16} & 0 \\ \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{48} & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & -\frac{i}{16} \\ 0 & 0 & -\frac{3\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{6}i}{96} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{10}i}{32} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 \end{bmatrix}$
353	symmetry	$\begin{bmatrix} 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & \frac{i}{24} & 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & \frac{7\sqrt{10}i}{96} & 0 & 0 \\ \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & -\frac{i}{24} & \frac{\sqrt{10}}{24} & 0 & \frac{7\sqrt{10}i}{96} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{96} & 0 & -\frac{\sqrt{6}}{24} & \frac{7i}{48} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{10}i}{96} & 0 & \frac{\sqrt{10}}{24} & -\frac{\sqrt{15}i}{48} & 0 \\ -\frac{\sqrt{6}i}{96} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & -\frac{7i}{48} & 0 & 0 & -\frac{5\sqrt{10}i}{96} & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & \frac{\sqrt{15}i}{48} \\ 0 & 0 & -\frac{3\sqrt{6}i}{32} & 0 & 0 & \frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & \frac{\sqrt{10}i}{96} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{6}i}{32} & -\frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{96} & 0 & 0 & 0 \end{bmatrix}$
354	symmetry	$\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{96} & \frac{7i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & \frac{5\sqrt{10}}{96} & \frac{\sqrt{15}i}{48} & 0 \\ -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{96} & 0 & 0 & -\frac{7i}{48} & 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & -\frac{5\sqrt{10}}{96} & 0 & 0 & -\frac{\sqrt{15}i}{48} \\ 0 & \frac{\sqrt{6}}{96} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & -\frac{i}{24} & 0 & 0 & -\frac{7\sqrt{10}}{96} & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 \\ -\frac{\sqrt{6}}{96} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & \frac{i}{24} & \frac{7\sqrt{10}}{96} & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & 0 \\ -\frac{3\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{24} & -\frac{\sqrt{10}i}{96} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{6}i}{32} & 0 & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{24} & 0 & 0 & \frac{\sqrt{10}i}{96} & 0 & 0 & 0 & 0 \end{bmatrix}$
355	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & \frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{35} & \frac{\sqrt{210}}{140} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & \frac{\sqrt{35}}{35} & \frac{\sqrt{210}i}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & -\frac{\sqrt{210}i}{70} \end{bmatrix}$
356	symmetry	x

continued ...

Table 7

No.	multipole	matrix
$\mathbb{G}_{1,1}^{(1,1;a)}(E)$	y	$\begin{bmatrix} 0 & \frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{35}i}{140} & 0 & -\frac{\sqrt{35}}{140} & -\frac{\sqrt{210}i}{140} & 0 \\ \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{3\sqrt{35}i}{140} & 0 & \frac{\sqrt{35}}{140} & 0 & 0 & \frac{\sqrt{210}i}{140} \\ 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 \\ \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & \frac{\sqrt{35}i}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}i}{140} & 0 \end{bmatrix}$
	y	
$\mathbb{G}_{1,2}^{(1,1;a)}(E)$	y	$\begin{bmatrix} 0 & -\frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 \\ \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{35}}{140} & 0 & -\frac{\sqrt{35}i}{140} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & -\frac{3\sqrt{35}}{140} & -\frac{\sqrt{210}i}{140} & 0 \\ -\frac{\sqrt{21}i}{28} & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}i}{140} & 0 & \frac{3\sqrt{35}}{140} & 0 & 0 & \frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}i}{35} & \frac{\sqrt{210}}{140} & 0 \end{bmatrix}$
	y	
$\mathbb{G}_3^{(1,1;a)}(A)$	$\frac{-z(3x^2+3y^2-2z^2)}{2}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & -\frac{\sqrt{105}}{168} & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & \frac{5\sqrt{7}i}{84} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & 0 & \frac{5\sqrt{7}i}{84} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 & \frac{5\sqrt{7}}{84} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{42} & -\frac{5\sqrt{7}}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & \frac{5\sqrt{42}}{168} & \frac{2\sqrt{7}i}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & -\frac{5\sqrt{42}}{168} & 0 & 0 & -\frac{2\sqrt{7}i}{21} & 0 \end{bmatrix}$
	$\frac{-z(3x^2+3y^2-2z^2)}{2}$	
$\mathbb{G}_3^{(1,1;a)}(B,1)$	$\sqrt{15}xyz$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}}{168} \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{168} & \frac{3\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & \frac{\sqrt{105}}{168} & 0 \\ \frac{\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & \frac{\sqrt{7}}{14} & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} \\ 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 \\ 0 & -\frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{42}i}{48} & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 \\ \frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{42}i}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & \frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 \end{bmatrix}$
	$\sqrt{15}xyz$	
360	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
	symmetry	

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_3^{(1,1;a)}(B, 2)$	$\begin{bmatrix} -\frac{\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & \frac{3\sqrt{7}}{56} & \frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{168} \\ 0 & \frac{\sqrt{42}i}{168} & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 \\ 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}}{168} & \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{168} & -\frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{56} & -\frac{\sqrt{105}}{168} & 0 \\ 0 & \frac{\sqrt{42}i}{48} & 0 & \frac{\sqrt{42}}{48} & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & \frac{\sqrt{70}}{112} & 0 & 0 & \\ \frac{\sqrt{42}i}{48} & 0 & -\frac{\sqrt{42}}{48} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{70}i}{112} & 0 & -\frac{\sqrt{70}}{112} & 0 & 0 & 0 \end{bmatrix}$
361	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{70}i}{42} & 0 & \frac{5\sqrt{70}}{224} & \frac{5\sqrt{105}i}{336} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & -\frac{5\sqrt{42}}{672} & -\frac{5\sqrt{7}i}{112} & 0 \\ \frac{\sqrt{70}i}{42} & 0 & -\frac{5\sqrt{70}}{224} & 0 & 0 & -\frac{5\sqrt{105}i}{336} & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & \frac{5\sqrt{42}}{672} & 0 & 0 & \frac{5\sqrt{7}i}{112} \\ 0 & \frac{13\sqrt{70}}{672} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{5\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{168} & 0 & 0 \\ -\frac{13\sqrt{70}}{672} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & \frac{5\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{168} & 0 & 0 & 0 \\ \frac{\sqrt{70}i}{96} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{168} & -\frac{5\sqrt{42}i}{224} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} \\ 0 & -\frac{\sqrt{70}i}{96} & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & \frac{5\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 \end{bmatrix}$
362	symmetry	$\frac{-y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{70}}{56} & 0 & -\frac{13\sqrt{70}i}{672} & 0 & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & \frac{\sqrt{42}}{168} & 0 & -\frac{5\sqrt{42}i}{672} & 0 & 0 \\ -\frac{\sqrt{70}}{56} & 0 & -\frac{13\sqrt{70}i}{672} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{168} & -\frac{\sqrt{42}}{168} & 0 & -\frac{5\sqrt{42}i}{672} & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{70}i}{224} & 0 & -\frac{\sqrt{70}}{42} & -\frac{5\sqrt{105}i}{336} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{672} & 0 & -\frac{\sqrt{42}}{42} & -\frac{5\sqrt{7}i}{112} & 0 \\ -\frac{5\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{42} & 0 & 0 & \frac{5\sqrt{105}i}{336} & 0 & 0 & -\frac{5\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & \frac{5\sqrt{7}i}{112} \\ 0 & 0 & -\frac{\sqrt{70}i}{96} & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & -\frac{5\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}}{28} \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{96} & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & 0 & \frac{5\sqrt{42}i}{224} & -\frac{\sqrt{7}}{28} & 0 \end{bmatrix}$
363	symmetry	$\frac{-\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{42}}{42} & 0 & -\frac{17\sqrt{42}i}{672} & 0 & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & 0 \\ -\frac{\sqrt{42}}{42} & 0 & -\frac{17\sqrt{42}i}{672} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{42}i}{672} & 0 & -\frac{\sqrt{42}}{56} & -\frac{\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & \frac{5\sqrt{105}i}{336} & 0 \\ -\frac{11\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{5\sqrt{105}i}{336} \\ 0 & 0 & -\frac{\sqrt{42}i}{96} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 & -\frac{\sqrt{105}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{96} & \frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & 0 & -\frac{5\sqrt{70}i}{224} & \frac{\sqrt{105}}{84} & 0 \end{bmatrix}$
364	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{G}_{3,2}^{(1,1;a)}(E, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{11\sqrt{42}}{672} & -\frac{\sqrt{7}i}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{3\sqrt{70}}{224} & -\frac{5\sqrt{105}i}{336} & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & \frac{11\sqrt{42}}{672} & 0 & 0 & \frac{\sqrt{7}i}{112} & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & \frac{3\sqrt{70}}{224} & 0 & 0 & \frac{5\sqrt{105}i}{336} \\ 0 & -\frac{17\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{3\sqrt{70}}{224} & 0 & 0 & 0 & 0 \\ \frac{17\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}i}{56} & \frac{3\sqrt{70}}{224} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{96} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{56} & -\frac{5\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{84} \\ 0 & \frac{\sqrt{42}i}{96} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 & \frac{\sqrt{105}i}{84} & 0 \end{bmatrix}$
365	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
	$\mathbb{T}_2^{(a)}(A)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} \end{bmatrix}$
366	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
	$\mathbb{T}_2^{(a)}(B, 1)$	$\begin{bmatrix} \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
367	symmetry	$\sqrt{3}xy$
	$\mathbb{T}_2^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 \\ -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
368	symmetry	$\sqrt{3}xz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_{2,1}^{(a)}(E)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 & 0 \end{bmatrix}$
369	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{21} & 0 & 0 \end{bmatrix}$
370	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} \end{bmatrix}$
371	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - z^4)}{12}$ $\begin{bmatrix} -\frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} \end{bmatrix}$
372	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_4^{(a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
373	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
374	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 \\ \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
375	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} \\ 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{16} & 0 & 0 \end{bmatrix}$
376	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_{4,2}^{(a)}(E, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 \end{bmatrix}$
377	symmetry	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 & 0 \end{bmatrix}$
378	symmetry	$\frac{\sqrt{5}yz(6x^2 - y^2 - z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{21}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{56} \\ 0 & 0 & \frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{112} & 0 & 0 \end{bmatrix}$
379	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{i}{8} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} & \frac{i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{1}{8} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{1}{8} & 0 \\ 0 & \frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 \\ -\frac{\sqrt{10}i}{16} & 0 & -\frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 & 0 \end{bmatrix}$
380	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_{4,1}^{(1,-1;a)}(E, 1)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{32} & \frac{3}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{32} & \frac{\sqrt{15}}{16} & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{3}{16} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}i}{32} & 0 & 0 & -\frac{\sqrt{15}}{16} \\ 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{8} & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 \end{bmatrix}$
385	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{32} & 0 & 0 & -\frac{3}{16} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & 0 & \frac{\sqrt{15}}{16} & 0 \\ \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{16} \\ 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{\sqrt{10}}{32} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{32} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 \end{bmatrix}$
386	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{42}i}{56} & 0 & -\frac{3\sqrt{42}}{224} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{70}i}{56} & 0 & -\frac{5\sqrt{70}}{224} & 0 & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & -\frac{3\sqrt{42}}{224} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} & -\frac{\sqrt{70}i}{56} & 0 & -\frac{5\sqrt{70}}{224} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{42}}{224} & 0 & \frac{\sqrt{42}i}{56} & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{56} & -\frac{\sqrt{105}}{112} & 0 \\ \frac{3\sqrt{42}}{224} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & -\frac{\sqrt{70}}{224} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}}{112} \\ 0 & 0 & \frac{\sqrt{42}}{32} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{32} & \frac{\sqrt{7}i}{14} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{224} & 0 & 0 \end{bmatrix}$
387	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{42}}{56} & 0 & -\frac{3\sqrt{42}i}{224} & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{\sqrt{70}i}{224} & \frac{\sqrt{105}}{112} & 0 \\ -\frac{\sqrt{42}}{56} & 0 & \frac{3\sqrt{42}i}{224} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{\sqrt{70}i}{224} & 0 & 0 & -\frac{\sqrt{105}}{112} \\ 0 & \frac{3\sqrt{42}i}{224} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{5\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 \\ -\frac{3\sqrt{42}i}{224} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} & \frac{5\sqrt{70}i}{224} & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 \\ \frac{\sqrt{42}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{3\sqrt{7}i}{56} & -\frac{\sqrt{70}}{224} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{32} & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{\sqrt{70}}{224} & 0 & 0 & 0 & 0 \end{bmatrix}$
388	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{T}_{2,2}^{(1,0;a)}(E)$	$\begin{bmatrix} 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{84} & \frac{\sqrt{70}}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{7}}{84} & 0 & -\frac{\sqrt{7}i}{84} & -\frac{\sqrt{42}}{84} & 0 \\ -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & 0 & 0 & -\frac{5\sqrt{7}}{84} & 0 & \frac{\sqrt{7}i}{84} & 0 & 0 & \frac{\sqrt{42}}{84} \\ 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & \frac{\sqrt{70}}{84} & 0 & 0 & -\frac{\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{12} & 0 & 0 & 0 \\ \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & \frac{\sqrt{7}i}{84} & 0 & -\frac{\sqrt{7}}{12} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & \frac{\sqrt{70}i}{84} & \frac{\sqrt{7}}{21} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{84} & 0 & -\frac{\sqrt{70}i}{84} & 0 & 0 & -\frac{\sqrt{7}}{21} & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & 0 \end{bmatrix}$
393	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 \\ -\frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} \\ 0 & \frac{\sqrt{6}}{12} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 \\ 0 & -\frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{16} & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{16} & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
394	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{210}}{60} & 0 & 0 & \frac{\sqrt{35}i}{280} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}i}{168} \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{60} & -\frac{\sqrt{35}i}{280} & 0 & -\frac{3\sqrt{35}}{140} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}i}{168} & 0 \\ \frac{\sqrt{210}}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{280} & 0 & -\frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} \\ 0 & -\frac{\sqrt{210}}{60} & 0 & 0 & -\frac{\sqrt{35}}{280} & 0 & \frac{3\sqrt{35}i}{140} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{21}}{168} & 0 \\ 0 & \frac{\sqrt{210}i}{240} & 0 & -\frac{\sqrt{210}}{240} & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}i}{112} & 0 & \frac{5\sqrt{14}}{112} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{210}i}{240} & 0 & -\frac{\sqrt{210}}{240} & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}i}{112} & 0 & \frac{5\sqrt{14}}{112} & 0 & 0 & 0 & 0 \end{bmatrix}$
395	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ $\begin{bmatrix} \frac{\sqrt{10}}{10} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & -\frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{10} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 & \frac{\sqrt{15}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{10} & 0 & 0 & -\frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{10} & \frac{\sqrt{15}i}{40} & 0 & \frac{\sqrt{15}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{40} & 0 & -\frac{\sqrt{10}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
396	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 7

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

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & \frac{\sqrt{35}i}{42} & -\frac{5\sqrt{14}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} \\ 0 & \frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & 0 & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & \frac{\sqrt{21}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{210}}{168} & -\frac{\sqrt{35}i}{84} & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & -\frac{\sqrt{21}i}{84} & 0 \\ 0 & \frac{\sqrt{210}}{56} & 0 & -\frac{\sqrt{210}i}{56} & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{168} & 0 & -\frac{\sqrt{14}i}{168} & 0 & 0 \\ \frac{\sqrt{210}}{56} & 0 & \frac{\sqrt{210}i}{56} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}}{168} & 0 & \frac{\sqrt{14}i}{168} & 0 & 0 & 0 \end{bmatrix}$
405	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & \frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{5\sqrt{14}i}{168} & 0 & -\frac{\sqrt{14}}{168} & 0 & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} & -\frac{5\sqrt{14}i}{168} & 0 & -\frac{\sqrt{14}}{168} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & \frac{11\sqrt{14}}{168} & 0 & -\frac{5\sqrt{14}i}{168} & \frac{\sqrt{21}}{21} & 0 \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & \frac{11\sqrt{14}}{168} & 0 & \frac{5\sqrt{14}i}{168} & 0 & 0 & -\frac{\sqrt{21}}{21} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & \frac{\sqrt{14}}{42} & 0 & 0 \end{bmatrix}$
406	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} 0 & -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & \frac{11\sqrt{14}i}{168} & -\frac{\sqrt{21}}{21} & 0 \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & -\frac{11\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}}{21} \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & -\frac{\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 \\ \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & \frac{\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & -\frac{\sqrt{35}i}{42} & \frac{\sqrt{14}}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & \frac{\sqrt{35}i}{42} & 0 & -\frac{\sqrt{14}}{42} & 0 & 0 & 0 & 0 \end{bmatrix}$
407	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
408	symmetry	$\sqrt{15}xyz$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_3^{(a)}(B, 1)$	$\begin{bmatrix} \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
409	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
410	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{8} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
411	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
412	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 7

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

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_{3,2}^{(1,-1;a)}(E, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{84} & -\frac{\sqrt{35}}{42} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & \frac{\sqrt{14}i}{84} & \frac{\sqrt{21}}{42} & 0 \\ -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & \frac{\sqrt{35}}{42} & 0 & 0 & 0 & -\frac{5\sqrt{14}}{168} & 0 & -\frac{\sqrt{14}i}{84} & 0 & 0 & -\frac{\sqrt{21}}{42} \\ 0 & \frac{\sqrt{210}i}{84} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 & 0 & \frac{\sqrt{14}i}{84} & 0 & -\frac{\sqrt{14}}{24} & 0 & 0 & 0 \\ -\frac{\sqrt{210}i}{84} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{42} & -\frac{\sqrt{14}i}{84} & 0 & -\frac{\sqrt{14}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & -\frac{\sqrt{35}i}{42} & -\frac{\sqrt{14}}{21} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{84} & 0 & \frac{\sqrt{35}i}{42} & 0 & 0 & \frac{\sqrt{14}}{21} & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 \end{bmatrix}$
421	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & -\frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & \frac{\sqrt{15}i}{20} & 0 & \frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
422	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & -\frac{\sqrt{21}i}{84} & -\frac{\sqrt{210}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{84} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & \frac{\sqrt{210}}{84} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & 0 & \frac{\sqrt{35}i}{42} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 & \frac{\sqrt{21}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{84} & -\frac{\sqrt{35}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & \frac{\sqrt{210}i}{84} & \frac{\sqrt{35}}{21} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{84} & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & -\frac{\sqrt{35}}{21} & 0 \end{bmatrix}$
423	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$ $\begin{bmatrix} \frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & 0 & \frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{20} & -\frac{\sqrt{15}i}{20} & 0 & -\frac{\sqrt{15}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
424	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 7

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

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_3^{(1,0;a)}(A)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 \end{bmatrix}$
433	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & \frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & \frac{\sqrt{10}}{24} & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & -\frac{i}{24} & 0 & -\frac{1}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{24} & -\frac{\sqrt{15}i}{24} & 0 \\ -\frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & \frac{1}{24} & 0 & \frac{i}{6} & \frac{\sqrt{10}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & \frac{\sqrt{6}}{24} & 0 & 0 & \frac{1}{24} & 0 & -\frac{i}{6} & 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 \\ 0 & \frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & -\frac{1}{6} & 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & \frac{\sqrt{10}}{48} & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{16} & 0 & \frac{\sqrt{6}}{16} & 0 & 0 & 0 & 0 & \frac{1}{6} & \frac{\sqrt{10}i}{48} & 0 & \frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
434	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$ $\begin{bmatrix} \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{24} & \frac{\sqrt{10}}{24} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & -\frac{\sqrt{6}}{24} & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{24} & 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 \\ 0 & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & \frac{i}{6} & 0 & -\frac{1}{24} & 0 & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{24} & -\frac{i}{6} & 0 & -\frac{1}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{24} & \frac{\sqrt{15}i}{24} & 0 & 0 \\ 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & -\frac{1}{6} & 0 & 0 & 0 & \frac{\sqrt{10}}{48} & 0 & \frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{16} & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & \frac{1}{6} & 0 & 0 & \frac{\sqrt{10}}{48} & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 \end{bmatrix}$
435	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}i}{32} & \frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{96} & -\frac{1}{16} & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{96} & 0 & 0 & \frac{1}{16} \\ 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & -\frac{11\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & \frac{11\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & \frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{10}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
436	symmetry	$-\frac{y(3x^2-2y^2+3z^2)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_{3,2}^{(1,0;a)}(E, 1)$	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & \frac{11\sqrt{6}}{96} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{11\sqrt{6}}{96} & 0 & 0 \\ 0 & -\frac{\sqrt{10}}{32} & 0 & 0 & -\frac{\sqrt{15}}{48} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{1}{16} & 0 \\ -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{48} & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{1}{16} \\ 0 & 0 & \frac{3\sqrt{10}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{\sqrt{6}}{96} & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{10}}{32} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 \end{bmatrix}$
437	symmetry	$\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{1}{24} & 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & -\frac{7\sqrt{10}}{96} & 0 & 0 \\ \frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{1}{24} & \frac{\sqrt{10}i}{24} & 0 & -\frac{7\sqrt{10}}{96} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{96} & 0 & -\frac{\sqrt{6}i}{24} & -\frac{7}{48} & 0 & 0 & 0 & 0 & \frac{5\sqrt{10}}{96} & 0 & \frac{\sqrt{10}i}{24} & \frac{\sqrt{15}}{48} & 0 \\ \frac{\sqrt{6}}{96} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & \frac{7}{48} & 0 & 0 & \frac{5\sqrt{10}}{96} & 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & -\frac{\sqrt{15}}{48} \\ 0 & 0 & \frac{3\sqrt{6}}{32} & 0 & 0 & \frac{i}{6} & 0 & \frac{1}{24} & 0 & 0 & -\frac{\sqrt{10}}{96} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{6}}{32} & -\frac{i}{6} & 0 & \frac{1}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{96} & 0 & 0 \end{bmatrix}$
438	symmetry	$\begin{bmatrix} 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{96} & -\frac{7}{48} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{24} & 0 & \frac{5\sqrt{10}i}{96} & -\frac{\sqrt{15}}{48} & 0 \\ \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{96} & 0 & 0 & \frac{7}{48} & 0 & 0 & \frac{\sqrt{10}}{24} & 0 & -\frac{5\sqrt{10}i}{96} & 0 & 0 & \frac{\sqrt{15}}{48} \\ 0 & \frac{\sqrt{6}i}{96} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & \frac{1}{24} & 0 & 0 & -\frac{7\sqrt{10}i}{96} & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 \\ -\frac{\sqrt{6}i}{96} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & -\frac{1}{24} & \frac{7\sqrt{10}i}{96} & 0 & -\frac{\sqrt{10}}{24} & 0 & 0 & 0 \\ \frac{3\sqrt{6}}{32} & 0 & 0 & 0 & 0 & -\frac{1}{6} & 0 & \frac{i}{24} & \frac{\sqrt{10}}{96} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{6}}{32} & 0 & 0 & 0 & -\frac{1}{6} & 0 & -\frac{i}{24} & 0 & 0 & -\frac{\sqrt{10}}{96} & 0 & 0 & 0 \end{bmatrix}$
439	symmetry	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{35}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{140} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{35}}{35} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & 0 & \frac{\sqrt{210}i}{140} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 & -\frac{\sqrt{35}}{35} & -\frac{\sqrt{210}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & -\frac{\sqrt{35}i}{35} & \frac{\sqrt{210}}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{35} & 0 & \frac{\sqrt{35}i}{35} & 0 & 0 & -\frac{\sqrt{210}}{70} \end{bmatrix}$
440	symmetry	x

continued ...

Table 7

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

continued ...

Table 7

No.	multipole	matrix
		$\begin{bmatrix} -\frac{\sqrt{42}}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & -\frac{3\sqrt{7}i}{56} & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{168} \\ 0 & \frac{\sqrt{42}}{168} & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & \frac{3\sqrt{7}i}{56} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{168} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}i}{168} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{168} & \frac{\sqrt{7}i}{14} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & \frac{\sqrt{105}i}{168} & 0 \\ 0 & \frac{\sqrt{42}}{48} & 0 & -\frac{\sqrt{42}i}{48} & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{112} & 0 & -\frac{\sqrt{70}i}{112} & 0 & 0 & 0 \\ \frac{\sqrt{42}}{48} & 0 & \frac{\sqrt{42}i}{48} & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & -\frac{\sqrt{70}}{112} & 0 & \frac{\sqrt{70}i}{112} & 0 & 0 & 0 \end{bmatrix}$
445	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$ $\begin{bmatrix} 0 & \frac{\sqrt{70}}{42} & 0 & -\frac{5\sqrt{70}i}{224} & \frac{5\sqrt{105}}{336} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & \frac{5\sqrt{42}i}{672} & -\frac{5\sqrt{7}}{112} & 0 \\ \frac{\sqrt{70}}{42} & 0 & \frac{5\sqrt{70}i}{224} & 0 & 0 & -\frac{5\sqrt{105}}{336} & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & -\frac{5\sqrt{42}i}{672} & 0 & 0 & \frac{5\sqrt{7}}{112} \\ 0 & -\frac{13\sqrt{70}i}{672} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & \frac{5\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{168} & 0 & 0 \\ \frac{13\sqrt{70}i}{672} & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & -\frac{5\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{168} & 0 & 0 & 0 \\ \frac{\sqrt{70}}{96} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & \frac{\sqrt{105}i}{168} & -\frac{5\sqrt{42}}{224} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} \\ 0 & -\frac{\sqrt{70}}{96} & 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & -\frac{\sqrt{105}i}{168} & 0 & 0 & \frac{5\sqrt{42}}{224} & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 \end{bmatrix}$
446	symmetry	$\frac{-y(3x^2-2y^2+3z^2)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{70}i}{56} & 0 & -\frac{13\sqrt{70}}{672} & 0 & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & -\frac{\sqrt{42}i}{168} & 0 & -\frac{5\sqrt{42}}{672} & 0 & 0 \\ \frac{\sqrt{70}i}{56} & 0 & -\frac{13\sqrt{70}}{672} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{168} & \frac{\sqrt{42}i}{168} & 0 & -\frac{5\sqrt{42}}{672} & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{70}}{224} & 0 & \frac{\sqrt{70}i}{42} & -\frac{5\sqrt{105}}{336} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{42} & -\frac{5\sqrt{7}}{112} & 0 \\ -\frac{5\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{42} & 0 & 0 & \frac{5\sqrt{105}}{336} & 0 & 0 & -\frac{5\sqrt{42}}{672} & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & \frac{5\sqrt{7}}{112} \\ 0 & 0 & -\frac{\sqrt{70}}{96} & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & -\frac{5\sqrt{42}}{224} & 0 & 0 & -\frac{\sqrt{7}i}{28} \\ 0 & 0 & 0 & \frac{\sqrt{70}}{96} & \frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}}{224} & \frac{\sqrt{7}i}{28} & 0 \end{bmatrix}$
447	symmetry	$\frac{-\sqrt{15}y(x-z)(x+z)}{2}$ $\begin{bmatrix} 0 & -\frac{\sqrt{42}i}{42} & 0 & -\frac{17\sqrt{42}}{672} & 0 & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{224} & 0 & 0 \\ \frac{\sqrt{42}i}{42} & 0 & -\frac{17\sqrt{42}}{672} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{70}}{224} & 0 & 0 & 0 \\ 0 & -\frac{11\sqrt{42}}{672} & 0 & \frac{\sqrt{42}i}{56} & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{224} & 0 & -\frac{\sqrt{70}i}{56} & \frac{5\sqrt{105}}{336} & 0 \\ -\frac{11\sqrt{42}}{672} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & \frac{3\sqrt{70}}{224} & 0 & \frac{\sqrt{70}i}{56} & 0 & 0 & -\frac{5\sqrt{105}}{336} \\ 0 & 0 & -\frac{\sqrt{42}}{96} & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{5\sqrt{70}}{224} & 0 & 0 & \frac{\sqrt{105}i}{84} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{96} & -\frac{\sqrt{7}i}{28} & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & 0 & -\frac{5\sqrt{70}}{224} & -\frac{\sqrt{105}i}{84} & 0 & 0 \end{bmatrix}$
448	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 7

No.	multipole	matrix
	$\mathbb{M}_{3,2}^{(1,1;a)}(E, 2)$	$\begin{bmatrix} 0 & -\frac{\sqrt{42}}{56} & 0 & \frac{11\sqrt{42}i}{672} & -\frac{\sqrt{7}}{112} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{70}i}{224} & -\frac{5\sqrt{105}}{336} & 0 \\ -\frac{\sqrt{42}}{56} & 0 & -\frac{11\sqrt{42}i}{672} & 0 & 0 & \frac{\sqrt{7}}{112} & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & -\frac{3\sqrt{70}i}{224} & 0 & 0 & \frac{5\sqrt{105}}{336} \\ 0 & \frac{17\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 & 0 & \frac{3\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & 0 \\ -\frac{17\sqrt{42}i}{672} & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{7}}{56} & -\frac{3\sqrt{70}i}{224} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}}{96} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{3\sqrt{7}i}{56} & -\frac{5\sqrt{70}}{224} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{84} \\ 0 & \frac{\sqrt{42}}{96} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{3\sqrt{7}i}{56} & 0 & 0 & \frac{5\sqrt{70}}{224} & 0 & 0 & 0 & \frac{\sqrt{105}}{84} & 0 \end{bmatrix}$

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

Table 8: (d,d) block.

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(A)$		$\begin{bmatrix} -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} \end{bmatrix}$
451	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 \\ -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
452	symmetry	$\sqrt{3}xy$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(a)}(B, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
453	symmetry	$\sqrt{3}xz$ $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 \\ \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 \\ 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} \\ 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \end{bmatrix}$
454	symmetry	$\sqrt{3}yz$ $\begin{bmatrix} & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \end{bmatrix}$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A, 2)$	$\sqrt{\frac{21}{14}}$	0 0 0 0 0 0 0 0 0 0
	0	$-\sqrt{\frac{21}{14}}$ 0 0 0 0 0 0 0 0 0
	0	0 0 $\frac{2\sqrt{21}}{21}$ 0 0 0 0 0 0 0
	0	0 0 0 $\frac{2\sqrt{21}}{21}$ 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 0
	0	0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{14}$ 0
	0	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{14}$
457	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{Q}_4^{(a)}(A, 3)$	0 0 $\frac{1}{2}$ 0 0 0 0 0 0 0	0 0 0 $\frac{1}{2}$ 0 0 0 0 0 0
	$\frac{1}{2}$ 0 0 0 0 0 0 0 0 0	0 $\frac{1}{2}$ 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
458	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 \\ -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
459	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{7} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{21}}{14} & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
460	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_2^{(1,-1;a)}(B, 2)$	0 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0	
	0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 0 $\frac{\sqrt{10}}{20}$ 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 $-\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$	
	$-\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0	
	0 $-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $-\frac{\sqrt{30}}{20}$	
	$\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 $\frac{\sqrt{30}}{20}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 $\frac{\sqrt{30}}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 $-\frac{\sqrt{30}}{20}$ 0 0 0	
467 symmetry	$\sqrt{3}xz$	
	0 0 0 $-\frac{\sqrt{10}i}{10}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 0 $-\frac{\sqrt{10}i}{10}$ 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	0 $\frac{\sqrt{10}i}{10}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0	
	$\frac{\sqrt{10}i}{10}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0	
	0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0	
	$-\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 $-\frac{\sqrt{30}i}{20}$ 0	
	0 $\frac{\sqrt{10}i}{20}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{30}i}{20}$	
	0 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0 0 0	
468 symmetry	$\sqrt{3}yz$	

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_{2,2}^{(1,-1;a)}(E)$	0 0 0 $-\frac{\sqrt{10}}{10}$ $\frac{\sqrt{10}i}{20}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{10}}{10}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0	
	0 $\frac{\sqrt{10}}{10}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	$-\frac{\sqrt{10}}{10}$ 0 0 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	$-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0 $-\frac{\sqrt{10}}{20}$ $\frac{\sqrt{30}i}{20}$ 0	
	0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{10}}{20}$ 0 0 $-\frac{\sqrt{30}i}{20}$	
	0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0	
	0 0 0 $\frac{\sqrt{10}i}{20}$ $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0 0 0 0	
469	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{Q}_4^{(1,-1;a)}(A, 1)$	0 0 $\frac{\sqrt{15}i}{30}$ 0 0 $-\frac{\sqrt{15}}{60}$ 0 $-\frac{\sqrt{15}i}{60}$ 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{30}$ $\frac{\sqrt{15}}{60}$ 0 $-\frac{\sqrt{15}i}{60}$ 0 0 0	
	$-\frac{\sqrt{15}i}{30}$ 0 0 0 0 $-\frac{\sqrt{15}i}{15}$ 0 $\frac{\sqrt{15}}{15}$ 0 0	
	0 $\frac{\sqrt{15}i}{30}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 $-\frac{\sqrt{15}}{15}$ 0 0 0	
	0 $\frac{\sqrt{15}}{60}$ 0 $\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{5}}{20}$	
	$-\frac{\sqrt{15}}{60}$ 0 $\frac{\sqrt{15}i}{15}$ 0 0 0 0 $\frac{\sqrt{15}i}{15}$ $\frac{\sqrt{5}}{20}$ 0	
	0 $\frac{\sqrt{15}i}{60}$ 0 $-\frac{\sqrt{15}}{15}$ $\frac{\sqrt{15}i}{15}$ 0 0 0 0 $\frac{\sqrt{5}i}{20}$	
	$\frac{\sqrt{15}i}{60}$ 0 $\frac{\sqrt{15}}{15}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{5}i}{20}$ 0	
	0 0 0 0 0 $\frac{\sqrt{5}}{20}$ 0 $-\frac{\sqrt{5}i}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{5}}{20}$ 0 $-\frac{\sqrt{5}i}{20}$ 0 0 0	
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 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{5\sqrt{21}}{84}$ 0 $\frac{5\sqrt{21}i}{84}$ 0 0
	0	0 0 0 $-\frac{\sqrt{21}i}{42}$ $-\frac{5\sqrt{21}}{84}$ 0 $\frac{5\sqrt{21}i}{84}$ 0 0 0
	$-\frac{\sqrt{21}i}{42}$	0 0 0 0 0 $\frac{\sqrt{21}i}{42}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0
	0	0 $\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{42}$ 0 0 0
	0	0 $-\frac{5\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $-\frac{\sqrt{7}}{28}$
	$\frac{5\sqrt{21}}{84}$	0 $-\frac{\sqrt{21}i}{42}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{21}$ $\frac{\sqrt{7}}{28}$ 0
	0	0 $-\frac{5\sqrt{21}i}{84}$ 0 $\frac{\sqrt{21}}{42}$ $\frac{\sqrt{21}i}{21}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$
	$-\frac{5\sqrt{21}i}{84}$	0 $-\frac{\sqrt{21}}{42}$ 0 0 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0
	0	0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0
$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$		
$\mathbb{Q}_4^{(1,-1;a)}(A, 3)$	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	0 0 0 0 0 $-\frac{1}{4}$ 0 $-\frac{i}{4}$ 0 0
	0	0 0 0 0 $\frac{1}{4}$ 0 $-\frac{i}{4}$ 0 0 0
	0	$-\frac{i}{4}$ 0 $\frac{1}{4}$ 0 0 0 0 0 0 0
	$-\frac{i}{4}$	0 $-\frac{1}{4}$ 0 0 0 0 0 0 0 0
	0	$\frac{1}{4}$ 0 $\frac{i}{4}$ 0 0 0 0 0 0 0
	$-\frac{1}{4}$	0 $\frac{i}{4}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0
$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$		
continued ...		

Table 8

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(B, 1)$	0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{14}$ $\frac{\sqrt{21}i}{14}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{21}i}{14}$	
	0 $\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $\frac{\sqrt{21}}{28}$	
	$-\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0	
	0 $-\frac{\sqrt{7}i}{28}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$	
	$-\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0	
	0 0 $-\frac{\sqrt{21}i}{14}$ 0 0 $-\frac{\sqrt{21}}{28}$ 0 $-\frac{\sqrt{21}i}{28}$ 0 0	
	0 0 0 $\frac{\sqrt{21}i}{14}$ $\frac{\sqrt{21}}{28}$ 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0	
473	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{Q}_4^{(1,-1;a)}(B, 2)$	0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{14}$ $\frac{\sqrt{21}i}{14}$ 0	
	0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{21}i}{14}$	
	0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0	
	0 $\frac{\sqrt{7}i}{14}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$	
	$\frac{\sqrt{7}i}{14}$ 0 $\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0	
	0 $\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{28}$	
	$-\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 0 $\frac{\sqrt{21}}{28}$ 0	
	$-\frac{\sqrt{21}i}{14}$ 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{21}}{28}$ 0 0	
	0 $\frac{\sqrt{21}i}{14}$ 0 0 $-\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{21}}{28}$ 0 0 0	
474	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{Q}_{2,1}^{(1,1;a)}(E)$	0 0 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 $\frac{\sqrt{105}}{42}$	
	0 0 $-\frac{\sqrt{35}i}{70}$ 0 0 0 0 $\frac{\sqrt{35}i}{35}$ $-\frac{\sqrt{105}}{42}$ 0	
	0 $\frac{\sqrt{35}i}{70}$ 0 0 $\frac{\sqrt{35}i}{35}$ 0 0 0 0 $-\frac{\sqrt{105}i}{42}$	
	$\frac{\sqrt{35}i}{70}$ 0 0 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 $-\frac{\sqrt{105}i}{42}$ 0	
	0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 0 0 $\frac{\sqrt{35}i}{35}$ 0 0	
	0 0 0 $\frac{\sqrt{35}i}{35}$ 0 0 0 $\frac{\sqrt{35}i}{35}$ 0 0	
	$\frac{\sqrt{35}i}{35}$ 0 0 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 $-\frac{2\sqrt{105}i}{105}$ 0	
	0 $-\frac{\sqrt{35}i}{35}$ 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 0 0 $\frac{2\sqrt{105}i}{105}$	
	0 $-\frac{\sqrt{105}}{42}$ 0 $\frac{\sqrt{105}i}{42}$ 0 0 $\frac{2\sqrt{105}i}{105}$ 0 0 0	
	$\frac{\sqrt{105}}{42}$ 0 $\frac{\sqrt{105}i}{42}$ 0 0 0 0 $-\frac{2\sqrt{105}i}{105}$ 0 0	
483	symmetry	$\sqrt{3}yz$
$\mathbb{Q}_{2,2}^{(1,1;a)}(E)$	0 0 0 $-\frac{\sqrt{35}}{70}$ $-\frac{\sqrt{35}i}{35}$ 0 0 0 0 $\frac{\sqrt{105}i}{42}$	
	0 0 $\frac{\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{35}i}{35}$ 0 0 $\frac{\sqrt{105}i}{42}$ 0	
	0 $\frac{\sqrt{35}}{70}$ 0 0 0 0 $-\frac{\sqrt{35}i}{35}$ 0 0 $\frac{\sqrt{105}}{42}$	
	$-\frac{\sqrt{35}}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{35}i}{35}$ $-\frac{\sqrt{105}}{42}$ 0	
	$\frac{\sqrt{35}i}{35}$ 0 0 0 0 0 0 $\frac{\sqrt{35}}{35}$ $\frac{2\sqrt{105}i}{105}$ 0	
	0 $-\frac{\sqrt{35}i}{35}$ 0 0 0 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 $-\frac{2\sqrt{105}i}{105}$	
	0 0 $\frac{\sqrt{35}i}{35}$ 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 0 0	
	0 0 0 $-\frac{\sqrt{35}i}{35}$ $\frac{\sqrt{35}}{35}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{105}i}{42}$ 0 $-\frac{\sqrt{105}}{42}$ $-\frac{2\sqrt{105}i}{105}$ 0 0 0 0 0	
	$-\frac{\sqrt{105}i}{42}$ 0 $\frac{\sqrt{105}}{42}$ 0 0 0 $\frac{2\sqrt{105}i}{105}$ 0 0 0	
484	symmetry	z

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{G}_{1,2}^{(1,0;a)}(E)$	0 0 0 $\frac{\sqrt{10}i}{10}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0	
	0 0 $\frac{\sqrt{10}i}{10}$ 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	0 $-\frac{\sqrt{10}i}{10}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0	
	$-\frac{\sqrt{10}i}{10}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0	
	0 0 $\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 0	
	$-\frac{\sqrt{10}i}{20}$ 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 $-\frac{\sqrt{30}i}{20}$ 0	
	0 $\frac{\sqrt{10}i}{20}$ 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 $\frac{\sqrt{30}i}{20}$	
	0 0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{20}$ 0 0	
487	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{G}_3^{(1,0;a)}(A)$	0 0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 $\frac{\sqrt{15}}{20}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0 $-\frac{\sqrt{15}}{20}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{15}}{20}$ 0 $-\frac{\sqrt{15}i}{20}$ 0 0	
	0 0 0 0 $\frac{\sqrt{15}}{20}$ 0 $-\frac{\sqrt{15}i}{20}$ 0 0 0	
	0 $\frac{\sqrt{15}i}{20}$ 0 $\frac{\sqrt{15}}{20}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{10}$	
	$\frac{\sqrt{15}i}{20}$ 0 $-\frac{\sqrt{15}}{20}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{10}$ 0	
	0 $-\frac{\sqrt{15}}{20}$ 0 $\frac{\sqrt{15}i}{20}$ 0 0 0 0 0 0 $\frac{\sqrt{5}}{10}$	
	$\frac{\sqrt{15}}{20}$ 0 $\frac{\sqrt{15}i}{20}$ 0 0 0 0 0 $-\frac{\sqrt{5}}{10}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 $-\frac{\sqrt{5}}{10}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0 0	
488	symmetry	$\sqrt{15}xyz$

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{G}_{3,1}^{(1,0;a)}(E, 2)$	0 0 0 $-\frac{i}{8}$ 0 0 $\frac{i}{8}$ 0 0 $-\frac{\sqrt{3}}{6}$	
	0 0 $-\frac{i}{8}$ 0 0 0 0 $-\frac{i}{8}$ $\frac{\sqrt{3}}{6}$ 0	
	0 $\frac{i}{8}$ 0 0 $\frac{i}{4}$ 0 0 0 0 $\frac{\sqrt{3}i}{24}$	
	$\frac{i}{8}$ 0 0 0 0 $-\frac{i}{4}$ 0 0 $\frac{\sqrt{3}i}{24}$ 0	
	0 0 $-\frac{i}{4}$ 0 0 0 0 $\frac{i}{4}$ 0 0	
	0 0 0 $\frac{i}{4}$ 0 0 $\frac{i}{4}$ 0 0 0	
	$-\frac{i}{8}$ 0 0 0 0 $-\frac{i}{4}$ 0 0 $-\frac{\sqrt{3}i}{24}$ 0	
	0 $\frac{i}{8}$ 0 0 $-\frac{i}{4}$ 0 0 0 0 $\frac{\sqrt{3}i}{24}$	
	0 $\frac{\sqrt{3}}{6}$ 0 $-\frac{\sqrt{3}i}{24}$ 0 0 $\frac{\sqrt{3}i}{24}$ 0 0 0	
	$-\frac{\sqrt{3}}{6}$ 0 $-\frac{\sqrt{3}i}{24}$ 0 0 0 0 $-\frac{\sqrt{3}i}{24}$ 0 0	
493	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
$\mathbb{G}_{3,2}^{(1,0;a)}(E, 2)$	0 0 0 $-\frac{1}{8}$ $\frac{i}{8}$ 0 0 0 0 $-\frac{\sqrt{3}i}{6}$	
	0 0 $\frac{1}{8}$ 0 0 $-\frac{i}{8}$ 0 0 $-\frac{\sqrt{3}i}{6}$ 0	
	0 $\frac{1}{8}$ 0 0 0 0 $-\frac{i}{4}$ 0 0 $-\frac{\sqrt{3}}{24}$	
	$-\frac{1}{8}$ 0 0 0 0 0 0 $\frac{i}{4}$ $\frac{\sqrt{3}}{24}$ 0	
	$-\frac{i}{8}$ 0 0 0 0 0 0 $\frac{1}{4}$ $\frac{\sqrt{3}i}{24}$ 0	
	0 $\frac{i}{8}$ 0 0 0 0 $-\frac{1}{4}$ 0 0 $-\frac{\sqrt{3}i}{24}$	
	0 0 $\frac{i}{4}$ 0 0 $-\frac{1}{4}$ 0 0 0 0	
	0 0 0 $-\frac{i}{4}$ $\frac{1}{4}$ 0 0 0 0 0	
	0 $\frac{\sqrt{3}i}{6}$ 0 $\frac{\sqrt{3}}{24}$ $-\frac{\sqrt{3}i}{24}$ 0 0 0 0 0	
	$\frac{\sqrt{3}i}{6}$ 0 $-\frac{\sqrt{3}}{24}$ 0 0 $\frac{\sqrt{3}i}{24}$ 0 0 0 0	
494	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_2^{(1,0;a)}(B, 2)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & -\frac{\sqrt{42}}{21} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{42}}{21} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{28} & \frac{\sqrt{14}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} \\ -\frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 \\ 0 & \frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{14}}{14} & 0 & 0 & -\frac{\sqrt{42}i}{84} \\ -\frac{\sqrt{14}i}{28} & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & \frac{\sqrt{42}i}{84} & 0 \\ -\frac{\sqrt{42}}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 \\ 0 & \frac{\sqrt{42}}{21} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 \end{bmatrix}$
497	symmetry	$\sqrt{3}xz$
$\mathbb{T}_{2,1}^{(1,0;a)}(E)$		$\begin{bmatrix} 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{42}i}{42} \\ -\frac{\sqrt{14}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & \frac{\sqrt{42}i}{42} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}i}{14} & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} \\ 0 & 0 & -\frac{\sqrt{14}i}{14} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 \\ 0 & 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & 0 & 0 \\ \frac{\sqrt{14}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & -\frac{\sqrt{14}i}{14} & -\frac{\sqrt{42}}{84} & 0 \\ 0 & -\frac{\sqrt{14}}{28} & 0 & 0 & \frac{\sqrt{14}}{28} & 0 & \frac{\sqrt{14}i}{14} & 0 & 0 & \frac{\sqrt{42}}{84} \\ 0 & -\frac{\sqrt{42}i}{42} & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & 0 & -\frac{\sqrt{14}i}{14} \\ \frac{\sqrt{42}i}{42} & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & \frac{\sqrt{14}i}{14} & 0 \end{bmatrix}$
498	symmetry	$\sqrt{3}yz$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(A, 2)$	0	0 0 $\frac{\sqrt{105}}{30}$ 0 0 $\frac{\sqrt{105}i}{420}$ 0 $-\frac{\sqrt{105}}{420}$ 0 0
	0	0 0 0 $-\frac{\sqrt{105}}{30}$ $-\frac{\sqrt{105}i}{420}$ 0 $-\frac{\sqrt{105}}{420}$ 0 0 0
	$\frac{\sqrt{105}}{30}$	0 0 0 0 0 $-\frac{\sqrt{105}}{70}$ 0 $-\frac{\sqrt{105}i}{70}$ 0 0
	0	$-\frac{\sqrt{105}}{30}$ 0 0 0 $-\frac{\sqrt{105}}{70}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 0
	0	$\frac{\sqrt{105}i}{420}$ 0 $-\frac{\sqrt{105}}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$
	$-\frac{\sqrt{105}i}{420}$	0 $-\frac{\sqrt{105}}{70}$ 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0
	0	$-\frac{\sqrt{105}}{420}$ 0 $-\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$
	$-\frac{\sqrt{105}}{420}$	0 $\frac{\sqrt{105}i}{70}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 $\frac{\sqrt{35}}{28}$ 0 0
	0	0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 $\frac{\sqrt{35}}{28}$ 0 0 0
501	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{T}_4^{(1,0;a)}(A, 3)$	$\frac{\sqrt{5}}{5}$	0 0 0 0 0 $-\frac{\sqrt{5}}{20}$ 0 $-\frac{\sqrt{5}i}{20}$ 0 0
	0	$-\frac{\sqrt{5}}{5}$ 0 0 0 $-\frac{\sqrt{5}}{20}$ 0 $\frac{\sqrt{5}i}{20}$ 0 0 0
	0	0 0 $-\frac{\sqrt{5}}{5}$ 0 0 $-\frac{\sqrt{5}i}{20}$ 0 $\frac{\sqrt{5}}{20}$ 0 0
	0	0 0 0 $\frac{\sqrt{5}}{5}$ $\frac{\sqrt{5}i}{20}$ 0 $\frac{\sqrt{5}}{20}$ 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 0 0 0 0
	0	$-\frac{\sqrt{5}i}{20}$ 0 $\frac{\sqrt{5}}{20}$ 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 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0
502	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_4^{(1,0;a)}(B, 1)$	0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 $-\frac{\sqrt{35}}{28}$ 0 0	
	0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 $-\frac{\sqrt{35}}{28}$ 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 $\frac{\sqrt{35}i}{70}$ $\frac{\sqrt{105}}{70}$ 0	
	0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{105}}{70}$	
	0 $-\frac{\sqrt{35}i}{28}$ 0 $-\frac{\sqrt{35}}{70}$ 0 0 $\frac{\sqrt{35}}{35}$ 0 0 $\frac{3\sqrt{105}i}{140}$	
	$\frac{\sqrt{35}i}{28}$ 0 $-\frac{\sqrt{35}}{70}$ 0 0 0 0 $-\frac{\sqrt{35}}{35}$ $-\frac{3\sqrt{105}i}{140}$ 0	
	0 $-\frac{\sqrt{35}}{28}$ 0 $\frac{\sqrt{35}i}{70}$ $\frac{\sqrt{35}}{35}$ 0 0 0 0 $-\frac{3\sqrt{105}}{140}$	
	$-\frac{\sqrt{35}}{28}$ 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 $-\frac{3\sqrt{105}}{140}$ 0	
	0 0 $\frac{\sqrt{105}}{70}$ 0 0 $\frac{3\sqrt{105}i}{140}$ 0 $-\frac{3\sqrt{105}}{140}$ 0 0	
	0 0 0 $-\frac{\sqrt{105}}{70}$ $-\frac{3\sqrt{105}i}{140}$ 0 $-\frac{3\sqrt{105}}{140}$ 0 0 0	
503	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{T}_4^{(1,0;a)}(B, 2)$	0 0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 $\frac{\sqrt{35}i}{70}$ $\frac{\sqrt{105}}{70}$ 0	
	0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{105}}{70}$	
	0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 $\frac{\sqrt{35}}{28}$ 0 0	
	0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 $\frac{\sqrt{35}}{28}$ 0 0 0	
	0 $-\frac{\sqrt{35}}{70}$ 0 $\frac{\sqrt{35}i}{28}$ $\frac{\sqrt{35}}{35}$ 0 0 0 0 $-\frac{3\sqrt{105}}{140}$	
	$-\frac{\sqrt{35}}{70}$ 0 $-\frac{\sqrt{35}i}{28}$ 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 $-\frac{3\sqrt{105}}{140}$ 0	
	0 $\frac{\sqrt{35}i}{70}$ 0 $\frac{\sqrt{35}}{28}$ 0 0 0 $-\frac{\sqrt{35}}{35}$ 0 0 $-\frac{3\sqrt{105}i}{140}$	
	$-\frac{\sqrt{35}i}{70}$ 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 $\frac{\sqrt{35}}{35}$ $\frac{3\sqrt{105}i}{140}$ 0	
	$\frac{\sqrt{105}}{70}$ 0 0 0 0 $-\frac{3\sqrt{105}}{140}$ 0 $-\frac{3\sqrt{105}i}{140}$ 0 0	
	0 $-\frac{\sqrt{105}}{70}$ 0 0 $-\frac{3\sqrt{105}}{140}$ 0 $\frac{3\sqrt{105}i}{140}$ 0 0 0	
504	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{T}_{4,1}^{(1,0;a)}(E, 1)$	0	$\frac{\sqrt{5}}{20}$ 0 $-\frac{\sqrt{5}i}{40}$ $-\frac{\sqrt{5}}{40}$ 0 0 0 0 $\frac{\sqrt{15}}{20}$
	$\frac{\sqrt{5}}{20}$	0 $\frac{\sqrt{5}i}{40}$ 0 0 0 $\frac{\sqrt{5}}{40}$ 0 0 $\frac{\sqrt{15}}{20}$ 0
	0	$-\frac{\sqrt{5}i}{40}$ 0 0 0 0 0 $\frac{\sqrt{5}}{20}$ 0 0 $-\frac{\sqrt{15}i}{40}$
	$\frac{\sqrt{5}i}{40}$	0 0 0 0 0 0 0 $-\frac{\sqrt{5}}{20}$ $\frac{\sqrt{15}i}{40}$ 0
	$-\frac{\sqrt{5}}{40}$	0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{20}$ $-\frac{\sqrt{15}}{40}$ 0
	0	$\frac{\sqrt{5}}{40}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{20}$ 0 0 $\frac{\sqrt{15}}{40}$
	0	0 $\frac{\sqrt{5}}{20}$ 0 0 $-\frac{\sqrt{5}i}{20}$ 0 $-\frac{\sqrt{5}}{5}$ 0 0 0
	0	0 0 $-\frac{\sqrt{5}}{20}$ $\frac{\sqrt{5}i}{20}$ 0 $-\frac{\sqrt{5}}{5}$ 0 0 0 0
	0	$\frac{\sqrt{15}}{20}$ 0 $-\frac{\sqrt{15}i}{40}$ $-\frac{\sqrt{15}}{40}$ 0 0 0 0 $\frac{3\sqrt{5}}{20}$
	$\frac{\sqrt{15}}{20}$	0 $\frac{\sqrt{15}i}{40}$ 0 0 $\frac{\sqrt{15}}{40}$ 0 0 0 $\frac{3\sqrt{5}}{20}$ 0
505	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{T}_{4,2}^{(1,0;a)}(E, 1)$	0	$-\frac{\sqrt{5}i}{20}$ 0 $-\frac{\sqrt{5}}{40}$ 0 0 0 $\frac{\sqrt{5}}{40}$ 0 0 $\frac{\sqrt{15}i}{20}$
	$\frac{\sqrt{5}i}{20}$	0 $-\frac{\sqrt{5}}{40}$ 0 0 0 0 0 $-\frac{\sqrt{5}}{40}$ $-\frac{\sqrt{15}i}{20}$ 0
	0	$-\frac{\sqrt{5}}{40}$ 0 0 $\frac{\sqrt{5}}{20}$ 0 0 0 0 0 $\frac{\sqrt{15}}{40}$
	$-\frac{\sqrt{5}}{40}$	0 0 0 0 0 $-\frac{\sqrt{5}}{20}$ 0 0 0 $\frac{\sqrt{15}}{40}$ 0
	0	0 0 $\frac{\sqrt{5}}{20}$ 0 0 $\frac{\sqrt{5}i}{5}$ 0 $\frac{\sqrt{5}}{20}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{5}}{20}$ $-\frac{\sqrt{5}i}{5}$ 0 $\frac{\sqrt{5}}{20}$ 0 0 0 0
	$\frac{\sqrt{5}}{40}$	0 0 0 0 0 $\frac{\sqrt{5}}{20}$ 0 0 0 $-\frac{\sqrt{15}}{40}$ 0
	0	$-\frac{\sqrt{5}}{40}$ 0 0 $\frac{\sqrt{5}}{20}$ 0 0 0 0 0 $\frac{\sqrt{15}}{40}$
	0	$\frac{\sqrt{15}i}{20}$ 0 $\frac{\sqrt{15}}{40}$ 0 0 0 $-\frac{\sqrt{15}}{40}$ 0 0 $-\frac{3\sqrt{5}i}{20}$
	$-\frac{\sqrt{15}i}{20}$	0 $\frac{\sqrt{15}}{40}$ 0 0 0 0 0 $\frac{\sqrt{15}}{40}$ $\frac{3\sqrt{5}i}{20}$ 0
506	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
509	symmetry	x
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{10} & 0 \\ 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{10} & 0 & 0 \end{bmatrix}$
510	symmetry	y

continued ...

Table 8

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

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
513	$\mathbb{M}_3^{(a)}(B, 1)$	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
514	$\mathbb{M}_3^{(a)}(B, 2)$	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & \frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 \end{bmatrix}$
517	$\mathbb{M}_{3,1}^{(a)}(E, 2)$	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 \\ 0 & -\frac{\sqrt{3}i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{i}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{4} & 0 & 0 \end{bmatrix}$
518	$\mathbb{M}_{3,2}^{(a)}(E, 2)$	z

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_{1,2}^{(1,-1;a)}(E)$		$\begin{bmatrix} 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{10} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{10} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}i}{10} & 0 \end{bmatrix}$
521	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$ $\begin{bmatrix} -\frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 \\ 0 & \frac{\sqrt{105}}{35} & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & \frac{\sqrt{105}i}{70} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{105}}{35} & 0 & 0 & \frac{\sqrt{105}i}{70} & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{105}}{35} & -\frac{\sqrt{105}i}{70} & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{70} & 0 & \frac{\sqrt{105}i}{70} & \frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} \\ -\frac{\sqrt{105}}{70} & 0 & -\frac{\sqrt{105}i}{70} & 0 & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 \\ 0 & -\frac{\sqrt{105}i}{70} & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & \frac{\sqrt{105}}{70} & 0 & 0 & \frac{\sqrt{35}i}{70} \\ \frac{\sqrt{105}i}{70} & 0 & -\frac{\sqrt{105}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{70} & -\frac{\sqrt{35}i}{70} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 & \frac{\sqrt{35}i}{70} & \frac{\sqrt{105}}{35} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 & -\frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{105}}{35} \end{bmatrix}$
522	symmetry	$\sqrt{15}xyz$ $\begin{bmatrix} & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \\ & & & & & & & & & \end{bmatrix}$

continued ...

Table 8

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

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_{3,1}^{(1,-1;a)}(E, 2)$	0	$\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{21}i}{42}$
	$-\frac{\sqrt{7}i}{14}$	0 0 0 0 0 0 0 $\frac{\sqrt{7}}{14}$ $\frac{\sqrt{21}i}{42}$ 0
	0	0 0 0 $\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{21}}{21}$
	0	0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{21}}{21}$ 0
	0	0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0
	0	0 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 0
	$-\frac{\sqrt{7}}{14}$	0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{\sqrt{7}i}{14}$ $\frac{\sqrt{21}}{42}$ 0
	0	$\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{21}}{42}$
	0	$-\frac{\sqrt{21}i}{42}$ 0 $\frac{\sqrt{21}}{21}$ 0 0 $\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{7}i}{14}$
	$\frac{\sqrt{21}i}{42}$	0 $\frac{\sqrt{21}}{21}$ 0 0 0 0 $-\frac{\sqrt{21}}{42}$ $\frac{\sqrt{7}i}{14}$ 0
$\mathbb{M}_{3,2}^{(1,-1;a)}(E, 2)$	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$	
	0	$\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{21}}{42}$
	$\frac{\sqrt{7}}{14}$	0 0 0 0 0 $\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{21}}{42}$ 0
	0	0 0 0 $\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{21}i}{21}$
	0	0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{21}i}{21}$ 0
	$-\frac{\sqrt{7}}{14}$	0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{21}}{42}$ 0
	0	$\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{21}}{42}$
	0	0 0 $-\frac{\sqrt{7}}{14}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0
	0	0 0 0 $\frac{\sqrt{7}}{14}$ $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0
	0	$\frac{\sqrt{21}}{42}$ 0 $\frac{\sqrt{21}i}{21}$ $-\frac{\sqrt{21}}{42}$ 0 0 0 0 $-\frac{\sqrt{7}}{14}$
$\mathbb{M}_{3,2}^{(1,-1;a)}(E, 2)$	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$	
	$\frac{\sqrt{21}}{42}$	0 $-\frac{\sqrt{21}i}{21}$ 0 0 $\frac{\sqrt{21}}{42}$ 0 0 0 $-\frac{\sqrt{7}}{14}$ 0

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(A, 1)$	0 0 $\frac{\sqrt{5}}{10}$ 0 0 $-\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0	
	0 0 0 $-\frac{\sqrt{5}}{10}$ $\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0 0	
	$\frac{\sqrt{5}}{10}$ 0 0 0 0 $\frac{\sqrt{5}}{10}$ 0 $\frac{\sqrt{5}i}{10}$ 0 0	
	0 $-\frac{\sqrt{5}}{10}$ 0 0 $\frac{\sqrt{5}}{10}$ 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0	
	0 $-\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 0	
	$\frac{\sqrt{5}i}{10}$ 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{5}}{10}$ 0 $\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0	
	$\frac{\sqrt{5}}{10}$ 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0	
529	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$
$\mathbb{M}_5^{(1,-1;a)}(A, 2)$	$\frac{\sqrt{7}}{42}$ 0 0 0 0 $\frac{\sqrt{7}}{42}$ 0 $\frac{\sqrt{7}i}{42}$ 0 0	
	0 $-\frac{\sqrt{7}}{42}$ 0 0 $\frac{\sqrt{7}}{42}$ 0 $-\frac{\sqrt{7}i}{42}$ 0 0 0	
	0 0 $\frac{\sqrt{7}}{42}$ 0 0 $-\frac{\sqrt{7}i}{42}$ 0 $\frac{\sqrt{7}}{42}$ 0 0	
	0 0 0 $-\frac{\sqrt{7}}{42}$ $\frac{\sqrt{7}i}{42}$ 0 $\frac{\sqrt{7}}{42}$ 0 0 0	
	0 $\frac{\sqrt{7}}{42}$ 0 $-\frac{\sqrt{7}i}{42}$ $-\frac{2\sqrt{7}}{21}$ 0 0 0 0 $-\frac{\sqrt{21}}{21}$	
	$\frac{\sqrt{7}}{42}$ 0 $\frac{\sqrt{7}i}{42}$ 0 0 $\frac{2\sqrt{7}}{21}$ 0 0 $-\frac{\sqrt{21}}{21}$ 0	
	0 $\frac{\sqrt{7}i}{42}$ 0 $\frac{\sqrt{7}}{42}$ 0 0 $-\frac{2\sqrt{7}}{21}$ 0 0 $\frac{\sqrt{21}i}{21}$	
	$-\frac{\sqrt{7}i}{42}$ 0 $\frac{\sqrt{7}}{42}$ 0 0 0 0 $\frac{2\sqrt{7}}{21}$ $-\frac{\sqrt{21}i}{21}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 $\frac{\sqrt{21}i}{21}$ $\frac{\sqrt{7}}{7}$ 0	
	0 0 0 0 $-\frac{\sqrt{21}}{21}$ 0 $-\frac{\sqrt{21}i}{21}$ 0 0 $-\frac{\sqrt{7}}{7}$	
530	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
531	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & -\frac{\sqrt{15}i}{30} & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & \frac{\sqrt{15}i}{30} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{15}i}{30} & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & \frac{\sqrt{15}i}{30} & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \end{bmatrix}$
532	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & \frac{\sqrt{15}i}{30} & \frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{30} & 0 & -\frac{\sqrt{15}i}{30} & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{15}}{30} & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} \\ -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 \\ 0 & \frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ -\frac{\sqrt{15}i}{30} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & -\frac{\sqrt{5}i}{10} & 0 \\ \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 \end{bmatrix}$
533	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
		$\begin{bmatrix} 0 & \frac{19\sqrt{7}}{168} & 0 & \frac{\sqrt{7}i}{12} & -\frac{5\sqrt{7}}{84} & 0 & 0 & 0 & 0 & -\frac{5\sqrt{21}}{168} \\ \frac{19\sqrt{7}}{168} & 0 & -\frac{\sqrt{7}i}{12} & 0 & 0 & \frac{5\sqrt{7}}{84} & 0 & 0 & -\frac{5\sqrt{21}}{168} & 0 \\ 0 & \frac{\sqrt{7}i}{12} & 0 & -\frac{2\sqrt{7}}{21} & 0 & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{84} \\ -\frac{\sqrt{7}i}{12} & 0 & -\frac{2\sqrt{7}}{21} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{42} & \frac{\sqrt{21}i}{84} & 0 \\ -\frac{5\sqrt{7}}{84} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{7}}{21} & 0 & -\frac{\sqrt{7}i}{42} & \frac{\sqrt{21}}{28} & 0 \\ 0 & \frac{5\sqrt{7}}{84} & 0 & 0 & -\frac{2\sqrt{7}}{21} & 0 & \frac{\sqrt{7}i}{42} & 0 & 0 & -\frac{\sqrt{21}}{28} \\ 0 & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & -\frac{\sqrt{7}i}{42} & 0 & \frac{\sqrt{7}}{42} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}}{42} & \frac{\sqrt{7}i}{42} & 0 & \frac{\sqrt{7}}{42} & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{21}}{168} & 0 & -\frac{\sqrt{21}i}{84} & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & \frac{3\sqrt{7}}{56} \\ -\frac{5\sqrt{21}}{168} & 0 & \frac{\sqrt{21}i}{84} & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & \frac{3\sqrt{7}}{56} & 0 \end{bmatrix}$
534	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
$\mathbb{M}_{5,2}^{(1,-1;a)}(E, 1)$	$0 \quad -\frac{19\sqrt{7}i}{168} \quad 0 \quad \frac{\sqrt{7}}{12} \quad 0 \quad 0 \quad \frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad -\frac{5\sqrt{21}i}{168}$	
	$\frac{19\sqrt{7}i}{168} \quad 0 \quad \frac{\sqrt{7}}{12} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{84} \quad \frac{5\sqrt{21}i}{168} \quad 0$	
	$0 \quad \frac{\sqrt{7}}{12} \quad 0 \quad \frac{2\sqrt{7}i}{21} \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84}$	
	$\frac{\sqrt{7}}{12} \quad 0 \quad -\frac{2\sqrt{7}i}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{42} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{42} \quad \frac{\sqrt{7}i}{42} \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad 0 \quad 0$	
	$\frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad \frac{2\sqrt{7}i}{21} \quad \frac{\sqrt{21}}{28} \quad 0$	
	$0 \quad -\frac{5\sqrt{7}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{42} \quad 0 \quad -\frac{2\sqrt{7}i}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28}$	
	$0 \quad -\frac{5\sqrt{21}i}{168} \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad -\frac{3\sqrt{7}i}{56}$	
535 symmetry	$\frac{5\sqrt{21}i}{168} \quad 0 \quad \frac{\sqrt{21}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad \frac{3\sqrt{7}i}{56} \quad 0$	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$
	$0 \quad \frac{\sqrt{5}}{40} \quad 0 \quad \frac{\sqrt{5}i}{20} \quad \frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{40}$	
	$\frac{\sqrt{5}}{40} \quad 0 \quad -\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{40} \quad 0$	
	$0 \quad \frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{20}$	
	$-\frac{\sqrt{5}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10} \quad -\frac{\sqrt{15}i}{20} \quad 0$	
	$\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{10} \quad \frac{\sqrt{15}}{20} \quad 0$	
	$0 \quad -\frac{\sqrt{5}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{20}$	
	$0 \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{10} \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10} \quad -\frac{\sqrt{5}i}{10} \quad 0 \quad -\frac{\sqrt{5}}{10} \quad 0 \quad 0 \quad 0$	
536 symmetry	$0 \quad \frac{\sqrt{15}}{40} \quad 0 \quad \frac{\sqrt{15}i}{20} \quad \frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{5}}{40}$	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
	$\frac{\sqrt{15}}{40} \quad 0 \quad -\frac{\sqrt{15}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{20} \quad 0 \quad 0 \quad \frac{3\sqrt{5}}{40} \quad 0$	

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_{5,2}^{(1,-1;a)}(E, 2)$	0	$-\frac{\sqrt{5}i}{40}$ 0 $\frac{\sqrt{5}}{20}$ 0 0 0 $-\frac{\sqrt{5}}{20}$ 0 0 $\frac{\sqrt{15}i}{40}$
	$\frac{\sqrt{5}i}{40}$	0 $\frac{\sqrt{5}}{20}$ 0 0 0 0 0 $\frac{\sqrt{5}}{20}$ $-\frac{\sqrt{15}i}{40}$ 0
	0	$\frac{\sqrt{5}}{20}$ 0 0 0 $-\frac{\sqrt{5}}{10}$ 0 0 0 0 $-\frac{\sqrt{15}}{20}$
	$\frac{\sqrt{5}}{20}$	0 0 0 0 0 $\frac{\sqrt{5}}{10}$ 0 0 $-\frac{\sqrt{15}}{20}$ 0
	0	0 $-\frac{\sqrt{5}}{10}$ 0 0 0 $\frac{\sqrt{5}i}{10}$ 0 $-\frac{\sqrt{5}}{10}$ 0 0
	0	0 0 0 $\frac{\sqrt{5}}{10}$ $-\frac{\sqrt{5}i}{10}$ 0 $-\frac{\sqrt{5}}{10}$ 0 0 0
	$-\frac{\sqrt{5}}{20}$	0 0 0 0 0 $-\frac{\sqrt{5}}{10}$ 0 0 $\frac{\sqrt{15}}{20}$ 0
	0	$\frac{\sqrt{5}}{20}$ 0 0 $-\frac{\sqrt{5}}{10}$ 0 0 0 0 0 $-\frac{\sqrt{15}}{20}$
	0	$\frac{\sqrt{15}i}{40}$ 0 $-\frac{\sqrt{15}}{20}$ 0 0 0 0 $\frac{\sqrt{15}}{20}$ 0 $-\frac{3\sqrt{5}i}{40}$
	$-\frac{\sqrt{15}i}{40}$	0 $-\frac{\sqrt{15}}{20}$ 0 0 0 0 0 $-\frac{\sqrt{15}}{20}$ $\frac{3\sqrt{5}i}{40}$ 0
537	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
$\mathbb{M}_{5,1}^{(1,-1;a)}(E, 3)$	0	$-\frac{\sqrt{15}i}{20}$ 0 $\frac{\sqrt{15}}{15}$ 0 0 $-\frac{\sqrt{15}}{30}$ 0 0 $\frac{\sqrt{5}i}{20}$
	$\frac{\sqrt{15}i}{20}$	0 $\frac{\sqrt{15}}{15}$ 0 0 0 0 0 $\frac{\sqrt{15}}{30}$ $-\frac{\sqrt{5}i}{20}$ 0
	0	$\frac{\sqrt{15}}{15}$ 0 $\frac{\sqrt{15}i}{15}$ 0 0 0 0 0 0 0
	$\frac{\sqrt{15}}{15}$	0 $-\frac{\sqrt{15}i}{15}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{15}}{30}$	0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{15}$ $-\frac{\sqrt{5}}{10}$ 0
	0	$\frac{\sqrt{15}}{30}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{5}}{10}$
	0	$\frac{\sqrt{5}i}{20}$ 0 0 0 0 $-\frac{\sqrt{5}}{10}$ 0 0 0 $\frac{\sqrt{15}i}{20}$
	$-\frac{\sqrt{5}i}{20}$	0 0 0 0 0 0 $\frac{\sqrt{5}}{10}$ $-\frac{\sqrt{15}i}{20}$ 0
538	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 8

No.	multipole	matrix
		$\begin{bmatrix} 0 & -\frac{\sqrt{15}}{20} & 0 & -\frac{\sqrt{15}i}{15} & -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{20} \\ -\frac{\sqrt{15}}{20} & 0 & \frac{\sqrt{15}i}{15} & 0 & 0 & \frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{\sqrt{15}i}{15} & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{15} & 0 & \frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{15}}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 \\ 0 & \frac{\sqrt{15}}{30} & 0 & 0 & -\frac{\sqrt{15}}{15} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{20} & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ -\frac{\sqrt{5}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \end{bmatrix}$
539	symmetry	$\begin{bmatrix} z \\ x \end{bmatrix}$ $\begin{bmatrix} -\frac{\sqrt{70}}{35} & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{140} & 0 & \frac{3\sqrt{70}i}{140} & 0 & 0 \\ 0 & \frac{\sqrt{70}}{35} & 0 & 0 & \frac{3\sqrt{70}}{140} & 0 & -\frac{3\sqrt{70}i}{140} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{70}}{35} & 0 & 0 & -\frac{3\sqrt{70}i}{140} & 0 & \frac{3\sqrt{70}}{140} & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{70}}{35} & \frac{3\sqrt{70}i}{140} & 0 & \frac{3\sqrt{70}}{140} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{70}}{140} & 0 & -\frac{3\sqrt{70}i}{140} & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{140} \\ \frac{3\sqrt{70}}{140} & 0 & \frac{3\sqrt{70}i}{140} & 0 & 0 & -\frac{\sqrt{70}}{70} & 0 & 0 & \frac{\sqrt{210}}{140} & 0 \\ 0 & \frac{3\sqrt{70}i}{140} & 0 & \frac{3\sqrt{70}}{140} & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & -\frac{\sqrt{210}i}{140} \\ -\frac{3\sqrt{70}i}{140} & 0 & \frac{3\sqrt{70}}{140} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & \frac{\sqrt{210}i}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & -\frac{\sqrt{210}i}{140} & \frac{\sqrt{70}}{35} & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & \frac{\sqrt{210}i}{140} & 0 & 0 & -\frac{\sqrt{70}}{35} \end{bmatrix}$
540	symmetry	

continued ...

Table 8

No.	multipole	matrix	
$\mathbb{M}_{1,1}^{(1,1;a)}(E)$	0	$\frac{\sqrt{70}}{70}$ 0 0 0 $\frac{3\sqrt{70}}{140}$ 0 0 0 0 $-\frac{\sqrt{210}}{70}$	
	$\frac{\sqrt{70}}{70}$	0 0 0 0 0 $-\frac{3\sqrt{70}}{140}$ 0 0 0 $-\frac{\sqrt{210}}{70}$ 0	
	0	0 0 0 $\frac{\sqrt{70}}{70}$ 0 0 $\frac{3\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{210}i}{70}$	
	0	0 0 $\frac{\sqrt{70}}{70}$ 0 0 0 0 $-\frac{3\sqrt{70}}{140}$ $-\frac{\sqrt{210}i}{70}$ 0	
	$\frac{3\sqrt{70}}{140}$	0 0 0 0 0 $\frac{\sqrt{70}}{70}$ 0 $-\frac{3\sqrt{70}i}{140}$ $\frac{\sqrt{210}}{140}$ 0	
	0	$-\frac{3\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{70}}{70}$ 0 $\frac{3\sqrt{70}i}{140}$ 0 0 $-\frac{\sqrt{210}}{140}$	
	0	0 0 $\frac{3\sqrt{70}}{140}$ 0 0 $-\frac{3\sqrt{70}i}{140}$ 0 $-\frac{\sqrt{70}}{35}$ 0 0	
	0	0 0 0 $-\frac{3\sqrt{70}}{140}$ $\frac{3\sqrt{70}i}{140}$ 0 $-\frac{\sqrt{70}}{35}$ 0 0 0	
	0	$-\frac{\sqrt{210}}{70}$ 0 $\frac{\sqrt{210}i}{70}$ $\frac{\sqrt{210}}{140}$ 0 0 0 0 $-\frac{\sqrt{70}}{70}$	
	$-\frac{\sqrt{210}}{70}$	0 0 $-\frac{\sqrt{210}i}{70}$ 0 0 $-\frac{\sqrt{210}}{140}$ 0 0 $-\frac{\sqrt{70}}{70}$ 0	
$\mathbb{M}_{1,2}^{(1,1;a)}(E)$	<i>y</i>		
	0	$-\frac{\sqrt{70}i}{70}$ 0 0 0 0 0 $-\frac{3\sqrt{70}}{140}$ 0 0 $-\frac{\sqrt{210}i}{70}$	
	$\frac{\sqrt{70}i}{70}$	0 0 0 0 0 0 0 $\frac{3\sqrt{70}}{140}$ $\frac{\sqrt{210}i}{70}$ 0	
	0	0 0 0 $-\frac{\sqrt{70}i}{70}$ $\frac{3\sqrt{70}}{140}$ 0 0 0 0 $-\frac{\sqrt{210}}{70}$	
	0	0 0 $\frac{\sqrt{70}i}{70}$ 0 0 $-\frac{3\sqrt{70}}{140}$ 0 0 0 $-\frac{\sqrt{210}}{70}$	
	0	0 0 $\frac{3\sqrt{70}}{140}$ 0 0 $\frac{\sqrt{70}i}{35}$ 0 $\frac{3\sqrt{70}}{140}$ 0 0	
	0	0 0 0 $-\frac{3\sqrt{70}}{140}$ $-\frac{\sqrt{70}i}{35}$ 0 $\frac{3\sqrt{70}}{140}$ 0 0 0	
	$-\frac{3\sqrt{70}}{140}$	0 0 0 0 0 $\frac{3\sqrt{70}}{140}$ 0 $-\frac{\sqrt{70}i}{70}$ $\frac{\sqrt{210}}{140}$ 0	
	0	$\frac{3\sqrt{70}}{140}$ 0 0 $\frac{3\sqrt{70}}{140}$ 0 $\frac{\sqrt{70}i}{70}$ 0 0 0 $-\frac{\sqrt{210}}{140}$	
	0	$-\frac{\sqrt{210}i}{70}$ 0 $-\frac{\sqrt{210}}{70}$ 0 0 0 $\frac{\sqrt{210}}{140}$ 0 0 $\frac{\sqrt{70}i}{70}$	
	$\frac{\sqrt{210}i}{70}$	0 0 $-\frac{\sqrt{210}}{70}$ 0 0 0 0 $-\frac{\sqrt{210}}{140}$ $-\frac{\sqrt{70}i}{70}$ 0	
542	$-\frac{z(3x^2+3y^2-2z^2)}{2}$		
	continued ...		

Table 8

No.	multipole	matrix
$\mathbb{M}_3^{(1,1;a)}(A)$	$\frac{\sqrt{35}}{105} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad -\frac{\sqrt{35}i}{84} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{35}}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad \frac{\sqrt{35}i}{84} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{35}}{105} \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{84} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{105} \quad -\frac{\sqrt{35}i}{84} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad \frac{\sqrt{35}i}{84} \quad -\frac{4\sqrt{35}}{105} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42}$	
	$-\frac{\sqrt{35}}{84} \quad 0 \quad -\frac{\sqrt{35}i}{84} \quad 0 \quad 0 \quad \frac{4\sqrt{35}}{105} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42} \quad 0$	
	$0 \quad -\frac{\sqrt{35}i}{84} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad 0 \quad -\frac{4\sqrt{35}}{105} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{42}$	
	$\frac{\sqrt{35}i}{84} \quad 0 \quad -\frac{\sqrt{35}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{4\sqrt{35}}{105} \quad \frac{\sqrt{105}i}{42} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42} \quad 0 \quad -\frac{\sqrt{105}i}{42} \quad \frac{2\sqrt{35}}{35} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42} \quad 0 \quad \frac{\sqrt{105}i}{42} \quad 0 \quad 0 \quad -\frac{2\sqrt{35}}{35}$	
543	symmetry	$\sqrt{15}xyz$
$\mathbb{M}_3^{(1,1;a)}(B, 1)$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{21} \quad 0 \quad -\frac{\sqrt{21}i}{21} \quad \frac{\sqrt{7}}{14} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{21} \quad 0 \quad \frac{\sqrt{21}i}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14}$	
	$0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28}$	
	$-\frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{21} \quad -\frac{\sqrt{7}i}{28} \quad 0$	
	$0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad -\frac{\sqrt{21}i}{21} \quad \frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28}$	
	$\frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{21} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{\sqrt{7}}{28} \quad 0 \quad 0 \quad 0$	
544	symmetry	$\sqrt{15}z(x-y)(x+y)$

continued ...

Table 8

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

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_{3,2}^{(1,1;a)}(E, 1)$	0	$-\frac{19\sqrt{35}i}{420}$
	$\frac{19\sqrt{35}i}{420}$	0
	0	$-\frac{\sqrt{35}}{24}$
	$-\frac{\sqrt{35}}{24}$	0
	$-\frac{\sqrt{35}}{24}$	$-\frac{4\sqrt{35}i}{105}$
	0	$-\frac{4\sqrt{35}i}{105}$
	0	$-\frac{\sqrt{35}}{84}$
	0	$\frac{\sqrt{35}}{84}$
	$-\frac{5\sqrt{35}}{168}$	0
547	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{M}_{3,1}^{(1,1;a)}(E, 2)$	0	$-\frac{\sqrt{21}i}{28}$
	$\frac{\sqrt{21}i}{28}$	0
	0	$-\frac{\sqrt{21}}{24}$
	$-\frac{\sqrt{21}}{24}$	0
	0	$-\frac{\sqrt{21}i}{21}$
	$-\frac{\sqrt{21}}{24}$	$-\frac{\sqrt{21}}{28}$
	0	$-\frac{\sqrt{21}i}{21}$
	0	$-\frac{\sqrt{21}}{28}$
	$-\frac{\sqrt{21}}{168}$	0
548	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 8

No.	multipole	matrix
$\mathbb{M}_{3,2}^{(1,1;a)}(E, 2)$	0	$-\frac{\sqrt{21}}{28}$
	$-\frac{\sqrt{21}}{28}$	0
	0	$\frac{\sqrt{21}i}{24}$
	$-\frac{\sqrt{21}i}{24}$	0
	0	$\frac{\sqrt{21}i}{24}$
	$-\frac{\sqrt{21}i}{24}$	0
	0	$\frac{\sqrt{21}}{21}$
	$-\frac{\sqrt{21}}{21}$	0
	0	0
	$-\frac{\sqrt{21}}{168}$	0

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

Table 9: (d,f) block.

No.	multipole	matrix
549	symmetry	z
$\mathbb{Q}_1^{(a)}(A)$	0	0
	0	$\frac{\sqrt{7}}{14}$
	0	0
	0	$\frac{\sqrt{7}}{14}$
	0	0
	0	$\frac{\sqrt{7}}{14}$
	0	0
	0	$\frac{\sqrt{70}}{35}$
	0	0
	0	$\frac{\sqrt{70}}{35}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(a)}(A)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{15} & 0 \end{bmatrix}$
553	symmetry	$\sqrt{15}xyz$
$\mathbb{Q}_3^{(a)}(B, 1)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 \\ -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
554	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{3,2}^{(a)}(E, 1)$	0 0 $\frac{\sqrt{2}}{16}$ 0 0 0 0 0 0 0 0 $\frac{11\sqrt{30}}{240}$ 0 0 0	
	0 0 0 $\frac{\sqrt{2}}{16}$ 0 0 0 0 0 0 0 0 $\frac{11\sqrt{30}}{240}$ 0 0 0	
	$-\frac{\sqrt{2}}{16}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{30}}{240}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{2}}{16}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{30}}{240}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{3}}{6}$ 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 $-\frac{\sqrt{3}}{24}$ 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 0 0 0 0 0 $-\frac{\sqrt{5}}{40}$	
	0 0 $\frac{5\sqrt{6}}{48}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{10}}{80}$ 0 0 0 0 0	
	0 0 0 $\frac{5\sqrt{6}}{48}$ 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{10}}{80}$ 0 0 0	
557	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{Q}_{3,1}^{(a)}(E, 2)$	0 0 $-\frac{\sqrt{30}}{48}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}}{16}$ 0 0 0 0	
	0 0 0 $-\frac{\sqrt{30}}{48}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}}{16}$ 0 0 0	
	$\frac{\sqrt{30}}{48}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{2}}{16}$ 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{30}}{48}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{2}}{16}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{5}}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{24}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{5}}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{24}$	
	0 0 0 $\frac{\sqrt{10}}{16}$ 0 0 0 0 0 0 $\frac{\sqrt{6}}{16}$ 0 0 0 0	
	0 0 0 $\frac{\sqrt{10}}{16}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}}{16}$ 0 0 0	
558	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{3,2}^{(a)}(E, 2)$	$\frac{\sqrt{30}}{48} \quad 0 \quad -\frac{\sqrt{2}}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{30}}{48} \quad 0 \quad -\frac{\sqrt{2}}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{30}}{48} \quad 0 \quad -\frac{3\sqrt{2}}{16} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{2}}{16} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{8} \quad 0 \quad -\frac{\sqrt{3}}{24} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{8} \quad 0 \quad -\frac{\sqrt{3}}{24}$	
	$0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$\frac{\sqrt{10}}{16} \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{10}}{16} \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
559	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
$\mathbb{Q}_5^{(a)}(A, 1)$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{30}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{20} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{20} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$\frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{5}}{10} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
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 0 0 0 0 0 0 0 0 0	$\left[\begin{array}{cccccccccccc} 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{42} & 0 \end{array} \right]$
	561 symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
	$\mathbb{Q}_5^{(a)}(A, 3)$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\left[\begin{array}{cccccccccccc} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{array} \right]$
	562 symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(a)}(B, 1)$	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 $-\frac{\sqrt{6}}{12}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0	
	0 0 $\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0	
	0 0 0 $\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0	
	$-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{30}}{20}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{30}}{20}$ 0 0 0 0 0 0 0 0	
563	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
$\mathbb{Q}_5^{(a)}(B, 2)$	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}}{12}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}}{12}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	$-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 0 $\frac{1}{4}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 $\frac{1}{4}$ 0 0 0 0 0	
	0 0 $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{15}}{60}$ 0 0 0 0 0 0 0 $-\frac{1}{4}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{30}}{20}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{30}}{20}$ 0 0 0 0 0 0 0 0 0	
564	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
$\mathbb{Q}_{5,1}^{(a)}(E, 1)$	$\frac{11\sqrt{7}}{112} \quad 0 \quad -\frac{5\sqrt{105}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{11\sqrt{7}}{112} \quad 0 \quad -\frac{5\sqrt{105}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{5\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{42}}{168} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{42}}{168} \quad 0 \quad \frac{\sqrt{70}}{56}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$	
	$-\frac{\sqrt{21}}{48} \quad 0 \quad \frac{3\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{21}}{48} \quad 0 \quad \frac{3\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
565	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$
$\mathbb{Q}_{5,2}^{(a)}(E, 1)$	$0 \quad 0 \quad \frac{11\sqrt{7}}{112} \quad 0 \quad \frac{5\sqrt{105}}{336} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{11\sqrt{7}}{112} \quad 0 \quad \frac{5\sqrt{105}}{336} \quad 0 \quad 0 \quad 0$	
	$\frac{5\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{5\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{42}}{168} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{42}}{168} \quad 0 \quad \frac{\sqrt{70}}{56}$	
	$0 \quad 0 \quad \frac{\sqrt{21}}{48} \quad 0 \quad \frac{3\sqrt{35}}{112} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{48} \quad 0 \quad \frac{3\sqrt{35}}{112} \quad 0 \quad 0 \quad 0$	
566	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{5,1}^{(a)}(E, 2)$	$\frac{3\sqrt{5}}{80}$	$\begin{bmatrix} \frac{3\sqrt{5}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{5}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{15}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{15}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$	
	$\frac{\sqrt{5}}{40}$	$\begin{bmatrix} 0 & 0 & \frac{3\sqrt{5}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{5}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{16} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{8} & 0 \\ 0 & 0 & -\frac{3\sqrt{15}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{15}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$	
	$\frac{3\sqrt{5}}{80}$	
	$\frac{\sqrt{5}}{40}$	
	$\frac{3\sqrt{15}}{80}$	
567	symmetry	
568	symmetry	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{5,1}^{(a)}(E, 3)$	0 0 $\frac{7\sqrt{15}}{120}$ 0 0 0 0 0 0 0 0 0 0 0 0	$-\frac{1}{8}$ 0 0 0
	0 0 0 $\frac{7\sqrt{15}}{120}$ 0 0 0 0 0 0 0 0 0 0 0	$-\frac{1}{8}$ 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 $\frac{\sqrt{15}}{15}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0
	0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0	0 0 0 0
	0 0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0	0 0 0 0
	0 0 $-\frac{\sqrt{5}}{40}$ 0 0 0 0 0 0 $-\frac{\sqrt{3}}{8}$ 0 0 0 0	0 0 0 0
	0 0 0 $-\frac{\sqrt{5}}{40}$ 0 0 0 0 0 0 $-\frac{\sqrt{3}}{8}$ 0 0 0	0 0 0 0
569	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$
$\mathbb{Q}_{5,2}^{(a)}(E, 3)$	$-\frac{7\sqrt{15}}{120}$ 0 0 0 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 0	0 0 0 0
	0 $-\frac{7\sqrt{15}}{120}$ 0 0 0 0 0 0 0 $-\frac{1}{8}$ 0 0 0 0 0	0 0 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 $\frac{\sqrt{15}}{15}$ 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0
	0 0 0 0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}}{12}$ 0	0 0 0 0
	0 0 0 0 0 $-\frac{\sqrt{10}}{20}$ 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 0 0 0 0 0 0	0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0
	$-\frac{\sqrt{5}}{40}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{8}$ 0 0 0 0 0	0 0 0 0
	0 $-\frac{\sqrt{5}}{40}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{8}$ 0 0 0 0	0 0 0 0
570	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{3,2}^{(1,-1;a)}(E, 1)$	$-\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{140}$	
	$0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{140} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}}{280}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{140} \quad \frac{3\sqrt{70}}{280} \quad 0$	
	$0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad \frac{\sqrt{105}}{56} \quad -\frac{\sqrt{70}i}{70} \quad 0$	
	$\frac{\sqrt{7}i}{28} \quad 0 \quad \frac{3\sqrt{7}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{140} \quad 0 \quad -\frac{\sqrt{105}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{70}$	
	$0 \quad \frac{3\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{280} \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0$	
	$-\frac{3\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{280} \quad 0 \quad \frac{\sqrt{105}i}{140} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad -\frac{3\sqrt{14}}{56} \quad \frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad \frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0$	
575	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{Q}_{3,1}^{(1,-1;a)}(E, 2)$	$\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{56} \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{84}$	
	$0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{84} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{168}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad \frac{\sqrt{42}}{168} \quad 0$	
	$0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad -\frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad -\frac{\sqrt{7}}{56} \quad \frac{\sqrt{42}i}{42} \quad 0$	
	$\frac{\sqrt{105}i}{84} \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{28} \quad 0 \quad \frac{\sqrt{7}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{42}$	
	$0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0$	
	$-\frac{\sqrt{105}}{168} \quad 0 \quad \frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{7}}{56} \quad 0 \quad \frac{\sqrt{7}i}{28} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{84} \quad 0 \quad -\frac{\sqrt{210}}{168} \quad -\frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{84} \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42} \quad 0 \quad 0 \quad 0 \quad 0$	
576	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{3,2}^{(1,-1;a)}(E, 2)$	0 0 $\frac{\sqrt{105}i}{84}$ 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{42}}{84}$	
	0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$ $\frac{\sqrt{42}}{84}$ 0	
	$-\frac{\sqrt{105}i}{84}$ 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 $-\frac{\sqrt{42}i}{168}$	
	0 $\frac{\sqrt{105}i}{84}$ 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{42}i}{168}$ 0	
	0 $-\frac{\sqrt{105}}{84}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $\frac{3\sqrt{7}i}{56}$ 0 0	
	$\frac{\sqrt{105}}{84}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 $\frac{3\sqrt{7}i}{56}$ 0 0 0	
	0 $\frac{\sqrt{105}i}{168}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{28}$ $\frac{\sqrt{42}i}{42}$ 0	
	$\frac{\sqrt{105}i}{168}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{42}i}{42}$	
	0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0 $-\frac{\sqrt{21}i}{42}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{210}}{84}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0 0 $\frac{\sqrt{21}i}{42}$ 0 0	
577	symmetry	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
$\mathbb{Q}_5^{(1,-1;a)}(A, 1)$	0 0 0 0 $\frac{i}{10}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$ 0 $-\frac{\sqrt{10}}{20}$ 0 0	
	0 0 0 0 0 $-\frac{i}{10}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0	
	0 0 0 0 0 0 $-\frac{i}{10}$ 0 0 $-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0	
	0 0 0 0 0 0 0 $\frac{i}{10}$ $\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0	
	$-\frac{\sqrt{6}i}{20}$ 0 0 0 0 $-\frac{i}{20}$ 0 $\frac{1}{20}$ 0 0 0 0 0 0	
	0 $\frac{\sqrt{6}i}{20}$ 0 0 $-\frac{i}{20}$ 0 $-\frac{1}{20}$ 0 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{6}i}{20}$ 0 0 $\frac{1}{20}$ 0 $\frac{i}{20}$ 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{6}i}{20}$ $-\frac{1}{20}$ 0 $\frac{i}{20}$ 0 0 0 0 0 0 0	
	0 $-\frac{3\sqrt{2}i}{20}$ 0 $\frac{3\sqrt{2}}{20}$ 0 0 0 0 0 0 0 0 0 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	$\frac{\sqrt{210}}{420} \quad 0 \quad -\frac{\sqrt{210}i}{420} \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{42} \quad 0 \quad 0 \quad \frac{\sqrt{14}}{42} \quad 0 \quad \frac{\sqrt{14}i}{42} \quad 0 \quad 0$
	$-\frac{\sqrt{210}}{420}$	$0 \quad -\frac{\sqrt{210}i}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{42} \quad -\frac{\sqrt{14}}{42} \quad 0 \quad \frac{\sqrt{14}i}{42} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{210}i}{420} \quad 0 \quad \frac{\sqrt{210}}{420} \quad -\frac{\sqrt{35}i}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{42} \quad 0 \quad \frac{\sqrt{14}}{42} \quad 0 \quad 0$
	$\frac{\sqrt{210}i}{420}$	$0 \quad -\frac{\sqrt{210}}{420} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{42} \quad 0 \quad -\frac{\sqrt{14}}{42} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{60} \quad 0 \quad \frac{\sqrt{35}i}{60} \quad 0 \quad 0 \quad -\frac{5\sqrt{14}i}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{60} \quad 0 \quad \frac{\sqrt{35}i}{60} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{14}i}{84} \quad \frac{\sqrt{21}}{42} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{60} \quad 0 \quad -\frac{\sqrt{35}}{60} \quad \frac{5\sqrt{14}i}{84} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{60} \quad 0 \quad \frac{\sqrt{35}}{60} \quad 0 \quad 0 \quad -\frac{5\sqrt{14}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42}$
	0	$0 \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{42}}{84} \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad 0$
579	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
$\mathbb{Q}_5^{(1,-1;a)}(A, 3)$	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{20} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad \frac{\sqrt{10}}{20} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad -\frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{6}i}{20} \quad 0 \quad 0 \quad \frac{1}{20} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{20} \quad -\frac{1}{20} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0$
	$\frac{\sqrt{6}i}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{20} \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{6}i}{20} \quad 0 \quad 0 \quad \frac{i}{20} \quad 0 \quad \frac{1}{20} \quad 0 \quad 0$
	0	$0 \quad \frac{3\sqrt{2}}{20} \quad 0 \quad \frac{3\sqrt{2}i}{20} \quad 0 \quad 0$
580	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{5,1}^{(1,-1;a)}(E, 2)$	0 0 $\frac{\sqrt{6}i}{80}$ 0 0 $-\frac{1}{20}$ 0 $\frac{i}{20}$ 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 $-\frac{\sqrt{15}}{20}$	
	0 0 0 $-\frac{\sqrt{6}i}{80}$ $\frac{1}{20}$ 0 $\frac{i}{20}$ 0 0 0 0 $\frac{\sqrt{10}i}{16}$ $\frac{\sqrt{15}}{20}$ 0	
	$-\frac{\sqrt{6}i}{80}$ 0 0 0 0 $-\frac{3i}{40}$ 0 $\frac{1}{20}$ $-\frac{\sqrt{10}i}{80}$ 0 0 0 0 $-\frac{\sqrt{15}i}{40}$	
	0 $\frac{\sqrt{6}i}{80}$ 0 0 $-\frac{3i}{40}$ 0 $-\frac{1}{20}$ 0 0 $\frac{\sqrt{10}i}{80}$ 0 0 $-\frac{\sqrt{15}i}{40}$ 0	
	0 $-\frac{\sqrt{6}}{80}$ 0 $-\frac{\sqrt{6}i}{80}$ 0 0 $-\frac{i}{20}$ 0 0 $-\frac{\sqrt{10}}{80}$ 0 $-\frac{3\sqrt{10}i}{80}$ 0 0	
	$\frac{\sqrt{6}}{80}$ 0 $-\frac{\sqrt{6}i}{80}$ 0 0 0 $\frac{i}{20}$ $\frac{\sqrt{10}}{80}$ 0 $-\frac{3\sqrt{10}i}{80}$ 0 0 0	
	0 $\frac{\sqrt{6}i}{40}$ 0 $-\frac{\sqrt{6}}{16}$ $\frac{i}{8}$ 0 0 0 0 $\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{80}$ $-\frac{\sqrt{15}i}{40}$ 0	
	$\frac{\sqrt{6}i}{40}$ 0 $\frac{\sqrt{6}}{16}$ 0 0 $-\frac{i}{8}$ 0 0 $\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{80}$ 0 0 $\frac{\sqrt{15}i}{40}$	
	0 0 $\frac{9\sqrt{2}i}{80}$ 0 0 $\frac{\sqrt{3}}{10}$ 0 $\frac{\sqrt{3}i}{20}$ 0 0 $\frac{\sqrt{30}i}{80}$ 0 0 0	
	0 0 0 $-\frac{9\sqrt{2}i}{80}$ $-\frac{\sqrt{3}}{10}$ 0 $\frac{\sqrt{3}i}{20}$ 0 0 0 $-\frac{\sqrt{30}i}{80}$ 0 0 0	
585	symmetry	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
$\mathbb{Q}_{5,2}^{(1,-1;a)}(E, 2)$	$-\frac{\sqrt{6}i}{80}$ 0 0 0 0 $\frac{i}{20}$ 0 $\frac{1}{20}$ $-\frac{\sqrt{10}i}{16}$ 0 0 0 0 $-\frac{\sqrt{15}i}{20}$	
	0 $\frac{\sqrt{6}i}{80}$ 0 0 $\frac{i}{20}$ 0 $-\frac{1}{20}$ 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 0 $-\frac{\sqrt{15}i}{20}$ 0	
	0 0 $-\frac{\sqrt{6}i}{80}$ 0 0 $-\frac{3}{40}$ 0 $-\frac{i}{20}$ 0 0 0 $\frac{\sqrt{10}i}{80}$ 0 0 0 $\frac{\sqrt{15}}{40}$	
	0 0 0 $\frac{\sqrt{6}i}{80}$ $\frac{3}{40}$ 0 $-\frac{i}{20}$ 0 0 0 0 $-\frac{\sqrt{10}i}{80}$ 0 $-\frac{\sqrt{10}}{40}$ $-\frac{\sqrt{15}}{40}$ 0	
	0 $-\frac{\sqrt{6}i}{16}$ 0 $\frac{\sqrt{6}}{40}$ $\frac{i}{8}$ 0 0 0 0 $-\frac{\sqrt{10}i}{80}$ 0 $-\frac{\sqrt{10}}{40}$ $\frac{\sqrt{15}i}{40}$ 0	
	$-\frac{\sqrt{6}i}{16}$ 0 $-\frac{\sqrt{6}}{40}$ 0 0 $-\frac{i}{8}$ 0 0 $-\frac{\sqrt{10}i}{80}$ 0 $\frac{\sqrt{10}}{40}$ 0 0 $-\frac{\sqrt{15}i}{40}$	
	0 $-\frac{\sqrt{6}}{80}$ 0 $-\frac{\sqrt{6}i}{80}$ 0 0 $\frac{i}{20}$ 0 0 $\frac{3\sqrt{10}}{80}$ 0 $\frac{\sqrt{10}i}{80}$ 0 0 0	
	$\frac{\sqrt{6}}{80}$ 0 $-\frac{\sqrt{6}i}{80}$ 0 0 0 0 $-\frac{i}{20}$ $-\frac{3\sqrt{10}}{80}$ 0 $\frac{\sqrt{10}i}{80}$ 0 0 0	
	$\frac{9\sqrt{2}i}{80}$ 0 0 0 0 $\frac{\sqrt{3}i}{10}$ 0 $-\frac{\sqrt{3}}{20}$ $-\frac{\sqrt{30}i}{80}$ 0 0 0 0 0	
	0 $-\frac{9\sqrt{2}i}{80}$ 0 0 $\frac{\sqrt{3}i}{10}$ 0 $\frac{\sqrt{3}}{20}$ 0 0 $\frac{\sqrt{30}i}{80}$ 0 0 0 0 0	
586	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_1^{(1,0;a)}(A)$	0	$-\frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0$
	$\frac{\sqrt{21}}{28}$	$0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{21}i}{28} \quad 0 \quad -\frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{21}i}{28}$	$0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0$
589	symmetry	x
$\mathbb{Q}_{1,1}^{(1,0;a)}(E)$	0	$0 \quad 0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{28} \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{21}i}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{21}i}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad -\frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{35} \quad \frac{\sqrt{210}i}{140} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{35} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{140} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad -\frac{3\sqrt{70}}{140} \quad 0 \quad 0$
590	symmetry	y

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{1,2}^{(1,0;a)}(E)$	$\frac{\sqrt{21}i}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{21}i}{28}$	$0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad 0 \quad \frac{\sqrt{21}i}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{28}$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad 0 \quad 0$
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28}$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{35} \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0$
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28}$	$0 \quad 0 \quad -\frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad 0 \quad 0$
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{140}$	
	$0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{140} \quad 0$	
591	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{Q}_3^{(1,0;a)}(A)$	$0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad -\frac{\sqrt{6}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{20} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{6}}{24} \quad 0 \quad -\frac{\sqrt{6}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{6}i}{24} \quad 0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad -\frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{6}i}{24} \quad 0 \quad -\frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{8} \quad 0 \quad \frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{60}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{8} \quad 0 \quad \frac{i}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{60}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad -\frac{1}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{60}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{8} \quad 0 \quad \frac{1}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{60}$	
	$0 \quad 0 \quad -\frac{\sqrt{30}}{40} \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{30}}{40} \quad 0 \quad \frac{\sqrt{30}i}{40} \quad 0 \quad 0 \quad 0 \quad 0$	
592	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_3^{(1,0;a)}(B, 1)$	0	$\begin{bmatrix} 0 & \frac{\sqrt{10}i}{48} & 0 & -\frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{48} & 0 & -\frac{\sqrt{6}}{48} & -\frac{i}{6} & 0 \end{bmatrix}$
	$\frac{\sqrt{10}i}{48}$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & 0 & 0 & \frac{i}{6} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & \frac{\sqrt{10}}{48} & 0 & \frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 \end{bmatrix}$
	$-\frac{\sqrt{10}}{48}$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 \end{bmatrix}$
	$\frac{\sqrt{10}i}{24}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{24} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & -\frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & -\frac{i}{24} & 0 \end{bmatrix}$
	0	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & \frac{1}{24} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{10}i}{24} & \frac{\sqrt{15}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & -\frac{1}{24} & 0 & 0 \end{bmatrix}$
	0	$\begin{bmatrix} 0 & \frac{\sqrt{30}i}{48} & 0 & \frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 \end{bmatrix}$
	$\frac{\sqrt{30}i}{48}$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & -\frac{\sqrt{2}}{16} & 0 & 0 & 0 \end{bmatrix}$
593	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
$\mathbb{Q}_3^{(1,0;a)}(B, 2)$	0	$\begin{bmatrix} 0 & -\frac{\sqrt{10}}{48} & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 \end{bmatrix}$
	$\frac{\sqrt{10}}{48}$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{10}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 \end{bmatrix}$
	0	$\begin{bmatrix} 0 & \frac{\sqrt{10}i}{48} & 0 & -\frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{48} & \frac{i}{6} & 0 & 0 \end{bmatrix}$
	$\frac{\sqrt{10}i}{48}$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{10}}{48} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{48} & 0 & -\frac{\sqrt{6}}{48} & 0 & 0 & -\frac{i}{6} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & \frac{1}{24} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & 0 & 0 & \frac{\sqrt{10}i}{24} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & -\frac{1}{24} & 0 & 0 \end{bmatrix}$
	$\frac{\sqrt{10}i}{24}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{24} & -\frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & 0 & \frac{i}{24} \end{bmatrix}$
	0	$\begin{bmatrix} 0 & -\frac{\sqrt{10}i}{24} & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 & 0 & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & \frac{i}{24} & 0 \end{bmatrix}$
	0	$\begin{bmatrix} 0 & \frac{\sqrt{30}}{48} & 0 & -\frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 \end{bmatrix}$
	$-\frac{\sqrt{30}}{48}$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{16} & 0 & \frac{\sqrt{2}i}{16} & 0 & 0 & 0 \end{bmatrix}$
594	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_5^{(1,0;a)}(A, 1)$		$\begin{bmatrix} 0 & -\frac{\sqrt{6}i}{24} & 0 & -\frac{\sqrt{6}}{24} & \frac{i}{5} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{40} & 0 & 0 \\ -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & -\frac{i}{5} & 0 & 0 & -\frac{\sqrt{10}i}{40} & 0 & -\frac{\sqrt{10}}{40} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & -\frac{i}{5} & 0 & 0 & \frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 \\ \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & 0 & 0 & \frac{i}{5} & -\frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{15} & 0 & 0 & 0 & 0 & -\frac{i}{10} & 0 & \frac{1}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}i}{15} & 0 & 0 & -\frac{i}{10} & 0 & -\frac{1}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{15} & 0 & 0 & \frac{1}{10} & 0 & \frac{i}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{15} & -\frac{1}{10} & 0 & \frac{i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{20} & 0 & \frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{20} & 0 & -\frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$
599	symmetry	
$\mathbb{Q}_5^{(1,0;a)}(A, 2)$		$\begin{bmatrix} 0 & -\frac{\sqrt{210}}{840} & 0 & \frac{\sqrt{210}i}{840} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 \\ \frac{\sqrt{210}}{840} & 0 & \frac{\sqrt{210}i}{840} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{840} & 0 & -\frac{\sqrt{210}}{840} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{14}}{56} & 0 & 0 \\ -\frac{\sqrt{210}i}{840} & 0 & \frac{\sqrt{210}}{840} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{70} & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{21} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{70} & 0 & -\frac{\sqrt{35}i}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{21} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{35}}{70} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{21} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{28} & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{28} & 0 & \frac{\sqrt{42}i}{28} & 0 & 0 & 0 \end{bmatrix}$
		$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$
600	symmetry	

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{5,2}^{(1,0;a)}(E, 2)$	$\frac{13\sqrt{6}i}{480}$	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{3i}{80} & 0 & \frac{1}{10} & -\frac{\sqrt{10}i}{32} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{240} \\ 0 & -\frac{13\sqrt{6}i}{480} & 0 & 0 & \frac{3i}{80} & 0 & -\frac{1}{10} & 0 & 0 & \frac{\sqrt{10}i}{32} & 0 & 0 & \frac{\sqrt{15}i}{240} & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{40} & 0 & 0 & \frac{1}{10} & 0 & -\frac{i}{10} & 0 & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 & -\frac{\sqrt{15}}{30} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{40} & -\frac{1}{10} & 0 & -\frac{i}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}i}{40} & \frac{\sqrt{15}}{30} & 0 \\ 0 & \frac{\sqrt{6}i}{48} & 0 & \frac{\sqrt{6}}{20} & -\frac{i}{8} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}i}{80} & 0 & -\frac{\sqrt{10}}{20} & \frac{\sqrt{15}i}{120} & 0 \\ \frac{\sqrt{6}i}{48} & 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & \frac{i}{8} & 0 & 0 & \frac{3\sqrt{10}i}{80} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & -\frac{\sqrt{15}i}{120} \\ 0 & \frac{\sqrt{6}}{60} & 0 & -\frac{\sqrt{6}i}{40} & 0 & 0 & \frac{i}{10} & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 \\ -\frac{\sqrt{6}}{60} & 0 & -\frac{\sqrt{6}i}{40} & 0 & 0 & 0 & 0 & -\frac{i}{10} & \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 & 0 \\ -\frac{9\sqrt{2}i}{160} & 0 & 0 & 0 & \frac{\sqrt{3}i}{80} & 0 & -\frac{\sqrt{3}}{10} & \frac{\sqrt{30}i}{160} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} \\ 0 & \frac{9\sqrt{2}i}{160} & 0 & 0 & \frac{\sqrt{3}i}{80} & 0 & \frac{\sqrt{3}}{10} & 0 & 0 & -\frac{\sqrt{30}i}{160} & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 \end{pmatrix}$
	607	symmetry
		$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
	$\mathbb{Q}_{5,1}^{(1,0;a)}(E, 3)$	$\begin{pmatrix} \frac{37\sqrt{2}i}{240} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{120} & 0 & \frac{\sqrt{3}}{20} & -\frac{\sqrt{30}i}{240} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{24} \\ 0 & -\frac{37\sqrt{2}i}{240} & 0 & 0 & 0 & \frac{\sqrt{3}i}{120} & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & \frac{\sqrt{30}i}{240} & 0 & 0 & \frac{\sqrt{5}i}{24} & 0 \\ 0 & 0 & -\frac{19\sqrt{2}i}{120} & 0 & 0 & \frac{\sqrt{3}}{20} & 0 & \frac{\sqrt{3}i}{30} & 0 & 0 & \frac{\sqrt{30}i}{120} & 0 & 0 & \frac{\sqrt{5}}{60} & \\ 0 & 0 & 0 & \frac{19\sqrt{2}i}{120} & -\frac{\sqrt{3}}{20} & 0 & \frac{\sqrt{3}i}{30} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{120} & -\frac{\sqrt{5}}{60} & 0 & \\ 0 & -\frac{\sqrt{2}i}{30} & 0 & \frac{\sqrt{2}}{24} & -\frac{\sqrt{3}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{120} & -\frac{\sqrt{5}i}{60} & 0 & \\ -\frac{\sqrt{2}i}{30} & 0 & -\frac{\sqrt{2}}{24} & 0 & 0 & \frac{\sqrt{3}i}{60} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{120} & 0 & 0 & \frac{\sqrt{5}i}{60} & \\ 0 & \frac{7\sqrt{2}}{120} & 0 & -\frac{\sqrt{2}i}{120} & 0 & 0 & \frac{\sqrt{3}i}{30} & 0 & 0 & \frac{\sqrt{30}}{120} & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 \\ -\frac{7\sqrt{2}}{120} & 0 & -\frac{\sqrt{2}i}{120} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{30} & -\frac{\sqrt{30}}{120} & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 \\ -\frac{\sqrt{6}i}{80} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & \frac{1}{20} & -\frac{\sqrt{10}i}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & \frac{\sqrt{6}i}{80} & 0 & 0 & \frac{i}{8} & 0 & -\frac{1}{20} & 0 & 0 & \frac{\sqrt{10}i}{80} & 0 & 0 & \frac{\sqrt{15}i}{24} & 0 \end{pmatrix}$
	608	symmetry
		$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{5,2}^{(1,0;a)}(E, 3)$	$0 \quad 0 \quad \frac{37\sqrt{2}i}{240} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{120} \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{240} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{24}$	
	$0 \quad 0 \quad 0 \quad -\frac{37\sqrt{2}i}{240} \quad -\frac{\sqrt{3}}{120} \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{240} \quad \frac{\sqrt{5}}{24} \quad 0$	
	$\frac{19\sqrt{2}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad \frac{\sqrt{3}}{30} \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60}$	
	$0 \quad -\frac{19\sqrt{2}i}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad -\frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60} \quad 0$	
	$0 \quad \frac{\sqrt{2}}{120} \quad 0 \quad -\frac{7\sqrt{2}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{24} \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0$	
	$-\frac{\sqrt{2}}{120} \quad 0 \quad -\frac{7\sqrt{2}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{30} \quad \frac{\sqrt{30}}{24} \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{2}i}{24} \quad 0 \quad \frac{\sqrt{2}}{30} \quad \frac{\sqrt{3}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{60} \quad 0$	
	$-\frac{\sqrt{2}i}{24} \quad 0 \quad -\frac{\sqrt{2}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{60}$	
	$0 \quad 0 \quad \frac{\sqrt{6}i}{80} \quad 0 \quad 0 \quad -\frac{1}{8} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{80} \quad \frac{1}{8} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{80} \quad -\frac{\sqrt{15}}{24} \quad 0$	
609	symmetry	z
$\mathbb{Q}_1^{(1,1;a)}(A)$	$0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad 0$	
	$-\frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{14} \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad \frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad 0$	
	$\frac{\sqrt{42}i}{56} \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70}$	
	$0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad -\frac{\sqrt{105}}{70} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70}$	
	$0 \quad 0 \quad -\frac{\sqrt{70}i}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{210}}{140} \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad 0 \quad 0$	
610	symmetry	x

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{1,1}^{(1,1;a)}(E)$	0	0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 $\frac{3\sqrt{70}i}{280}$ 0 0 $-\frac{\sqrt{105}}{140}$
	0	0 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 $-\frac{3\sqrt{70}i}{280}$ $\frac{\sqrt{105}}{140}$ 0
	$\frac{\sqrt{42}i}{56}$	0 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0 0 $\frac{\sqrt{105}i}{140}$
	0	$-\frac{\sqrt{42}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 0 $\frac{\sqrt{105}i}{140}$ 0
	0	$-\frac{\sqrt{42}}{56}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $\frac{3\sqrt{70}}{280}$ 0 $-\frac{\sqrt{70}i}{280}$ 0 0 0
	$\frac{\sqrt{42}}{56}$	0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $-\frac{3\sqrt{70}}{280}$ 0 $-\frac{\sqrt{70}i}{280}$ 0 0 0 0
	0	$-\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{3\sqrt{70}}{280}$ $-\frac{\sqrt{105}i}{70}$ 0
	$-\frac{\sqrt{42}i}{56}$	0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{3\sqrt{70}}{280}$ 0 0 0 $\frac{\sqrt{105}i}{70}$
	0	0 0 0 0 $-\frac{\sqrt{21}}{28}$ 0 $\frac{\sqrt{21}i}{28}$ 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{21}}{28}$ 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 $-\frac{\sqrt{210}i}{140}$ 0 0 0
$\mathbb{Q}_{1,2}^{(1,1;a)}(E)$	<i>y</i>	
	0	$\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ $\frac{3\sqrt{70}i}{280}$ 0 0 0 0 $-\frac{\sqrt{105}i}{140}$
	0	0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 $-\frac{\sqrt{105}i}{140}$ 0
	0	0 0 $\frac{\sqrt{42}i}{56}$ 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 0 $-\frac{\sqrt{105}}{140}$
	0	0 0 0 $-\frac{\sqrt{42}i}{56}$ $\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $-\frac{3\sqrt{70}i}{280}$ $\frac{\sqrt{105}}{140}$ 0
	0	$-\frac{\sqrt{42}i}{56}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 $\frac{\sqrt{70}}{56}$ $\frac{\sqrt{105}i}{70}$ 0
	$-\frac{\sqrt{42}i}{56}$	0 $\frac{\sqrt{42}}{56}$ 0 0 0 0 0 $\frac{3\sqrt{70}i}{280}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 $-\frac{\sqrt{105}i}{70}$
	0	$\frac{\sqrt{42}}{56}$ 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{70}}{280}$ 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 $-\frac{\sqrt{70}}{280}$ 0 $-\frac{3\sqrt{70}i}{280}$ 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 $-\frac{\sqrt{21}}{28}$ $-\frac{\sqrt{210}i}{140}$ 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 $\frac{\sqrt{21}}{28}$ 0 0 $\frac{\sqrt{210}i}{140}$ 0 0 0 0
612	$-\frac{z(3x^2+3y^2-2z^2)}{2}$	
	<i>continued ...</i>	

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{3,2}^{(1,1;a)}(E, 1)$	$\frac{\sqrt{42}i}{224}$	0 0 0 0 $-\frac{\sqrt{7}i}{24}$ 0 $-\frac{\sqrt{7}}{42}$ $-\frac{\sqrt{70}i}{672}$ 0 0 0 0 $-\frac{\sqrt{105}i}{168}$
	0	$-\frac{\sqrt{42}i}{224}$ 0 0 $-\frac{\sqrt{7}i}{24}$ 0 $\frac{\sqrt{7}}{42}$ 0 0 $\frac{\sqrt{70}i}{672}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0
	0	0 $\frac{\sqrt{42}i}{224}$ 0 0 $-\frac{5\sqrt{7}}{84}$ 0 $\frac{\sqrt{7}i}{24}$ 0 0 $\frac{13\sqrt{70}i}{672}$ 0 0 $-\frac{\sqrt{105}}{84}$
	0	0 0 0 $-\frac{\sqrt{42}i}{224}$ $\frac{5\sqrt{7}}{84}$ 0 $\frac{\sqrt{7}i}{24}$ 0 0 0 $-\frac{13\sqrt{70}i}{672}$ $\frac{\sqrt{105}}{84}$ 0
	0	$\frac{11\sqrt{42}i}{672}$ 0 $\frac{\sqrt{42}}{84}$ $-\frac{\sqrt{7}i}{48}$ 0 0 0 0 $-\frac{\sqrt{70}i}{672}$ 0 $-\frac{\sqrt{70}}{84}$ $-\frac{\sqrt{105}i}{112}$ 0
	$\frac{11\sqrt{42}i}{672}$	0 $-\frac{\sqrt{42}}{84}$ 0 0 $\frac{\sqrt{7}i}{48}$ 0 0 $-\frac{\sqrt{70}i}{672}$ 0 $\frac{\sqrt{70}}{84}$ 0 0 $\frac{\sqrt{105}i}{112}$
	0	$\frac{5\sqrt{42}}{168}$ 0 $-\frac{17\sqrt{42}i}{672}$ 0 0 $-\frac{\sqrt{7}i}{24}$ 0 0 $\frac{\sqrt{70}}{168}$ 0 $\frac{\sqrt{70}i}{672}$ 0 0
	$-\frac{5\sqrt{42}}{168}$	0 $-\frac{17\sqrt{42}i}{672}$ 0 0 0 0 $\frac{\sqrt{7}i}{24}$ $-\frac{\sqrt{70}}{168}$ 0 $\frac{\sqrt{70}i}{672}$ 0 0 0
	$\frac{\sqrt{14}i}{32}$	0 0 0 0 $\frac{\sqrt{21}i}{84}$ 0 $\frac{\sqrt{21}}{42}$ $\frac{\sqrt{210}i}{224}$ 0 0 0 0 0
	0	$-\frac{\sqrt{14}i}{32}$ 0 0 $\frac{\sqrt{21}i}{84}$ 0 $-\frac{\sqrt{21}}{42}$ 0 0 $-\frac{\sqrt{210}i}{224}$ 0 0 0 0
617	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{Q}_{3,1}^{(1,1;a)}(E, 2)$	$-\frac{\sqrt{70}i}{224}$	0 0 0 0 $-\frac{\sqrt{105}i}{120}$ 0 $-\frac{\sqrt{105}}{70}$ $-\frac{17\sqrt{42}i}{672}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$
	0	$\frac{\sqrt{70}i}{224}$ 0 0 $-\frac{\sqrt{105}i}{120}$ 0 $\frac{\sqrt{105}}{70}$ 0 0 $\frac{17\sqrt{42}i}{672}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0
	0	0 0 $-\frac{\sqrt{70}i}{224}$ 0 0 $-\frac{\sqrt{105}}{420}$ 0 $\frac{\sqrt{105}i}{120}$ 0 0 $-\frac{\sqrt{42}i}{224}$ 0 0 $\frac{\sqrt{7}}{28}$
	0	0 0 0 $\frac{\sqrt{70}i}{224}$ $\frac{\sqrt{105}}{420}$ 0 $\frac{\sqrt{105}i}{120}$ 0 0 0 0 $\frac{\sqrt{42}i}{224}$ $-\frac{\sqrt{7}}{28}$ 0
	0	$\frac{23\sqrt{70}i}{1120}$ 0 $\frac{\sqrt{70}}{56}$ $\frac{\sqrt{105}i}{80}$ 0 0 0 0 $\frac{\sqrt{42}i}{224}$ 0 $\frac{\sqrt{42}}{56}$ $\frac{5\sqrt{7}i}{112}$ 0
	$\frac{23\sqrt{70}i}{1120}$	0 $-\frac{\sqrt{70}}{56}$ 0 0 $-\frac{\sqrt{105}i}{80}$ 0 0 $\frac{\sqrt{42}i}{224}$ 0 $-\frac{\sqrt{42}}{56}$ 0 0 $-\frac{5\sqrt{7}i}{112}$
	0	$\frac{\sqrt{70}}{140}$ 0 $-\frac{\sqrt{70}i}{224}$ 0 0 $\frac{\sqrt{105}i}{120}$ 0 0 $-\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{224}$ 0 0 0
	$-\frac{\sqrt{70}}{140}$	0 $-\frac{\sqrt{70}i}{224}$ 0 0 0 0 $-\frac{\sqrt{105}i}{120}$ $\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{224}$ 0 0 0
	$\frac{\sqrt{210}i}{160}$	0 0 0 0 $-\frac{3\sqrt{35}i}{140}$ 0 $-\frac{\sqrt{35}}{70}$ $-\frac{5\sqrt{14}i}{224}$ 0 0 0 0 0
	0	$-\frac{\sqrt{210}i}{160}$ 0 0 $-\frac{3\sqrt{35}i}{140}$ 0 $\frac{\sqrt{35}}{70}$ 0 0 $\frac{5\sqrt{14}i}{224}$ 0 0 0 0
618	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{Q}_{3,2}^{(1,1;a)}(E, 2)$	$0 \ 0 \ -\frac{\sqrt{70}i}{224} \ 0 \ 0 \ -\frac{\sqrt{105}}{120} \ 0 \ \frac{\sqrt{105}i}{70} \ 0 \ 0 \ \frac{17\sqrt{42}i}{672} \ 0 \ 0 \ -\frac{3\sqrt{7}}{56}$	
	$0 \ 0 \ 0 \ \frac{\sqrt{70}i}{224} \ \frac{\sqrt{105}}{120} \ 0 \ \frac{\sqrt{105}i}{70} \ 0 \ 0 \ 0 \ 0 \ -\frac{17\sqrt{42}i}{672} \ \frac{3\sqrt{7}}{56} \ 0$	
	$\frac{\sqrt{70}i}{224} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}i}{420} \ 0 \ \frac{\sqrt{105}}{120} \ -\frac{\sqrt{42}i}{224} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{28}$	
	$0 \ -\frac{\sqrt{70}i}{224} \ 0 \ 0 \ \frac{\sqrt{105}i}{420} \ 0 \ -\frac{\sqrt{105}}{120} \ 0 \ 0 \ \frac{\sqrt{42}i}{224} \ 0 \ 0 \ \frac{\sqrt{7}i}{28} \ 0$	
	$0 \ \frac{\sqrt{70}}{224} \ 0 \ -\frac{\sqrt{70}i}{140} \ 0 \ 0 \ \frac{\sqrt{105}i}{120} \ 0 \ 0 \ -\frac{\sqrt{42}}{224} \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ 0$	
	$-\frac{\sqrt{70}}{224} \ 0 \ -\frac{\sqrt{70}i}{140} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}i}{120} \ \frac{\sqrt{42}}{224} \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ 0 \ 0$	
	$0 \ -\frac{\sqrt{70}i}{56} \ 0 \ -\frac{23\sqrt{70}}{1120} \ -\frac{\sqrt{105}i}{80} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{42}i}{56} \ 0 \ \frac{\sqrt{42}}{224} \ \frac{5\sqrt{7}i}{112} \ 0$	
	$-\frac{\sqrt{70}i}{56} \ 0 \ \frac{23\sqrt{70}}{1120} \ 0 \ 0 \ \frac{\sqrt{105}i}{80} \ 0 \ 0 \ \frac{\sqrt{42}i}{56} \ 0 \ -\frac{\sqrt{42}}{224} \ 0 \ 0 \ -\frac{5\sqrt{7}i}{112}$	
	$0 \ 0 \ -\frac{\sqrt{210}i}{160} \ 0 \ 0 \ \frac{3\sqrt{35}}{140} \ 0 \ -\frac{\sqrt{35}i}{70} \ 0 \ 0 \ -\frac{5\sqrt{14}i}{224} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ \frac{\sqrt{210}i}{160} \ -\frac{3\sqrt{35}}{140} \ 0 \ -\frac{\sqrt{35}i}{70} \ 0 \ 0 \ 0 \ 0 \ \frac{5\sqrt{14}i}{224} \ 0 \ 0$	
619	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{G}_2^{(a)}(A)$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{70}}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{70}}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{70}}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{70}}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}}{14} \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}}{14} \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
620	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(a)}(B, 1)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{28} \\ 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 \\ \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	621 symmetry	$\sqrt{3}xy$
	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{28} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$	
	622 symmetry	$\sqrt{3}xz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{2,1}^{(a)}(E)$		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 \\ -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{14} & 0 & 0 \end{bmatrix}$
		623 symmetry
		$\sqrt{3}yz$
		$\begin{bmatrix} -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{14} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{14} & 0 & 0 & 0 \end{bmatrix}$
		$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$
		6
		624 symmetry
		$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$
		6

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_4^{(a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
627	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{14} \\ 0 & 0 & -\frac{3\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{210}}{280} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
628	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(a)}(B, 2)$	0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{14}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{14}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	$-\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0 0	
	0 $-\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 0 0	
	0 0 $-\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 0 0 0	
	0 0 0 $-\frac{3\sqrt{210}}{280}$ 0 0 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{105}}{35}$ 0 0 0 0 0 0 0 0 0 0 0	
629 symmetry	0 0 0 0 0 $\frac{\sqrt{105}}{35}$ 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$	
	$-\frac{\sqrt{30}}{80}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}}{16}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{30}}{80}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}}{16}$ 0 0 0 0 0	
	0 0 $-\frac{\sqrt{30}}{80}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{2}}{16}$ 0 0 0 0	
	0 0 0 $-\frac{\sqrt{30}}{80}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{2}}{16}$ 0 0 0	
	0 0 0 0 $\frac{3\sqrt{5}}{40}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{8}$ 0	
	0 0 0 0 0 $\frac{3\sqrt{5}}{40}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}}{8}$	
	0 0 0 0 0 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 0 0 0	
630 symmetry	0 0 0 0 0 0 $\frac{\sqrt{5}}{10}$ 0 0 0 0 0 0 0 0	
	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$	

continued ...

Table 9

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{30}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{16} & 0 & 0 \\ \frac{\sqrt{30}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{5}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{8} \\ 0 & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{16} & 0 & 0 \end{bmatrix}$
631	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
		$\begin{bmatrix} 0 & 0 & \frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{14}}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{14}}{112} & 0 & 0 \\ -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{112} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{14}}{112} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{56} \\ 0 & 0 & \frac{3\sqrt{70}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{70}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{112} & 0 & 0 \end{bmatrix}$
632	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{4,2}^{(a)}(E, 2)$		$\begin{bmatrix} -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{14}}{112} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{9\sqrt{14}}{112} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{112} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{210}}{560} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{14}}{112} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{56} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{56} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{70}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{70}}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{112} & 0 & 0 & 0 & 0 \end{bmatrix}$
		$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
		$\begin{bmatrix} 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{\sqrt{7}}{28} & \frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{420} & 0 & -\frac{\sqrt{105}}{420} & 0 & 0 \\ -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & \frac{\sqrt{105}i}{420} & 0 & \frac{\sqrt{105}}{420} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & \frac{\sqrt{105}}{420} & 0 & \frac{\sqrt{105}i}{420} & 0 & 0 \\ -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{42} & -\frac{\sqrt{105}}{420} & 0 & \frac{\sqrt{105}i}{420} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & -\frac{\sqrt{42}}{84} & \frac{2\sqrt{105}i}{105} & 0 & 0 & 0 & \frac{\sqrt{70}i}{140} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & \frac{\sqrt{42}}{84} & 0 & 0 & -\frac{2\sqrt{105}i}{105} & 0 & 0 & \frac{\sqrt{70}i}{140} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & \frac{2\sqrt{105}i}{105} & 0 & 0 & \frac{\sqrt{70}}{140} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{105}i}{105} & -\frac{\sqrt{70}}{140} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & -\frac{\sqrt{35}}{70} & \frac{\sqrt{210}i}{70} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}i}{70} & 0 & \frac{\sqrt{35}}{70} & 0 & 0 & -\frac{\sqrt{210}i}{70} & 0 \end{bmatrix}$
		$\sqrt{3}(x-y)(x+y)$
		$\frac{\sqrt{3}(x-y)(x+y)}{2}$
		$\begin{bmatrix} \dots & \dots \end{bmatrix}$
		$\begin{bmatrix} \dots & \dots \end{bmatrix}$
		$\begin{bmatrix} \dots & \dots \end{bmatrix}$
		$\begin{bmatrix} \dots & \dots \end{bmatrix}$
		$\begin{bmatrix} \dots & \dots \end{bmatrix}$
		$\begin{bmatrix} \dots & \dots \end{bmatrix}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

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

continued ..

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{4,2}^{(1,-1;a)}(E, 1)$	$-\frac{\sqrt{10}i}{32}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad \frac{7\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{8}$
	$0 \quad \frac{\sqrt{10}i}{32}$	$0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad \frac{i}{8} \quad 0$
	$0 \quad 0 \quad -\frac{\sqrt{10}i}{32}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{32}$	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{10}i}{32}$	$0 \quad 0 \quad \frac{\sqrt{15}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad \frac{i}{16} \quad 0$
	$-\frac{\sqrt{10}i}{32}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{48} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{16}$
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{32}$	$0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0$
	$0 \quad 0 \quad -\frac{\sqrt{10}i}{32}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{6}i}{96} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{30}i}{96}$	$0 \quad 0 \quad \frac{3\sqrt{2}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{12}$
	$0 \quad -\frac{\sqrt{30}i}{96}$	$0 \quad 0 \quad -\frac{3\sqrt{2}i}{32} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}i}{12} \quad 0$
645	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$
$\mathbb{G}_{4,1}^{(1,-1;a)}(E, 2)$	$\frac{\sqrt{70}i}{224}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{672} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}i}{56}$
	$0 \quad -\frac{\sqrt{70}i}{224}$	$0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{672} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{7}i}{56} \quad 0$
	$0 \quad 0 \quad \frac{\sqrt{70}i}{224}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{42}i}{672} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14}$
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{224}$	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{42}i}{672} \quad \frac{\sqrt{7}}{14} \quad 0$
	$0 \quad -\frac{3\sqrt{70}i}{224}$	$0 \quad \frac{\sqrt{70}}{56} \quad -\frac{5\sqrt{105}i}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{11\sqrt{42}i}{672} \quad 0 \quad \frac{\sqrt{42}}{56} \quad -\frac{\sqrt{7}i}{112} \quad 0$
	$-\frac{3\sqrt{70}i}{224}$	$0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{105}i}{336} \quad 0 \quad 0 \quad 0 \quad -\frac{11\sqrt{42}i}{672} \quad 0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{112}$
	$0 \quad -\frac{\sqrt{70}}{56}$	$0 \quad -\frac{3\sqrt{70}i}{224} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{96} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{70}}{56}$	$0 \quad -\frac{3\sqrt{70}i}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad -\frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{96} \quad 0 \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{210}i}{96}$	$0 \quad 0 \quad -\frac{3\sqrt{14}i}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{84} \quad 0$
	$0 \quad -\frac{\sqrt{210}i}{96}$	$0 \quad 0 \quad \frac{3\sqrt{14}i}{224} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{84} \quad 0$
646	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{4,2}^{(1,-1;a)}(E, 2)$	$0 \quad 0 \quad \frac{\sqrt{70}i}{224} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{672} \quad 0 \quad 0 \quad -\frac{3\sqrt{7}}{56}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{224} \quad -\frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{672} \quad \frac{3\sqrt{7}}{56} \quad 0$	
	$-\frac{\sqrt{70}i}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{168} \quad -\frac{13\sqrt{42}i}{672} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14}$	
	$0 \quad \frac{\sqrt{70}i}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad \frac{13\sqrt{42}i}{672} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{14} \quad 0$	
	$0 \quad \frac{3\sqrt{70}}{224} \quad 0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{96} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0$	
	$-\frac{3\sqrt{70}}{224} \quad 0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad -\frac{\sqrt{42}}{96} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad \frac{3\sqrt{70}}{224} \quad \frac{5\sqrt{105}i}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad -\frac{11\sqrt{42}}{672} \quad -\frac{\sqrt{7}i}{112} \quad 0$	
	$-\frac{\sqrt{70}i}{56} \quad 0 \quad -\frac{3\sqrt{70}}{224} \quad 0 \quad 0 \quad -\frac{5\sqrt{105}i}{336} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{11\sqrt{42}}{672} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{112}$	
	$0 \quad 0 \quad -\frac{\sqrt{210}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}i}{224} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{84} \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{96} \quad 0 \quad \frac{3\sqrt{14}i}{224} \quad \frac{\sqrt{21}}{84} \quad 0$	
647	symmetry	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$
$\mathbb{G}_6^{(1,-1;a)}(A, 1)$	$0 \quad \frac{\sqrt{231}i}{616} \quad 0 \quad \frac{\sqrt{231}}{616} \quad -\frac{3\sqrt{154}i}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{385}i}{616} \quad 0 \quad \frac{3\sqrt{385}}{616} \quad 0 \quad 0$	
	$\frac{\sqrt{231}i}{616} \quad 0 \quad -\frac{\sqrt{231}}{616} \quad 0 \quad 0 \quad \frac{3\sqrt{154}i}{308} \quad 0 \quad 0 \quad -\frac{3\sqrt{385}i}{616} \quad 0 \quad -\frac{3\sqrt{385}}{616} \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{231}}{462} \quad 0 \quad -\frac{\sqrt{231}i}{462} \quad 0 \quad 0 \quad \frac{\sqrt{154}i}{77} \quad 0 \quad 0 \quad \frac{\sqrt{385}}{154} \quad 0 \quad \frac{\sqrt{385}i}{154} \quad 0 \quad 0$	
	$-\frac{\sqrt{231}}{462} \quad 0 \quad -\frac{\sqrt{231}i}{462} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{154}i}{77} \quad -\frac{\sqrt{385}}{154} \quad 0 \quad \frac{\sqrt{385}i}{154} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{231}i}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{154}i}{308} \quad 0 \quad \frac{\sqrt{154}}{77} \quad -\frac{\sqrt{385}i}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2310}i}{924}$	
	$0 \quad \frac{\sqrt{231}i}{132} \quad 0 \quad 0 \quad -\frac{3\sqrt{154}i}{308} \quad 0 \quad -\frac{\sqrt{154}}{77} \quad 0 \quad 0 \quad \frac{\sqrt{385}i}{308} \quad 0 \quad 0 \quad -\frac{\sqrt{2310}i}{924} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{231}i}{132} \quad 0 \quad 0 \quad \frac{3\sqrt{154}}{308} \quad 0 \quad \frac{\sqrt{154}i}{77} \quad 0 \quad 0 \quad -\frac{\sqrt{385}i}{308} \quad 0 \quad 0 \quad -\frac{\sqrt{2310}}{924}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{231}i}{132} \quad -\frac{3\sqrt{154}}{308} \quad 0 \quad \frac{\sqrt{154}i}{77} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}i}{308} \quad \frac{\sqrt{2310}}{924} \quad 0$	
	$0 \quad -\frac{\sqrt{77}i}{88} \quad 0 \quad \frac{\sqrt{77}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{616} \quad 0 \quad -\frac{\sqrt{1155}}{616} \quad \frac{\sqrt{770}i}{308} \quad 0$	
	$-\frac{\sqrt{77}i}{88} \quad 0 \quad -\frac{\sqrt{77}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{616} \quad 0 \quad \frac{\sqrt{1155}}{616} \quad 0 \quad 0 \quad -\frac{\sqrt{770}i}{308}$	
648	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 9

No.	multipole	matrix
$\mathbb{G}_6^{(1,-1;a)}(A, 2)$	$0 - \frac{\sqrt{33}i}{264} 0 - \frac{\sqrt{33}}{264} \frac{\sqrt{22}i}{44} 0 0 0 0 \frac{\sqrt{55}i}{88} 0 - \frac{\sqrt{55}}{88} 0 0$	$\begin{bmatrix} 0 & -\frac{\sqrt{33}i}{264} & 0 & -\frac{\sqrt{33}}{264} & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{88} & 0 & -\frac{\sqrt{55}}{88} & 0 & 0 \\ -\frac{\sqrt{33}i}{264} & 0 & \frac{\sqrt{33}}{264} & 0 & 0 & -\frac{\sqrt{22}i}{44} & 0 & 0 & \frac{\sqrt{55}i}{88} & 0 & \frac{\sqrt{55}}{88} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{33}i}{132} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & -\frac{\sqrt{55}i}{44} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{132} \\ 0 & -\frac{\sqrt{33}i}{132} & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{44} & 0 & 0 & -\frac{\sqrt{330}i}{132} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{33}i}{132} & 0 & 0 & -\frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}i}{44} & 0 & 0 & -\frac{\sqrt{330}}{132} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{33}i}{132} & \frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{44} & \frac{\sqrt{330}}{132} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{11}i}{88} & 0 & -\frac{\sqrt{11}}{88} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{88} & 0 & -\frac{\sqrt{165}}{88} & \frac{\sqrt{110}i}{44} & \frac{\sqrt{110}i}{44} & 0 & 0 \\ \frac{\sqrt{11}i}{88} & 0 & \frac{\sqrt{11}}{88} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{88} & 0 & \frac{\sqrt{165}}{88} & 0 & 0 & -\frac{\sqrt{110}i}{44} & 0 & 0 \end{bmatrix}$
	$- \frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$	
$\mathbb{G}_6^{(1,-1;a)}(A, 3)$	$0 \frac{\sqrt{66}}{264} 0 - \frac{\sqrt{66}i}{264} 0 0 0 \frac{\sqrt{11}i}{22} 0 0 \frac{\sqrt{110}}{88} 0 \frac{\sqrt{110}i}{88} 0 0$	$\begin{bmatrix} 0 & \frac{\sqrt{66}}{264} & 0 & -\frac{\sqrt{66}i}{264} & 0 & 0 & 0 & \frac{\sqrt{11}i}{22} & 0 & 0 & \frac{\sqrt{110}}{88} & 0 & \frac{\sqrt{110}i}{88} & 0 & 0 \\ -\frac{\sqrt{66}}{264} & 0 & -\frac{\sqrt{66}i}{264} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}i}{22} & -\frac{\sqrt{110}}{88} & 0 & \frac{\sqrt{110}i}{88} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{66}i}{264} & 0 & -\frac{\sqrt{66}}{264} & \frac{\sqrt{11}i}{22} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{110}i}{88} & 0 & -\frac{\sqrt{110}}{88} & 0 & 0 \\ -\frac{\sqrt{66}i}{264} & 0 & \frac{\sqrt{66}}{264} & 0 & 0 & -\frac{\sqrt{11}i}{22} & 0 & 0 & 0 & \frac{\sqrt{110}i}{88} & 0 & \frac{\sqrt{110}}{88} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{66}i}{66} & 0 & 0 & \frac{\sqrt{11}}{22} & 0 & \frac{\sqrt{11}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{66}i}{66} & -\frac{\sqrt{11}}{22} & 0 & \frac{\sqrt{11}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{66}i}{66} & 0 & 0 & 0 & 0 & \frac{\sqrt{11}i}{22} & 0 & -\frac{\sqrt{11}}{22} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{66}i}{66} & 0 & 0 & \frac{\sqrt{11}i}{22} & 0 & \frac{\sqrt{11}}{22} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{22}}{44} & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{22}}{44} & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	$- \frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$	

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_6^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{7\sqrt{5}i}{120} & 0 & -\frac{7\sqrt{5}}{120} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & \frac{\sqrt{3}}{24} & -\frac{\sqrt{2}i}{12} & 0 \\ \frac{7\sqrt{5}i}{120} & 0 & \frac{7\sqrt{5}}{120} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{24} & 0 & -\frac{\sqrt{3}}{24} & 0 & 0 & \frac{\sqrt{2}i}{12} \\ 0 & -\frac{\sqrt{5}}{15} & 0 & -\frac{\sqrt{5}i}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{15} & 0 & -\frac{\sqrt{5}i}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & -\frac{\sqrt{3}i}{12} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} \\ 0 & -\frac{\sqrt{5}i}{60} & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & -\frac{\sqrt{2}i}{12} & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{60} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{12} & 0 & 0 & 0 & \frac{\sqrt{2}}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{60} & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{12} & -\frac{\sqrt{2}}{12} & 0 & 0 \\ 0 & \frac{\sqrt{15}i}{120} & 0 & \frac{\sqrt{15}}{120} & -\frac{\sqrt{10}i}{20} & 0 & 0 & 0 & 0 & -\frac{i}{8} & 0 & \frac{1}{8} & 0 & 0 & 0 \\ \frac{\sqrt{15}i}{120} & 0 & -\frac{\sqrt{15}}{120} & 0 & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{i}{8} & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 \end{bmatrix}$
651	symmetry	$\frac{\sqrt{42}(x-y)(x+y)(x^4 - 9x^2y^2 - 5x^2z^2 + y^4 - 5y^2z^2 + 5z^4)}{8}$
	$\mathbb{G}_6^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & \frac{17\sqrt{11}i}{264} & 0 & -\frac{17\sqrt{11}}{264} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{264} & 0 & -\frac{\sqrt{165}}{264} & \frac{\sqrt{110}i}{132} & 0 \\ \frac{17\sqrt{11}i}{264} & 0 & \frac{17\sqrt{11}}{264} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{264} & 0 & \frac{\sqrt{165}}{264} & 0 & 0 & -\frac{\sqrt{110}i}{132} \\ 0 & -\frac{2\sqrt{11}}{33} & 0 & -\frac{2\sqrt{11}i}{33} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{2\sqrt{11}}{33} & 0 & -\frac{2\sqrt{11}i}{33} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{11}i}{132} & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}i}{132} & 0 & 0 & \frac{\sqrt{165}i}{132} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{110}i}{132} \\ 0 & \frac{\sqrt{11}i}{132} & 0 & 0 & -\frac{\sqrt{66}i}{132} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{132} & 0 & 0 & 0 & \frac{\sqrt{110}i}{132} & 0 \\ 0 & 0 & -\frac{\sqrt{11}i}{132} & 0 & 0 & -\frac{\sqrt{66}}{132} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{132} & 0 & 0 & 0 & -\frac{\sqrt{110}}{132} \\ 0 & 0 & 0 & \frac{\sqrt{11}i}{132} & \frac{\sqrt{66}}{132} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}i}{132} & \frac{\sqrt{110}}{132} & 0 & 0 \\ 0 & -\frac{\sqrt{33}i}{264} & 0 & -\frac{\sqrt{33}}{264} & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}i}{88} & 0 & -\frac{\sqrt{55}}{88} & 0 & 0 & 0 \\ -\frac{\sqrt{33}i}{264} & 0 & \frac{\sqrt{33}}{264} & 0 & 0 & -\frac{\sqrt{22}i}{44} & 0 & 0 & \frac{\sqrt{55}i}{88} & 0 & \frac{\sqrt{55}}{88} & 0 & 0 & 0 \end{bmatrix}$
652	symmetry	$\frac{\sqrt{462}xy(x^2 - 3y^2)(3x^2 - y^2)}{16}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{G}_6^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & \frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{4} & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
653	symmetry	$\frac{\sqrt{210}xy(x^4+2x^2y^2-16x^2z^2+y^4-16y^2z^2+16z^4)}{16}$ $\begin{bmatrix} 0 & \frac{\sqrt{55}}{660} & 0 & \frac{\sqrt{55}i}{660} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{55}}{660} & 0 & \frac{\sqrt{55}i}{660} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{55}i}{660} & 0 & \frac{\sqrt{55}}{660} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}i}{66} & 0 & -\frac{\sqrt{33}}{66} & \frac{\sqrt{22}i}{33} & 0 \\ -\frac{\sqrt{55}i}{660} & 0 & -\frac{\sqrt{55}}{660} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}i}{66} & 0 & \frac{\sqrt{33}}{66} & 0 & 0 & -\frac{\sqrt{22}i}{33} \\ 0 & 0 & -\frac{\sqrt{55}i}{165} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{165} & 0 & 0 & \frac{\sqrt{33}i}{33} & 0 & 0 & \frac{\sqrt{22}}{33} \\ 0 & 0 & 0 & \frac{\sqrt{55}i}{165} & 0 & 0 & -\frac{\sqrt{330}i}{165} & 0 & 0 & 0 & -\frac{\sqrt{33}i}{33} & -\frac{\sqrt{22}}{33} & 0 & 0 \\ \frac{\sqrt{55}i}{165} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{165} & \frac{\sqrt{33}i}{33} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}i}{33} \\ 0 & -\frac{\sqrt{55}i}{165} & 0 & 0 & 0 & 0 & \frac{\sqrt{330}}{165} & 0 & 0 & -\frac{\sqrt{33}i}{33} & 0 & 0 & \frac{\sqrt{22}i}{33} & 0 \\ 0 & \frac{\sqrt{165}}{330} & 0 & -\frac{\sqrt{165}i}{330} & 0 & 0 & \frac{\sqrt{110}i}{55} & 0 & 0 & \frac{\sqrt{11}}{22} & 0 & \frac{\sqrt{11}i}{22} & 0 & 0 \\ -\frac{\sqrt{165}}{330} & 0 & -\frac{\sqrt{165}i}{330} & 0 & 0 & 0 & -\frac{\sqrt{110}i}{55} & -\frac{\sqrt{11}}{22} & 0 & \frac{\sqrt{11}i}{22} & 0 & 0 & 0 & 0 \end{bmatrix}$
654	symmetry	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{6,1}^{(1,-1;a)}(E, 1)$	$0 \quad 0 \quad -\frac{5\sqrt{66}i}{528} \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{88} \quad 0 \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{176} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{264}$	
	$0 \quad 0 \quad 0 \quad \frac{5\sqrt{66}i}{528} \quad \frac{3\sqrt{11}}{88} \quad 0 \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{176} \quad \frac{\sqrt{165}}{264} \quad 0$	
	$-\frac{\sqrt{66}i}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad \frac{\sqrt{11}}{22} \quad -\frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{132}$	
	$0 \quad \frac{\sqrt{66}i}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad -\frac{\sqrt{11}}{22} \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{132} \quad 0$	
	$0 \quad -\frac{\sqrt{66}}{88} \quad 0 \quad -\frac{\sqrt{66}i}{264} \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{22} \quad 0 \quad 0 \quad -\frac{\sqrt{110}}{88} \quad 0 \quad -\frac{\sqrt{110}i}{88} \quad 0 \quad 0$	
	$\frac{\sqrt{66}}{88} \quad 0 \quad -\frac{\sqrt{66}i}{264} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{22} \quad \frac{\sqrt{110}}{88} \quad 0 \quad -\frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{66}i}{88} \quad 0 \quad \frac{\sqrt{66}}{66} \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{132} \quad 0$	
	$-\frac{\sqrt{66}i}{88} \quad 0 \quad -\frac{\sqrt{66}}{66} \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{132}$	
	$0 \quad 0 \quad -\frac{3\sqrt{22}i}{176} \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{88} \quad 0 \quad -\frac{\sqrt{33}i}{44} \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{176} \quad 0 \quad 0 \quad \frac{\sqrt{55}}{88}$	
	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{22}i}{176} \quad \frac{\sqrt{33}}{88} \quad 0 \quad -\frac{\sqrt{33}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{330}i}{176} \quad -\frac{\sqrt{55}}{88} \quad 0$	
655	symmetry	$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$
$\mathbb{G}_{6,2}^{(1,-1;a)}(E, 1)$	$\frac{5\sqrt{66}i}{528} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{11}i}{88} \quad 0 \quad -\frac{\sqrt{11}}{44} \quad -\frac{\sqrt{110}i}{176} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{264}$	
	$0 \quad -\frac{5\sqrt{66}i}{528} \quad 0 \quad 0 \quad \frac{3\sqrt{11}i}{88} \quad 0 \quad \frac{\sqrt{11}}{44} \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{176} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{264} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{66}i}{88} \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{44} \quad 0 \quad -\frac{\sqrt{11}i}{22} \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{132}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{88} \quad \frac{\sqrt{11}}{44} \quad 0 \quad -\frac{\sqrt{11}i}{22} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{88} \quad -\frac{\sqrt{165}}{132} \quad 0$	
	$0 \quad \frac{\sqrt{66}i}{66} \quad 0 \quad -\frac{\sqrt{66}}{88} \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}}{88} \quad -\frac{\sqrt{165}i}{132} \quad 0$	
	$\frac{\sqrt{66}i}{66} \quad 0 \quad \frac{\sqrt{66}}{88} \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{110}}{88} \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{132}$	
	$0 \quad -\frac{\sqrt{66}i}{264} \quad 0 \quad -\frac{\sqrt{66}i}{88} \quad 0 \quad 0 \quad \frac{\sqrt{11}i}{22} \quad 0 \quad 0 \quad \frac{\sqrt{110}}{88} \quad 0 \quad \frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{66}}{264} \quad 0 \quad -\frac{\sqrt{66}i}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}i}{22} \quad -\frac{\sqrt{110}}{88} \quad 0 \quad \frac{\sqrt{110}i}{88} \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{22}i}{176} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{33}i}{88} \quad 0 \quad \frac{\sqrt{33}}{44} \quad -\frac{\sqrt{330}i}{176} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{55}i}{88} \quad 0$	
	$0 \quad \frac{3\sqrt{22}i}{176} \quad 0 \quad 0 \quad -\frac{\sqrt{33}i}{88} \quad 0 \quad -\frac{\sqrt{33}}{44} \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{176} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{55}i}{88} \quad 0$	
656	symmetry	$\frac{\sqrt{462}xz(x^2-3z^2)(3x^2-z^2)}{16}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{6,1}^{(1,-1;a)}(E, 3)$	$\frac{17\sqrt{55}i}{1056} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{37\sqrt{330}i}{5280} \quad 0 \quad -\frac{\sqrt{330}}{110} \quad \frac{\sqrt{33}i}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{22}i}{96}$	
	$0 \quad -\frac{17\sqrt{55}i}{1056} \quad 0 \quad 0 \quad 0 \quad \frac{37\sqrt{330}i}{5280} \quad 0 \quad \frac{\sqrt{330}}{110} \quad 0 \quad 0 \quad -\frac{\sqrt{33}i}{96} \quad 0 \quad 0 \quad \frac{\sqrt{22}i}{96} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{55}i}{66} \quad 0 \quad 0 \quad -\frac{\sqrt{330}}{110} \quad 0 \quad -\frac{\sqrt{330}i}{165} \quad 0 \quad 0 \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad 0 \quad -\frac{\sqrt{22}}{66}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{55}i}{66} \quad \frac{\sqrt{330}}{110} \quad 0 \quad -\frac{\sqrt{330}i}{165} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{66} \quad \frac{\sqrt{22}}{66} \quad 0$	
	$0 \quad \frac{29\sqrt{55}i}{2640} \quad 0 \quad -\frac{\sqrt{55}}{66} \quad \frac{\sqrt{330}i}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{176} \quad 0 \quad -\frac{\sqrt{33}}{66} \quad \frac{5\sqrt{22}i}{528} \quad 0$	
	$\frac{29\sqrt{55}i}{2640} \quad 0 \quad \frac{\sqrt{55}}{66} \quad 0 \quad 0 \quad -\frac{\sqrt{330}i}{240} \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{176} \quad 0 \quad \frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad -\frac{5\sqrt{22}i}{528}$	
	$0 \quad -\frac{7\sqrt{55}}{330} \quad 0 \quad -\frac{\sqrt{55}i}{66} \quad 0 \quad 0 \quad -\frac{\sqrt{330}i}{165} \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad 0$	
	$\frac{7\sqrt{55}}{330} \quad 0 \quad -\frac{\sqrt{55}i}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{165} \quad \frac{\sqrt{33}}{66} \quad 0 \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad 0 \quad 0$	
	$\frac{9\sqrt{165}i}{1760} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{160} \quad 0 \quad -\frac{\sqrt{110}}{110} \quad \frac{5\sqrt{11}i}{352} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{66}i}{1056}$	
	$0 \quad -\frac{9\sqrt{165}i}{1760} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{160} \quad 0 \quad \frac{\sqrt{110}}{110} \quad 0 \quad 0 \quad -\frac{5\sqrt{11}i}{352} \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{66}i}{1056}$	
659	symmetry	$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$
$\mathbb{G}_{6,2}^{(1,-1;a)}(E, 3)$	$0 \quad 0 \quad \frac{17\sqrt{55}i}{1056} \quad 0 \quad 0 \quad \frac{37\sqrt{330}}{5280} \quad 0 \quad \frac{\sqrt{330}i}{110} \quad 0 \quad 0 \quad -\frac{\sqrt{33}i}{96} \quad 0 \quad 0 \quad -\frac{\sqrt{22}}{96}$	
	$0 \quad 0 \quad 0 \quad -\frac{17\sqrt{55}i}{1056} \quad -\frac{37\sqrt{330}}{5280} \quad 0 \quad \frac{\sqrt{330}i}{110} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{96} \quad \frac{\sqrt{22}}{96} \quad 0$	
	$\frac{\sqrt{55}i}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{110} \quad 0 \quad -\frac{\sqrt{330}}{165} \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{22}i}{66}$	
	$0 \quad -\frac{\sqrt{55}i}{66} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{110} \quad 0 \quad \frac{\sqrt{330}}{165} \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{66} \quad 0 \quad 0 \quad -\frac{\sqrt{22}i}{66} \quad 0$	
	$0 \quad \frac{\sqrt{55}}{66} \quad 0 \quad \frac{7\sqrt{55}i}{330} \quad 0 \quad 0 \quad -\frac{\sqrt{330}i}{165} \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad 0$	
	$-\frac{\sqrt{55}}{66} \quad 0 \quad \frac{7\sqrt{55}i}{330} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{165} \quad \frac{\sqrt{33}}{66} \quad 0 \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{55}i}{66} \quad 0 \quad -\frac{29\sqrt{55}}{2640} \quad -\frac{\sqrt{330}i}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad \frac{\sqrt{33}}{176} \quad \frac{5\sqrt{22}i}{528} \quad 0$	
	$\frac{\sqrt{55}i}{66} \quad 0 \quad \frac{29\sqrt{55}}{2640} \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{240} \quad 0 \quad 0 \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad -\frac{\sqrt{33}}{176} \quad 0 \quad 0 \quad -\frac{5\sqrt{22}i}{528}$	
	$0 \quad 0 \quad -\frac{9\sqrt{165}i}{1760} \quad 0 \quad 0 \quad -\frac{\sqrt{110}}{160} \quad 0 \quad -\frac{\sqrt{110}i}{110} \quad 0 \quad 0 \quad \frac{5\sqrt{11}i}{352} \quad 0 \quad 0 \quad \frac{5\sqrt{66}}{1056}$	
	$0 \quad 0 \quad 0 \quad \frac{9\sqrt{165}i}{1760} \quad \frac{\sqrt{110}}{160} \quad 0 \quad -\frac{\sqrt{110}i}{110} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{11}i}{352} \quad -\frac{5\sqrt{66}}{1056} \quad 0$	
660	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_2^{(1,0;a)}(B, 2)$		$\begin{bmatrix} 0 & \frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 \\ -\frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{14}}{56} & \frac{\sqrt{21}i}{42} & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & 0 & 0 & -\frac{\sqrt{21}i}{42} \\ 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{21}}{42} \\ 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & -\frac{\sqrt{21}}{42} & 0 & 0 \\ -\frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} \\ 0 & \frac{\sqrt{210}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{42} & 0 & 0 & -\frac{\sqrt{42}}{84} & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & \frac{\sqrt{42}}{84} & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 \end{bmatrix}$
663	symmetry	$\sqrt{3}xz$
$\mathbb{G}_{2,1}^{(1,0;a)}(E)$		$\begin{bmatrix} -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{28} & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{84} \\ 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & -\frac{\sqrt{21}i}{84} & 0 \\ 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & \frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & -\frac{\sqrt{21}}{84} \\ 0 & 0 & 0 & \frac{\sqrt{210}i}{168} & -\frac{\sqrt{35}}{28} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & \frac{\sqrt{21}}{84} & 0 & 0 \\ 0 & -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & -\frac{\sqrt{14}}{56} & -\frac{\sqrt{21}i}{42} & 0 \\ -\frac{\sqrt{210}i}{168} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & \frac{\sqrt{14}}{56} & 0 & 0 & \frac{\sqrt{21}i}{42} \\ 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 \\ -\frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{14}}{56} & 0 & -\frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & -\frac{\sqrt{105}}{84} & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{42}i}{84} & 0 & 0 & 0 \end{bmatrix}$
664	symmetry	$\sqrt{3}yz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{2,2}^{(1,0;a)}(E)$	$0 \quad 0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{84}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad -\frac{\sqrt{21}}{84} \quad 0$	
	$\frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{84}$	
	$0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{84} \quad 0$	
	$0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad \frac{3\sqrt{14}i}{56} \quad 0 \quad 0$	
	$-\frac{\sqrt{210}}{168} \quad 0 \quad -\frac{\sqrt{210}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad \frac{3\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{210}i}{168} \quad 0 \quad \frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad -\frac{\sqrt{21}i}{42} \quad 0$	
	$\frac{\sqrt{210}i}{168} \quad 0 \quad -\frac{\sqrt{210}}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{42}$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{84} \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{84} \quad 0 \quad -\frac{\sqrt{105}i}{84} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad 0 \quad 0$	
665	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{G}_4^{(1,0;a)}(A, 1)$	$0 \quad -\frac{\sqrt{10}i}{80} \quad 0 \quad -\frac{\sqrt{10}}{80} \quad -\frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad 0 \quad \frac{\sqrt{6}}{48} \quad 0 \quad 0$	
	$-\frac{\sqrt{10}i}{80} \quad 0 \quad \frac{\sqrt{10}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad 0 \quad -\frac{\sqrt{6}}{48} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{10}}{80} \quad 0 \quad -\frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad 0$	
	$-\frac{\sqrt{10}}{80} \quad 0 \quad -\frac{\sqrt{10}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{30} \quad \frac{\sqrt{6}}{16} \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40} \quad 0 \quad \frac{\sqrt{15}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{8}$	
	$0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40} \quad 0 \quad -\frac{\sqrt{15}}{30} \quad 0 \quad \frac{i}{8}$	
	$0 \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{40} \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{8}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad \frac{\sqrt{15}}{40} \quad 0 \quad \frac{\sqrt{15}i}{30} \quad 0 \quad -\frac{1}{8}$	
	$0 \quad -\frac{\sqrt{30}i}{80} \quad 0 \quad \frac{\sqrt{30}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad -\frac{\sqrt{2}}{16} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{30}i}{80} \quad 0 \quad -\frac{\sqrt{30}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad \frac{\sqrt{2}}{16} \quad 0 \quad 0 \quad 0$	
666	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,0;a)}(A, 2)$	$0 - \frac{\sqrt{14}i}{112} 0 - \frac{\sqrt{14}}{112} \frac{\sqrt{21}i}{30} 0 0 0 0 - \frac{17\sqrt{210}i}{1680} 0 \frac{17\sqrt{210}}{1680} 0 0$	
	$- \frac{\sqrt{14}i}{112} 0 \frac{\sqrt{14}}{112} 0 0 - \frac{\sqrt{21}i}{30} 0 0 - \frac{17\sqrt{210}i}{1680} 0 - \frac{17\sqrt{210}}{1680} 0 0 0$	
	$0 \frac{\sqrt{14}}{112} 0 - \frac{\sqrt{14}i}{112} 0 0 - \frac{\sqrt{21}i}{30} 0 0 - \frac{\sqrt{210}}{560} 0 - \frac{\sqrt{210}i}{560} 0 0 0$	
	$- \frac{\sqrt{14}}{112} 0 - \frac{\sqrt{14}i}{112} 0 0 0 0 \frac{\sqrt{21}i}{30} \frac{\sqrt{210}}{560} 0 - \frac{\sqrt{210}i}{560} 0 0 0$	
	$- \frac{\sqrt{14}i}{20} 0 0 0 0 \frac{\sqrt{21}i}{40} 0 \frac{\sqrt{21}}{60} 0 0 0 0 0 \frac{\sqrt{35}i}{56}$	
	$0 \frac{\sqrt{14}i}{20} 0 0 \frac{\sqrt{21}i}{40} 0 - \frac{\sqrt{21}}{60} 0 0 0 0 0 \frac{\sqrt{35}i}{56} 0$	
	$0 0 \frac{\sqrt{14}i}{20} 0 0 - \frac{\sqrt{21}}{40} 0 \frac{\sqrt{21}i}{60} 0 0 0 0 0 \frac{\sqrt{35}}{56}$	
	$0 0 0 - \frac{\sqrt{14}i}{20} \frac{\sqrt{21}}{40} 0 \frac{\sqrt{21}i}{60} 0 0 0 0 0 - \frac{\sqrt{35}}{56} 0$	
	$0 \frac{\sqrt{42}i}{80} 0 - \frac{\sqrt{42}}{80} 0 0 0 0 0 - \frac{\sqrt{70}i}{112} 0 - \frac{\sqrt{70}}{112} 0 0 0$	
	$\frac{\sqrt{42}i}{80} 0 \frac{\sqrt{42}}{80} 0 0 0 0 0 - \frac{\sqrt{70}i}{112} 0 \frac{\sqrt{70}}{112} 0 0 0$	
667	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{G}_4^{(1,0;a)}(A, 3)$	$0 0 0 0 0 0 - \frac{i}{5} 0 0 \frac{\sqrt{10}}{40} 0 \frac{\sqrt{10}i}{40} 0 0$	
	$0 0 0 0 0 0 0 \frac{i}{5} - \frac{\sqrt{10}}{40} 0 \frac{\sqrt{10}i}{40} 0 0 0$	
	$0 0 0 0 - \frac{i}{5} 0 0 0 0 0 \frac{\sqrt{10}i}{40} 0 - \frac{\sqrt{10}}{40} 0 0$	
	$0 0 0 0 0 \frac{i}{5} 0 0 0 \frac{\sqrt{10}i}{40} 0 \frac{\sqrt{10}}{40} 0 0 0$	
	$0 0 \frac{\sqrt{6}i}{10} 0 0 - \frac{1}{40} 0 - \frac{i}{40} 0 0 0 0 0 0 0$	
	$0 0 0 - \frac{\sqrt{6}i}{10} \frac{1}{40} 0 - \frac{i}{40} 0 0 0 0 0 0 0 0$	
	$\frac{\sqrt{6}i}{10} 0 0 0 0 - \frac{i}{40} 0 \frac{1}{40} 0 0 0 0 0 0 0$	
	$0 - \frac{\sqrt{6}i}{10} 0 0 - \frac{i}{40} 0 - \frac{1}{40} 0 0 0 0 0 0 0 0$	
	$0 - \frac{3\sqrt{2}}{40} 0 - \frac{3\sqrt{2}i}{40} 0 0 0 0 0 0 0 0 0 0 0$	
	$\frac{3\sqrt{2}}{40} 0 - \frac{3\sqrt{2}i}{40} 0 0 0 0 0 0 0 0 0 0 0 0$	
668	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,0;a)}(B, 1)$	$0 \quad \frac{3\sqrt{42}i}{560} \quad 0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{560} \quad 0 \quad -\frac{\sqrt{70}}{560} \quad \frac{\sqrt{105}i}{70} \quad 0$	
	$\frac{3\sqrt{42}i}{560} \quad 0 \quad \frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{560} \quad 0 \quad \frac{\sqrt{70}}{560} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{70}$	
	$0 \quad \frac{3\sqrt{42}}{560} \quad 0 \quad \frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{70}}{560} \quad 0 \quad \frac{13\sqrt{70}i}{560} \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{42}}{560} \quad 0 \quad \frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{70}}{560} \quad 0 \quad \frac{13\sqrt{70}i}{560} \quad 0 \quad 0 \quad 0$	
	$\frac{3\sqrt{42}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{40} \quad 0 \quad \frac{\sqrt{7}}{20} \quad \frac{\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{105}i}{280}$	
	$0 \quad -\frac{3\sqrt{42}i}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{40} \quad 0 \quad -\frac{\sqrt{7}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad 0 \quad -\frac{3\sqrt{105}i}{280} \quad 0$	
	$0 \quad 0 \quad \frac{3\sqrt{42}i}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{40} \quad 0 \quad -\frac{\sqrt{7}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad 0 \quad \frac{3\sqrt{105}}{280}$	
	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{42}i}{280} \quad \frac{\sqrt{7}}{40} \quad 0 \quad -\frac{\sqrt{7}i}{20} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{280} \quad -\frac{3\sqrt{105}}{280} \quad 0 \quad 0$	
	$0 \quad \frac{3\sqrt{14}i}{80} \quad 0 \quad \frac{3\sqrt{14}}{80} \quad -\frac{\sqrt{21}i}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{210}i}{560} \quad 0 \quad -\frac{3\sqrt{210}}{560} \quad 0 \quad 0$	
	$\frac{3\sqrt{14}i}{80} \quad 0 \quad -\frac{3\sqrt{14}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{35} \quad 0 \quad 0 \quad \frac{3\sqrt{210}i}{560} \quad 0 \quad \frac{3\sqrt{210}}{560} \quad 0 \quad 0 \quad 0$	
669	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{G}_4^{(1,0;a)}(B, 2)$	$0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad -\frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{70}}{560} \quad 0 \quad \frac{13\sqrt{70}i}{560} \quad 0 \quad 0$	
	$\frac{3\sqrt{42}}{560} \quad 0 \quad -\frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{70}}{560} \quad 0 \quad \frac{13\sqrt{70}i}{560} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{3\sqrt{42}i}{560} \quad 0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{560} \quad 0 \quad \frac{\sqrt{70}}{560} \quad -\frac{\sqrt{105}i}{70} \quad 0$	
	$\frac{3\sqrt{42}i}{560} \quad 0 \quad \frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{560} \quad 0 \quad -\frac{\sqrt{70}}{560} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{70}$	
	$0 \quad 0 \quad -\frac{3\sqrt{42}i}{280} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{20} \quad 0 \quad \frac{\sqrt{7}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad 0 \quad \frac{3\sqrt{105}}{280}$	
	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{42}i}{280} \quad -\frac{\sqrt{7}}{20} \quad 0 \quad \frac{\sqrt{7}i}{40} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{280} \quad -\frac{3\sqrt{105}}{280} \quad 0 \quad 0$	
	$\frac{3\sqrt{42}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{20} \quad 0 \quad \frac{\sqrt{7}}{40} \quad -\frac{\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{105}i}{280}$	
	$0 \quad -\frac{3\sqrt{42}i}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{20} \quad 0 \quad -\frac{\sqrt{7}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{70}i}{280} \quad 0 \quad 0 \quad \frac{3\sqrt{105}i}{280} \quad 0$	
	$0 \quad \frac{3\sqrt{14}}{80} \quad 0 \quad -\frac{3\sqrt{14}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{35} \quad 0 \quad 0 \quad -\frac{3\sqrt{210}}{560} \quad 0 \quad -\frac{3\sqrt{210}i}{560} \quad 0 \quad 0$	
	$-\frac{3\sqrt{14}}{80} \quad 0 \quad -\frac{3\sqrt{14}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{35} \quad \frac{3\sqrt{210}}{560} \quad 0 \quad -\frac{3\sqrt{210}i}{560} \quad 0 \quad 0 \quad 0$	
670	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{4,1}^{(1,0;a)}(E, 1)$	$0 \quad 0 \quad -\frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad \frac{1}{40} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{40}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{6}i}{160} \quad -\frac{1}{40} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{32} \quad -\frac{\sqrt{15}}{40} \quad 0$	
	$\frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3i}{20} \quad 0 \quad -\frac{1}{40} \quad \frac{\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{20}$	
	$0 \quad -\frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad -\frac{3i}{20} \quad 0 \quad \frac{1}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{20} \quad 0$	
	$0 \quad \frac{\sqrt{6}}{160} \quad 0 \quad -\frac{\sqrt{6}i}{40} \quad 0 \quad 0 \quad \frac{i}{40} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{160} \quad 0 \quad -\frac{3\sqrt{10}i}{40} \quad 0 \quad 0$	
	$-\frac{\sqrt{6}}{160} \quad 0 \quad -\frac{\sqrt{6}i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{40} \quad -\frac{\sqrt{10}}{160} \quad 0 \quad -\frac{3\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{6}i}{20} \quad 0 \quad \frac{\sqrt{6}}{32} \quad -\frac{i}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad -\frac{\sqrt{10}}{160} \quad \frac{\sqrt{15}i}{80} \quad 0$	
	$\frac{\sqrt{6}i}{20} \quad 0 \quad -\frac{\sqrt{6}}{32} \quad 0 \quad 0 \quad \frac{i}{16} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{80}$	
	$0 \quad 0 \quad -\frac{9\sqrt{2}i}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{9\sqrt{2}i}{160} \quad \frac{\sqrt{3}}{20} \quad 0 \quad \frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad 0$	
671	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
$\mathbb{G}_{4,2}^{(1,0;a)}(E, 1)$	$\frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{i}{40} \quad 0 \quad \frac{1}{10} \quad \frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40}$	
	$0 \quad -\frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad -\frac{i}{40} \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{32} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{40} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad -\frac{3}{20} \quad 0 \quad \frac{i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{160} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{20}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{160} \quad \frac{3}{20} \quad 0 \quad \frac{i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{160} \quad -\frac{\sqrt{15}}{20} \quad 0$	
	$0 \quad \frac{\sqrt{6}i}{32} \quad 0 \quad \frac{\sqrt{6}}{20} \quad -\frac{i}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{160} \quad 0 \quad -\frac{\sqrt{10}}{20} \quad -\frac{\sqrt{15}i}{80} \quad 0$	
	$\frac{\sqrt{6}i}{32} \quad 0 \quad -\frac{\sqrt{6}}{20} \quad 0 \quad 0 \quad \frac{i}{16} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{160} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{80}$	
	$0 \quad -\frac{\sqrt{6}}{40} \quad 0 \quad \frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad -\frac{i}{40} \quad 0 \quad 0 \quad \frac{3\sqrt{10}}{40} \quad 0 \quad -\frac{\sqrt{10}i}{160} \quad 0 \quad 0$	
	$\frac{\sqrt{6}}{40} \quad 0 \quad \frac{\sqrt{6}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{i}{40} \quad -\frac{3\sqrt{10}}{40} \quad 0 \quad -\frac{\sqrt{10}i}{160} \quad 0 \quad 0 \quad 0$	
	$-\frac{9\sqrt{2}i}{160} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad -\frac{\sqrt{3}}{10} \quad \frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{9\sqrt{2}i}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{160} \quad 0 \quad 0 \quad 0 \quad 0$	
672	symmetry	$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(A, 1)$	0	$\begin{bmatrix} 0 & \frac{2\sqrt{165}i}{165} & 0 & \frac{2\sqrt{165}}{165} & \frac{7\sqrt{110}i}{660} & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}i}{66} & 0 & \frac{\sqrt{11}}{66} & 0 & 0 \\ \frac{2\sqrt{165}i}{165} & 0 & -\frac{2\sqrt{165}}{165} & 0 & 0 & -\frac{7\sqrt{110}i}{660} & 0 & 0 & 0 & -\frac{\sqrt{11}i}{66} & 0 & -\frac{\sqrt{11}}{66} & 0 & 0 \\ 0 & \frac{7\sqrt{165}}{660} & 0 & -\frac{7\sqrt{165}i}{660} & 0 & 0 & -\frac{\sqrt{110}i}{330} & 0 & 0 & -\frac{\sqrt{11}}{132} & 0 & -\frac{\sqrt{11}i}{132} & 0 & 0 \\ -\frac{7\sqrt{165}}{660} & 0 & -\frac{7\sqrt{165}i}{660} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}i}{330} & \frac{\sqrt{11}}{132} & 0 & -\frac{\sqrt{11}i}{132} & 0 & 0 & 0 \\ \frac{\sqrt{165}i}{220} & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}i}{165} & 0 & -\frac{\sqrt{110}}{330} & -\frac{5\sqrt{11}i}{132} & 0 & 0 & 0 & 0 & \frac{\sqrt{66}i}{66} \\ 0 & -\frac{\sqrt{165}i}{220} & 0 & 0 & -\frac{\sqrt{110}i}{165} & 0 & \frac{\sqrt{110}}{330} & 0 & 0 & \frac{5\sqrt{11}i}{132} & 0 & 0 & \frac{\sqrt{66}i}{66} & 0 \\ 0 & 0 & -\frac{\sqrt{165}i}{220} & 0 & 0 & \frac{\sqrt{110}}{165} & 0 & -\frac{\sqrt{110}i}{330} & 0 & 0 & -\frac{5\sqrt{11}i}{132} & 0 & 0 & \frac{\sqrt{66}}{66} \\ 0 & 0 & 0 & \frac{\sqrt{165}i}{220} & -\frac{\sqrt{110}}{165} & 0 & -\frac{\sqrt{110}i}{330} & 0 & 0 & 0 & 0 & \frac{5\sqrt{11}i}{132} & -\frac{\sqrt{66}}{66} & 0 \\ 0 & -\frac{\sqrt{55}i}{660} & 0 & \frac{\sqrt{55}}{660} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{44} & 0 & \frac{\sqrt{33}}{44} & \frac{5\sqrt{22}i}{132} & 0 \\ -\frac{\sqrt{55}i}{660} & 0 & -\frac{\sqrt{55}}{660} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}i}{44} & 0 & -\frac{\sqrt{33}}{44} & 0 & 0 & -\frac{5\sqrt{22}i}{132} \end{bmatrix}$
	681	symmetry
		$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
		$\begin{bmatrix} 0 & -\frac{5\sqrt{231}i}{462} & 0 & -\frac{5\sqrt{231}}{462} & -\frac{19\sqrt{154}i}{4620} & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}i}{1155} & 0 & \frac{\sqrt{385}}{1155} & 0 & 0 \\ -\frac{5\sqrt{231}i}{462} & 0 & \frac{5\sqrt{231}}{462} & 0 & 0 & \frac{19\sqrt{154}i}{4620} & 0 & 0 & 0 & -\frac{\sqrt{385}i}{1155} & 0 & -\frac{\sqrt{385}}{1155} & 0 & 0 \\ 0 & -\frac{\sqrt{231}}{84} & 0 & \frac{\sqrt{231}i}{84} & 0 & 0 & 0 & \frac{\sqrt{154}i}{105} & 0 & 0 & -\frac{\sqrt{385}}{420} & 0 & -\frac{\sqrt{385}i}{420} & 0 & 0 \\ \frac{\sqrt{231}}{84} & 0 & \frac{\sqrt{231}i}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{154}i}{105} & \frac{\sqrt{385}}{420} & 0 & -\frac{\sqrt{385}i}{420} & 0 & 0 & 0 \\ -\frac{\sqrt{231}i}{220} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{154}i}{1155} & 0 & -\frac{\sqrt{154}}{210} & -\frac{5\sqrt{385}i}{924} & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}i}{462} \\ 0 & \frac{\sqrt{231}i}{220} & 0 & 0 & -\frac{2\sqrt{154}i}{1155} & 0 & \frac{\sqrt{154}}{210} & 0 & 0 & \frac{5\sqrt{385}i}{924} & 0 & 0 & \frac{\sqrt{2310}i}{462} & 0 \\ 0 & 0 & \frac{\sqrt{231}i}{220} & 0 & 0 & \frac{2\sqrt{154}}{1155} & 0 & -\frac{\sqrt{154}i}{210} & 0 & 0 & -\frac{5\sqrt{385}i}{924} & 0 & 0 & \frac{\sqrt{2310}}{462} \\ 0 & 0 & 0 & -\frac{\sqrt{231}i}{220} & -\frac{2\sqrt{154}}{1155} & 0 & -\frac{\sqrt{154}i}{210} & 0 & 0 & 0 & \frac{5\sqrt{385}i}{924} & -\frac{\sqrt{2310}}{462} & 0 & 0 \\ 0 & \frac{\sqrt{77}i}{660} & 0 & -\frac{\sqrt{77}}{660} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}i}{308} & 0 & \frac{\sqrt{1155}}{308} & \frac{5\sqrt{770}i}{924} & 0 \\ \frac{\sqrt{77}i}{660} & 0 & \frac{\sqrt{77}}{660} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}i}{308} & 0 & -\frac{\sqrt{1155}}{308} & 0 & 0 & -\frac{5\sqrt{770}i}{924} \end{bmatrix}$
	682	symmetry
		$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(A, 3)$	0	$\begin{bmatrix} 0 & -\frac{3\sqrt{11}}{44} & 0 & \frac{3\sqrt{11}i}{44} & 0 & 0 & \frac{3\sqrt{66}i}{220} & 0 & 0 & -\frac{\sqrt{165}}{660} & 0 & -\frac{\sqrt{165}i}{660} & 0 & 0 \\ \frac{3\sqrt{11}}{44} & 0 & \frac{3\sqrt{11}i}{44} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{66}i}{220} & \frac{\sqrt{165}}{660} & 0 & -\frac{\sqrt{165}i}{660} & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{11}i}{44} & 0 & \frac{3\sqrt{11}}{44} & \frac{3\sqrt{66}i}{220} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}i}{660} & 0 & \frac{\sqrt{165}}{660} & 0 & 0 \\ \frac{3\sqrt{11}i}{44} & 0 & -\frac{3\sqrt{11}}{44} & 0 & 0 & -\frac{3\sqrt{66}i}{220} & 0 & 0 & -\frac{\sqrt{165}i}{660} & 0 & -\frac{\sqrt{165}}{660} & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{11}i}{110} & 0 & 0 & -\frac{\sqrt{66}}{330} & 0 & -\frac{\sqrt{66}i}{330} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{11}i}{110} & \frac{\sqrt{66}}{330} & 0 & -\frac{\sqrt{66}i}{330} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{11}i}{110} & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}i}{330} & 0 & \frac{\sqrt{66}}{330} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{11}i}{110} & 0 & 0 & -\frac{\sqrt{66}i}{330} & 0 & -\frac{\sqrt{66}}{330} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{33}}{330} & 0 & -\frac{\sqrt{33}i}{330} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{33}}{330} & 0 & -\frac{\sqrt{33}i}{330} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	683	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
	$\mathbb{G}_4^{(1,1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{77}i}{1540} & 0 & -\frac{\sqrt{77}}{1540} & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{1155}i}{4620} & 0 & -\frac{17\sqrt{1155}}{4620} & -\frac{\sqrt{770}i}{220} & 0 \\ \frac{\sqrt{77}i}{1540} & 0 & \frac{\sqrt{77}}{1540} & 0 & 0 & 0 & 0 & 0 & -\frac{17\sqrt{1155}i}{4620} & 0 & \frac{17\sqrt{1155}}{4620} & 0 & 0 & \frac{\sqrt{770}i}{220} \\ 0 & \frac{\sqrt{77}}{1540} & 0 & \frac{\sqrt{77}i}{1540} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}}{420} & 0 & \frac{\sqrt{1155}i}{420} & 0 & 0 \\ -\frac{\sqrt{77}}{1540} & 0 & \frac{\sqrt{77}i}{1540} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{420} & 0 & \frac{\sqrt{1155}i}{420} & 0 & 0 & 0 \\ \frac{\sqrt{77}i}{220} & 0 & 0 & 0 & 0 & -\frac{17\sqrt{462}i}{2310} & 0 & -\frac{\sqrt{462}}{210} & -\frac{\sqrt{1155}i}{220} & 0 & 0 & 0 & 0 & \frac{\sqrt{770}i}{385} \\ 0 & -\frac{\sqrt{77}i}{220} & 0 & 0 & -\frac{17\sqrt{462}i}{2310} & 0 & \frac{\sqrt{462}}{210} & 0 & 0 & \frac{\sqrt{1155}i}{220} & 0 & 0 & \frac{\sqrt{770}i}{385} & 0 \\ 0 & 0 & \frac{\sqrt{77}i}{220} & 0 & 0 & -\frac{17\sqrt{462}}{2310} & 0 & \frac{\sqrt{462}i}{210} & 0 & 0 & \frac{\sqrt{1155}i}{220} & 0 & 0 & -\frac{\sqrt{770}}{385} \\ 0 & 0 & 0 & -\frac{\sqrt{77}i}{220} & \frac{17\sqrt{462}}{2310} & 0 & \frac{\sqrt{462}i}{210} & 0 & 0 & 0 & 0 & -\frac{\sqrt{1155}i}{220} & \frac{\sqrt{770}}{385} & 0 \\ 0 & -\frac{\sqrt{231}i}{165} & 0 & -\frac{\sqrt{231}}{165} & -\frac{3\sqrt{154}i}{220} & 0 & 0 & 0 & 0 & \frac{3\sqrt{385}i}{770} & 0 & -\frac{3\sqrt{385}}{770} & 0 & 0 \\ -\frac{\sqrt{231}i}{165} & 0 & \frac{\sqrt{231}}{165} & 0 & 0 & \frac{3\sqrt{154}i}{220} & 0 & 0 & \frac{3\sqrt{385}i}{770} & 0 & \frac{3\sqrt{385}}{770} & 0 & 0 & 0 \end{bmatrix}$
	684	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_4^{(1,1;a)}(B, 2)$	$0 - \frac{\sqrt{77}}{1540} 0 - \frac{\sqrt{77}i}{1540} 0 0 0 0 0 0 - \frac{\sqrt{1155}}{420} 0 \frac{\sqrt{1155}i}{420} 0 0 0$	
	$\frac{\sqrt{77}}{1540} 0 - \frac{\sqrt{77}i}{1540} 0 0 0 0 0 0 \frac{\sqrt{1155}}{420} 0 \frac{\sqrt{1155}i}{420} 0 0 0$	
	$0 \frac{\sqrt{77}i}{1540} 0 - \frac{\sqrt{77}}{1540} 0 0 0 0 0 0 \frac{17\sqrt{1155}i}{4620} 0 \frac{17\sqrt{1155}}{4620} \frac{\sqrt{770}i}{220} 0$	
	$\frac{\sqrt{77}i}{1540} 0 \frac{\sqrt{77}}{1540} 0 0 0 0 0 0 \frac{17\sqrt{1155}i}{4620} 0 - \frac{17\sqrt{1155}}{4620} 0 0 - \frac{\sqrt{770}i}{220}$	
	$0 0 - \frac{\sqrt{77}i}{220} 0 0 - \frac{\sqrt{462}}{210} 0 \frac{17\sqrt{462}i}{2310} 0 0 \frac{\sqrt{1155}i}{220} 0 0 - \frac{\sqrt{770}}{385}$	
	$0 0 0 \frac{\sqrt{77}i}{220} \frac{\sqrt{462}}{210} 0 \frac{17\sqrt{462}i}{2310} 0 0 0 - \frac{\sqrt{1155}i}{220} \frac{\sqrt{770}}{385} 0$	
	$\frac{\sqrt{77}i}{220} 0 0 0 0 \frac{\sqrt{462}i}{210} 0 \frac{17\sqrt{462}}{2310} \frac{\sqrt{1155}i}{220} 0 0 0 0 - \frac{\sqrt{770}i}{385}$	
	$0 - \frac{\sqrt{77}i}{220} 0 0 \frac{\sqrt{462}i}{210} 0 - \frac{17\sqrt{462}}{2310} 0 0 - \frac{\sqrt{1155}i}{220} 0 0 - \frac{\sqrt{770}i}{385}$	
	$0 - \frac{\sqrt{231}}{165} 0 \frac{\sqrt{231}i}{165} 0 0 \frac{3\sqrt{154}i}{220} 0 0 - \frac{3\sqrt{385}}{770} 0 - \frac{3\sqrt{385}i}{770} 0 0$	
	$\frac{\sqrt{231}}{165} 0 \frac{\sqrt{231}i}{165} 0 0 0 - \frac{3\sqrt{154}i}{220} \frac{3\sqrt{385}}{770} 0 - \frac{3\sqrt{385}i}{770} 0 0 0$	
685	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{G}_{4,1}^{(1,1;a)}(E, 1)$	$0 0 - \frac{\sqrt{11}i}{220} 0 0 \frac{7\sqrt{66}}{660} 0 - \frac{3\sqrt{66}i}{440} 0 0 - \frac{\sqrt{165}i}{132} 0 0 \frac{\sqrt{110}}{110}$	
	$0 0 0 \frac{\sqrt{11}i}{220} - \frac{7\sqrt{66}}{660} 0 - \frac{3\sqrt{66}i}{440} 0 0 0 0 \frac{\sqrt{165}i}{132} - \frac{\sqrt{110}}{110} 0$	
	$\frac{\sqrt{11}i}{220} 0 0 0 0 - \frac{3\sqrt{66}i}{440} 0 - \frac{\sqrt{66}}{330} \frac{\sqrt{165}i}{660} 0 0 0 0 - \frac{3\sqrt{110}i}{440}$	
	$0 - \frac{\sqrt{11}i}{220} 0 0 - \frac{3\sqrt{66}i}{440} 0 \frac{\sqrt{66}}{330} 0 0 - \frac{\sqrt{165}i}{660} 0 0 - \frac{3\sqrt{110}i}{440} 0$	
	$0 \frac{\sqrt{11}}{220} 0 - \frac{3\sqrt{11}i}{440} 0 0 \frac{\sqrt{66}i}{330} 0 0 \frac{\sqrt{165}}{660} 0 - \frac{3\sqrt{165}i}{440} 0 0$	
	$- \frac{\sqrt{11}}{220} 0 - \frac{3\sqrt{11}i}{440} 0 0 0 0 - \frac{\sqrt{66}i}{330} - \frac{\sqrt{165}}{660} 0 - \frac{3\sqrt{165}i}{440} 0 0 0$	
	$0 - \frac{9\sqrt{11}i}{440} 0 - \frac{\sqrt{11}}{44} - \frac{\sqrt{66}i}{66} 0 0 0 0 - \frac{3\sqrt{165}i}{440} 0 - \frac{\sqrt{165}}{60} - \frac{\sqrt{110}i}{55} 0$	
	$- \frac{9\sqrt{11}i}{440} 0 \frac{\sqrt{11}}{44} 0 0 \frac{\sqrt{66}i}{66} 0 0 - \frac{3\sqrt{165}i}{440} 0 \frac{\sqrt{165}}{60} 0 0 \frac{\sqrt{110}i}{55}$	
	$0 0 - \frac{\sqrt{33}i}{165} 0 0 \frac{3\sqrt{22}}{110} 0 - \frac{9\sqrt{22}i}{440} 0 0 - \frac{3\sqrt{55}i}{110} 0 0 \frac{\sqrt{330}}{132}$	
	$0 0 0 \frac{\sqrt{33}i}{165} - \frac{3\sqrt{22}}{110} 0 - \frac{9\sqrt{22}i}{440} 0 0 0 0 \frac{3\sqrt{55}i}{110} - \frac{\sqrt{330}}{132} 0$	
686	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{4,2}^{(1,1;a)}(E, 1)$	$\frac{\sqrt{11}i}{220} 0 0 0 0 -\frac{7\sqrt{66}i}{660} 0 -\frac{3\sqrt{66}}{440} -\frac{\sqrt{165}i}{132} 0 0 0 0 \frac{\sqrt{110}i}{110}$	
	$0 -\frac{\sqrt{11}i}{220} 0 0 -\frac{7\sqrt{66}i}{660} 0 \frac{3\sqrt{66}}{440} 0 0 \frac{\sqrt{165}i}{132} 0 0 0 \frac{\sqrt{110}i}{110} 0$	
	$0 0 \frac{\sqrt{11}i}{220} 0 0 -\frac{3\sqrt{66}}{440} 0 \frac{\sqrt{66}i}{330} 0 0 -\frac{\sqrt{165}i}{660} 0 0 0 \frac{3\sqrt{110}}{440}$	
	$0 0 0 -\frac{\sqrt{11}i}{220} \frac{3\sqrt{66}}{440} 0 \frac{\sqrt{66}i}{330} 0 0 0 \frac{\sqrt{165}i}{660} -\frac{3\sqrt{110}}{440} 0$	
	$0 -\frac{\sqrt{11}i}{44} 0 -\frac{9\sqrt{11}}{440} -\frac{\sqrt{66}i}{66} 0 0 0 0 \frac{\sqrt{165}i}{60} 0 \frac{3\sqrt{165}}{440} \frac{\sqrt{110}i}{55} 0$	
	$-\frac{\sqrt{11}i}{44} 0 \frac{9\sqrt{11}}{440} 0 0 \frac{\sqrt{66}i}{66} 0 0 \frac{\sqrt{165}i}{60} 0 -\frac{3\sqrt{165}}{440} 0 0 -\frac{\sqrt{110}i}{55}$	
	$0 -\frac{3\sqrt{11}}{440} 0 \frac{\sqrt{11}i}{220} 0 0 -\frac{\sqrt{66}i}{330} 0 0 \frac{3\sqrt{165}}{440} 0 -\frac{\sqrt{165}i}{660} 0 0 0$	
	$\frac{3\sqrt{11}}{440} 0 \frac{\sqrt{11}i}{220} 0 0 0 0 \frac{\sqrt{66}i}{330} -\frac{3\sqrt{165}}{440} 0 -\frac{\sqrt{165}i}{660} 0 0 0 0$	
	$-\frac{\sqrt{33}i}{165} 0 0 0 0 \frac{3\sqrt{22}i}{110} 0 \frac{9\sqrt{22}}{440} \frac{3\sqrt{55}i}{110} 0 0 0 0 -\frac{\sqrt{330}i}{132}$	
	$0 \frac{\sqrt{33}i}{165} 0 0 \frac{3\sqrt{22}i}{110} 0 -\frac{9\sqrt{22}}{440} 0 0 -\frac{3\sqrt{55}i}{110} 0 0 -\frac{\sqrt{330}i}{132} 0$	
687	symmetry	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$
$\mathbb{G}_{4,1}^{(1,1;a)}(E, 2)$	$-\frac{\sqrt{77}i}{1540} 0 0 0 0 -\frac{29\sqrt{462}i}{4620} 0 -\frac{3\sqrt{462}}{440} -\frac{\sqrt{1155}i}{420} 0 0 0 0 0 0$	
	$0 \frac{\sqrt{77}i}{1540} 0 0 -\frac{29\sqrt{462}i}{4620} 0 \frac{3\sqrt{462}}{440} 0 0 \frac{\sqrt{1155}i}{420} 0 0 0 0 0$	
	$0 0 -\frac{\sqrt{77}i}{1540} 0 0 -\frac{3\sqrt{462}}{440} 0 \frac{17\sqrt{462}i}{2310} 0 0 \frac{17\sqrt{1155}i}{4620} 0 0 -\frac{\sqrt{770}}{440}$	
	$0 0 0 \frac{\sqrt{77}i}{1540} \frac{3\sqrt{462}}{440} 0 \frac{17\sqrt{462}i}{2310} 0 0 0 0 -\frac{17\sqrt{1155}i}{4620} \frac{\sqrt{770}}{440} 0$	
	$0 -\frac{3\sqrt{77}i}{220} 0 -\frac{\sqrt{77}}{88} -\frac{\sqrt{462}i}{210} 0 0 0 0 -\frac{\sqrt{1155}i}{924} 0 -\frac{\sqrt{1155}}{440} -\frac{\sqrt{770}i}{385} 0$	
	$-\frac{3\sqrt{77}i}{220} 0 \frac{\sqrt{77}}{88} 0 0 \frac{\sqrt{462}i}{210} 0 0 -\frac{\sqrt{1155}i}{924} 0 \frac{\sqrt{1155}}{440} 0 0 \frac{\sqrt{770}i}{385}$	
	$0 -\frac{7\sqrt{77}}{440} 0 \frac{3\sqrt{77}i}{220} 0 0 \frac{17\sqrt{462}i}{2310} 0 0 -\frac{\sqrt{1155}}{440} 0 -\frac{\sqrt{1155}i}{924} 0 0 0$	
	$\frac{7\sqrt{77}}{440} 0 \frac{3\sqrt{77}i}{220} 0 0 0 0 -\frac{17\sqrt{462}i}{2310} \frac{\sqrt{1155}}{440} 0 -\frac{\sqrt{1155}i}{924} 0 0 0 0$	
	$-\frac{\sqrt{231}i}{165} 0 0 0 0 0 0 -\frac{3\sqrt{154}}{440} -\frac{3\sqrt{385}i}{770} 0 0 0 0 0 \frac{\sqrt{2310}i}{924}$	
	$0 \frac{\sqrt{231}i}{165} 0 0 0 0 \frac{3\sqrt{154}}{440} 0 0 \frac{3\sqrt{385}i}{770} 0 0 0 \frac{\sqrt{2310}i}{924} 0$	
688	symmetry	$\frac{\sqrt{5}yz(6x^2 - y^2 - z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{G}_{4,2}^{(1,1;a)}(E, 2)$	$0 \ 0 \ -\frac{\sqrt{77}i}{1540} \ 0 \ 0 \ -\frac{29\sqrt{462}}{4620} \ 0 \ \frac{3\sqrt{462}i}{440} \ 0 \ 0 \ \frac{\sqrt{1155}i}{420} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ \frac{\sqrt{77}i}{1540} \ \frac{29\sqrt{462}}{4620} \ 0 \ \frac{3\sqrt{462}i}{440} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{1155}i}{420} \ 0 \ 0$	
	$\frac{\sqrt{77}i}{1540} \ 0 \ 0 \ 0 \ 0 \ \frac{3\sqrt{462}i}{440} \ 0 \ \frac{17\sqrt{462}}{2310} \ \frac{17\sqrt{1155}i}{4620} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{770}i}{440}$	
	$0 \ -\frac{\sqrt{77}i}{1540} \ 0 \ 0 \ \frac{3\sqrt{462}i}{440} \ 0 \ -\frac{17\sqrt{462}}{2310} \ 0 \ 0 \ -\frac{17\sqrt{1155}i}{4620} \ 0 \ 0 \ -\frac{\sqrt{770}i}{440} \ 0$	
	$0 \ -\frac{3\sqrt{77}}{220} \ 0 \ \frac{7\sqrt{77}i}{440} \ 0 \ 0 \ \frac{17\sqrt{462}i}{2310} \ 0 \ 0 \ -\frac{\sqrt{1155}}{924} \ 0 \ -\frac{\sqrt{1155}i}{440} \ 0 \ 0$	
	$\frac{3\sqrt{77}}{220} \ 0 \ \frac{7\sqrt{77}i}{440} \ 0 \ 0 \ 0 \ 0 \ -\frac{17\sqrt{462}i}{2310} \ \frac{\sqrt{1155}}{924} \ 0 \ -\frac{\sqrt{1155}i}{440} \ 0 \ 0 \ 0$	
	$0 \ \frac{\sqrt{77}i}{88} \ 0 \ \frac{3\sqrt{77}}{220} \ \frac{\sqrt{462}i}{210} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{1155}i}{440} \ 0 \ -\frac{\sqrt{1155}}{924} \ -\frac{\sqrt{770}i}{385} \ 0$	
	$\frac{\sqrt{77}i}{88} \ 0 \ -\frac{3\sqrt{77}}{220} \ 0 \ 0 \ -\frac{\sqrt{462}i}{210} \ 0 \ 0 \ -\frac{\sqrt{1155}i}{440} \ 0 \ \frac{\sqrt{1155}}{924} \ 0 \ 0 \ \frac{\sqrt{770}i}{385}$	
	$0 \ 0 \ \frac{\sqrt{231}i}{165} \ 0 \ 0 \ 0 \ 0 \ -\frac{3\sqrt{154}i}{440} \ 0 \ 0 \ -\frac{3\sqrt{385}i}{770} \ 0 \ 0 \ \frac{\sqrt{2310}}{924}$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{231}i}{165} \ 0 \ 0 \ -\frac{3\sqrt{154}i}{440} \ 0 \ 0 \ 0 \ 0 \ \frac{3\sqrt{385}i}{770} \ -\frac{\sqrt{2310}}{924} \ 0$	
689	symmetry	z
$\mathbb{T}_1^{(a)}(A)$	$0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{70}i}{35} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{70}i}{35} \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{70}i}{35} \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{70}i}{35} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{3\sqrt{35}i}{70} \ 0$	
690	symmetry	x

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{1,1}^{(a)}(E)$	$\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0 0	
	0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{7}i}{14}$ 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 $-\frac{\sqrt{105}i}{70}$	
	0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{210}i}{70}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{210}i}{70}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
691	symmetry	y
$\mathbb{T}_{1,2}^{(a)}(E)$	0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{70}i}{140}$ 0 0 0 0	
	0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{70}i}{140}$ 0 0 0	
	$-\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{140}$ 0 0 0 0 0	
	0 0 0 0 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 $-\frac{\sqrt{7}i}{14}$ 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 0 0 $-\frac{\sqrt{105}i}{70}$	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{210}i}{70}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{210}i}{70}$ 0 0 0	
692	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(a)}(A)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{15} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{15}i}{15} & 0 \end{bmatrix}$
693	symmetry	$\sqrt{15}xyz$
$\mathbb{T}_3^{(a)}(B, 1)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
694	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{3,2}^{(a)}(E, 1)$	$0 \quad 0 \quad \frac{\sqrt{2}i}{16} \quad 0 \quad \frac{11\sqrt{30}i}{240} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{2}i}{16} \quad 0 \quad \frac{11\sqrt{30}i}{240} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{2}i}{16} \quad 0 \quad -\frac{\sqrt{30}i}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad -\frac{\sqrt{30}i}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{6} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{6} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{24} \quad 0 \quad -\frac{\sqrt{5}i}{40} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{24} \quad 0 \quad -\frac{\sqrt{5}i}{40}$	
	$0 \quad 0 \quad \frac{5\sqrt{6}i}{48} \quad 0 \quad -\frac{3\sqrt{10}i}{80} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{5\sqrt{6}i}{48} \quad 0 \quad -\frac{3\sqrt{10}i}{80} \quad 0 \quad 0 \quad 0$	
697	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{T}_{3,1}^{(a)}(E, 2)$	$0 \quad 0 \quad -\frac{\sqrt{30}i}{48} \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{48} \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{30}i}{48} \quad 0 \quad \frac{3\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{30}i}{48} \quad 0 \quad \frac{3\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{8} \quad 0 \quad \frac{\sqrt{3}i}{24} \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{8} \quad 0 \quad \frac{\sqrt{3}i}{24}$	
	$0 \quad 0 \quad \frac{\sqrt{10}i}{16} \quad 0 \quad \frac{\sqrt{6}i}{16} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{16} \quad 0 \quad \frac{\sqrt{6}i}{16} \quad 0 \quad 0 \quad 0$	
698	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{3,2}^{(a)}(E, 2)$	$\frac{\sqrt{30}i}{48}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{48} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{2}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{24} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{10}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{16} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$	
	$\mathbb{T}_5^{(a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$	
699	symmetry	
700	symmetry	

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(a)}(A, 2)$	$\frac{\sqrt{42}i}{84}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{84} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{42} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{42} & 0 \end{bmatrix}$
	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$	
	$\frac{\sqrt{30}i}{20}$	
	$\frac{\sqrt{30}i}{20}$	
	$-\frac{\sqrt{30}i}{20}$	
701	symmetry	$\frac{\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
$\mathbb{T}_5^{(a)}(A, 3)$	$\frac{\sqrt{30}i}{20}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	$-\frac{\sqrt{5}i}{10}$	
702	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(a)}(B, 1)$	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 $-\frac{\sqrt{6}i}{12}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0	
	0 0 $\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0	
	0 0 0 $\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0	
	$-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0 0	
	0 0 0 0 0 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	
703	symmetry	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$
$\mathbb{T}_5^{(a)}(B, 2)$	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	
	$-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0 0 0	
	0 0 $-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{60}$ 0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{30}i}{20}$ 0 0 0 0 0 0 0 0 0	
704	symmetry	$\frac{x(8x^4-40x^2y^2-40x^2z^2+15y^4+30y^2z^2+15z^4)}{8}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{5,1}^{(a)}(E, 2)$	$\frac{3\sqrt{5}i}{80}$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{3\sqrt{5}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\frac{3\sqrt{15}i}{80}$	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
	$\frac{\sqrt{5}i}{40}$	$\begin{bmatrix} 0 & 0 & \frac{3\sqrt{5}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{5}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{16} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 \\ 0 & 0 & -\frac{3\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{3\sqrt{15}i}{80} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3i}{16} & 0 & 0 & 0 & 0 \end{bmatrix}$
	$\frac{-3\sqrt{15}i}{80}$	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
708	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

continued ..

Table 9

No.	multipole	matrix
$\mathbb{T}_{5,1}^{(a)}(E, 3)$	0 0 $\frac{7\sqrt{15}i}{120}$ 0 0 0 0 0 0 0 0 0 0 0 0	$-\frac{i}{8}$ 0 0 0
	0 0 0 $\frac{7\sqrt{15}i}{120}$ 0 0 0 0 0 0 0 0 0 0 0	$-\frac{i}{8}$ 0 0 0
	$\frac{\sqrt{15}i}{15}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0
	0 $\frac{\sqrt{15}i}{15}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 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 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 $-\frac{\sqrt{6}i}{12}$
	0 0 $-\frac{\sqrt{5}i}{40}$ 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0	0 0 0 0
	0 0 0 $-\frac{\sqrt{5}i}{40}$ 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0	0 0 0 0
709	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$
$\mathbb{T}_{5,2}^{(a)}(E, 3)$	$-\frac{7\sqrt{15}i}{120}$ 0 0 0 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0	0 0 0 0
	0 $-\frac{7\sqrt{15}i}{120}$ 0 0 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 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 $\frac{\sqrt{15}i}{15}$ 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0
	0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$ 0	0 0 0 0
	0 0 0 0 0 $-\frac{\sqrt{10}i}{20}$ 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
	$-\frac{\sqrt{5}i}{40}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0 0	0 0 0 0
	0 $-\frac{\sqrt{5}i}{40}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$ 0 0 0 0	0 0 0 0
710	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{3,2}^{(1,-1;a)}(E, 1)$	$\frac{\sqrt{7}}{28}$	0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ $\frac{\sqrt{105}}{140}$ 0 0 0 0 $-\frac{\sqrt{70}}{140}$
	0	$-\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 $-\frac{\sqrt{105}}{140}$ 0 0 $-\frac{\sqrt{70}}{140}$ 0
	0	0 $\frac{\sqrt{7}}{28}$ 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 $\frac{\sqrt{105}}{140}$ 0 0 $-\frac{3\sqrt{70}i}{280}$
	0	0 0 0 $-\frac{\sqrt{7}}{28}$ $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{140}$ $\frac{3\sqrt{70}i}{280}$ 0
	0	$-\frac{\sqrt{7}}{28}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{140}$ 0 $\frac{\sqrt{105}i}{56}$ $\frac{\sqrt{70}}{70}$ 0
	$-\frac{\sqrt{7}}{28}$	0 $\frac{3\sqrt{7}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{105}}{140}$ 0 $-\frac{\sqrt{105}i}{56}$ 0 0 $-\frac{\sqrt{70}}{70}$
	0	$\frac{3\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{280}$ 0 $-\frac{\sqrt{105}}{140}$ 0 0 0
	$-\frac{3\sqrt{7}i}{56}$	0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{280}$ 0 $-\frac{\sqrt{105}}{140}$ 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $-\frac{3\sqrt{14}i}{56}$ $-\frac{\sqrt{35}}{70}$ 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{14}}{28}$ 0 $\frac{3\sqrt{14}i}{56}$ 0 0 $\frac{\sqrt{35}}{70}$ 0 0 0 0 0
715	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{T}_{3,1}^{(1,-1;a)}(E, 2)$	$-\frac{\sqrt{105}}{84}$	0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ $-\frac{\sqrt{7}}{28}$ 0 0 0 0 $-\frac{\sqrt{42}}{84}$
	0	$\frac{\sqrt{105}}{84}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{42}}{84}$ 0
	0	0 $-\frac{\sqrt{105}}{84}$ 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{42}i}{168}$
	0	0 0 0 $\frac{\sqrt{105}}{84}$ $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ $\frac{\sqrt{42}i}{168}$ 0
	0	$-\frac{\sqrt{105}}{84}$ 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $-\frac{\sqrt{7}i}{56}$ $-\frac{\sqrt{42}}{42}$ 0
	$-\frac{\sqrt{105}}{84}$	0 $\frac{\sqrt{105}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{56}$ 0 0 $\frac{\sqrt{42}}{42}$
	0	$\frac{\sqrt{105}i}{168}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0
	$-\frac{\sqrt{105}i}{168}$	0 $-\frac{\sqrt{105}}{84}$ 0 0 0 0 0 0 $-\frac{3\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 $-\frac{\sqrt{210}i}{168}$ $\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{210}}{84}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 $-\frac{\sqrt{21}}{42}$ 0 0 0 0
716	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{3,2}^{(1,-1;a)}(E, 2)$	0	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & -\frac{\sqrt{42}i}{84} \\ 0 & 0 & 0 & \frac{\sqrt{105}}{84} & 0 & 0 & -\frac{\sqrt{70}}{56} & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & \frac{\sqrt{42}i}{84} & 0 \\ \frac{\sqrt{105}}{84} & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{168} \\ 0 & -\frac{\sqrt{105}}{84} & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & \frac{\sqrt{42}}{168} & 0 \\ 0 & -\frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 \\ \frac{\sqrt{105}i}{84} & 0 & \frac{\sqrt{105}}{168} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & -\frac{3\sqrt{7}}{56} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{105}}{168} & 0 & -\frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{56} & 0 & -\frac{\sqrt{7}i}{28} & -\frac{\sqrt{42}}{42} & 0 \\ -\frac{\sqrt{105}}{168} & 0 & \frac{\sqrt{105}i}{84} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{56} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & \frac{\sqrt{42}}{42} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{210}i}{84} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 \end{bmatrix}$
	717	symmetry
		$\frac{3\sqrt{35}xyz(x-y)(x+y)}{2}$
	$\mathbb{T}_5^{(1,-1;a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & -\frac{1}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{10} & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{10} & 0 & 0 & -\frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{10} & \frac{\sqrt{10}i}{20} & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{20} & 0 & 0 & 0 & 0 & 0 & \frac{1}{20} & 0 & \frac{i}{20} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & \frac{1}{20} & 0 & -\frac{i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{20} & 0 & 0 & \frac{i}{20} & 0 & -\frac{1}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{20} & -\frac{i}{20} & 0 & -\frac{1}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{2}}{20} & 0 & \frac{3\sqrt{2}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		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	$\frac{\sqrt{210}i}{420} \quad 0 \quad \frac{\sqrt{210}}{420} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{42} \quad 0 \quad -\frac{\sqrt{14}}{42} \quad 0 \quad 0$
	$-\frac{\sqrt{210}i}{420}$	$0 \quad \frac{\sqrt{210}}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{42} \quad -\frac{\sqrt{14}i}{42} \quad 0 \quad -\frac{\sqrt{14}}{42} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{210}}{420} \quad 0 \quad \frac{\sqrt{210}i}{420} \quad \frac{\sqrt{35}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{42} \quad 0 \quad \frac{\sqrt{14}i}{42} \quad 0 \quad 0$
	$-\frac{\sqrt{210}}{420}$	$0 \quad -\frac{\sqrt{210}i}{420} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{42} \quad 0 \quad 0 \quad \frac{\sqrt{14}}{42} \quad 0 \quad -\frac{\sqrt{14}i}{42} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{60} \quad 0 \quad -\frac{\sqrt{35}}{60} \quad 0 \quad 0 \quad \frac{5\sqrt{14}}{84} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{42}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{60} \quad 0 \quad -\frac{\sqrt{35}}{60} \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{14}}{84} \quad \frac{\sqrt{21}i}{42} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{60} \quad 0 \quad \frac{\sqrt{35}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{42} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{42}i}{84} \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{42}i}{84} \quad 0 \quad \frac{\sqrt{42}}{84} \quad 0 \quad 0 \quad 0$
719	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$
$\mathbb{T}_5^{(1,-1;a)}(A, 3)$	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{10} \quad \frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{6}}{20} \quad 0 \quad 0 \quad \frac{i}{20} \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{20} \quad -\frac{i}{20} \quad 0 \quad -\frac{1}{20} \quad 0 \quad 0$
	$-\frac{\sqrt{6}}{20}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{20} \quad 0 \quad -\frac{i}{20} \quad 0 \quad 0$
	0	$\frac{\sqrt{6}}{20} \quad 0 \quad 0 \quad -\frac{1}{20} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0$
	0	$\frac{3\sqrt{2}i}{20} \quad 0 \quad -\frac{3\sqrt{2}}{20} \quad 0 \quad 0$
	$-\frac{3\sqrt{2}i}{20}$	$0 \quad -\frac{3\sqrt{2}}{20} \quad 0 \quad 0$
720	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{5,1}^{(1,-1;a)}(E, 2)$		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{80} & 0 & 0 & -\frac{i}{20} & 0 & -\frac{1}{20} & 0 & 0 & \frac{\sqrt{10}}{16} & 0 & 0 & -\frac{\sqrt{15}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{80} & \frac{i}{20} & 0 & -\frac{1}{20} & 0 & 0 & 0 & -\frac{\sqrt{10}}{16} & \frac{\sqrt{15}i}{20} & 0 \\ \frac{\sqrt{6}}{80} & 0 & 0 & 0 & 0 & \frac{3}{40} & 0 & \frac{i}{20} & \frac{\sqrt{10}}{80} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{40} \\ 0 & -\frac{\sqrt{6}}{80} & 0 & 0 & \frac{3}{40} & 0 & -\frac{i}{20} & 0 & 0 & -\frac{\sqrt{10}}{80} & 0 & 0 & \frac{\sqrt{15}}{40} & 0 \\ 0 & -\frac{\sqrt{6}i}{80} & 0 & \frac{\sqrt{6}}{80} & 0 & 0 & \frac{1}{20} & 0 & 0 & -\frac{\sqrt{10}i}{80} & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 \\ \frac{\sqrt{6}i}{80} & 0 & \frac{\sqrt{6}}{80} & 0 & 0 & 0 & 0 & -\frac{1}{20} & \frac{\sqrt{10}i}{80} & 0 & \frac{3\sqrt{10}}{80} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{40} & 0 & -\frac{\sqrt{6}i}{16} & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{80} & \frac{\sqrt{15}}{40} & 0 \\ -\frac{\sqrt{6}}{40} & 0 & \frac{\sqrt{6}i}{16} & 0 & 0 & \frac{1}{8} & 0 & 0 & -\frac{\sqrt{10}}{40} & 0 & -\frac{\sqrt{10}i}{80} & 0 & 0 & -\frac{\sqrt{15}}{40} \\ 0 & 0 & -\frac{9\sqrt{2}}{80} & 0 & 0 & \frac{\sqrt{3}i}{10} & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & -\frac{\sqrt{30}}{80} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{9\sqrt{2}}{80} & -\frac{\sqrt{3}i}{10} & 0 & -\frac{\sqrt{3}}{20} & 0 & 0 & 0 & \frac{\sqrt{30}}{80} & 0 & 0 & 0 \end{bmatrix}$
		$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$
		$\mathbb{T}_{5,2}^{(1,-1;a)}(E, 2)$
725	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
726	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_1^{(1,0;a)}(A)$	0	$\frac{\sqrt{21}i}{28} \quad 0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0$
	$-\frac{\sqrt{21}i}{28}$	$0 \quad \frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{21}}{28} \quad 0 \quad \frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad -\frac{\sqrt{35}i}{140} \quad 0 \quad 0$
	$-\frac{\sqrt{21}}{28}$	$0 \quad -\frac{\sqrt{21}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad \frac{\sqrt{35}i}{140} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad \frac{\sqrt{105}i}{70} \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}i}{70} \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0$
729	symmetry	x
$\mathbb{T}_{1,1}^{(1,0;a)}(E)$	0	$0 \quad 0 \quad -\frac{\sqrt{21}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{28} \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{21}}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{28} \quad \frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	$0 \quad -\frac{\sqrt{21}}{28}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{140} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad \frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{35} \quad \frac{\sqrt{210}}{140} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{28} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{35} \quad 0 \quad 0 \quad -\frac{\sqrt{210}}{140}$
	0	$0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{3\sqrt{70}i}{140} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad \frac{3\sqrt{70}i}{140} \quad 0 \quad 0$
730	symmetry	y

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{1,2}^{(1,0;a)}(E)$	$\frac{\sqrt{21}}{28} 0 0 0 0 -\frac{\sqrt{14}}{28} 0 0 -\frac{\sqrt{35}}{140} 0 0 0 0 0$	
	$0 -\frac{\sqrt{21}}{28} 0 0 -\frac{\sqrt{14}}{28} 0 0 0 0 \frac{\sqrt{35}}{140} 0 0 0 0$	
	$0 0 \frac{\sqrt{21}}{28} 0 0 0 0 -\frac{\sqrt{14}}{28} 0 0 -\frac{\sqrt{35}}{140} 0 0 0 0$	
	$0 0 0 -\frac{\sqrt{21}}{28} 0 0 -\frac{\sqrt{14}}{28} 0 0 0 0 \frac{\sqrt{35}}{140} 0 0$	
	$0 0 0 0 \frac{\sqrt{14}}{28} 0 0 0 0 -\frac{\sqrt{35}}{35} 0 0 -\frac{\sqrt{210}}{140} 0$	
	$0 0 0 0 0 -\frac{\sqrt{14}}{28} 0 0 -\frac{\sqrt{35}}{35} 0 0 0 0 \frac{\sqrt{210}}{140}$	
	$0 0 0 0 0 0 \frac{\sqrt{14}}{28} 0 0 0 0 -\frac{\sqrt{35}}{35} 0 0$	
	$0 0 0 0 0 0 0 -\frac{\sqrt{14}}{28} 0 0 -\frac{\sqrt{35}}{35} 0 0 0 0$	
	$0 0 0 0 0 0 0 0 \frac{\sqrt{105}}{70} 0 0 0 0 -\frac{3\sqrt{70}}{140}$	
	$0 0 0 0 0 0 0 0 0 -\frac{\sqrt{105}}{70} 0 0 -\frac{3\sqrt{70}}{140} 0$	
731	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$
$\mathbb{T}_3^{(1,0;a)}(A)$	$0 -\frac{\sqrt{6}i}{24} 0 -\frac{\sqrt{6}}{24} 0 0 0 0 0 \frac{\sqrt{10}i}{20} 0 -\frac{\sqrt{10}}{20} 0 0 0$	
	$\frac{\sqrt{6}i}{24} 0 -\frac{\sqrt{6}}{24} 0 0 0 0 0 -\frac{\sqrt{10}i}{20} 0 -\frac{\sqrt{10}}{20} 0 0 0 0$	
	$0 \frac{\sqrt{6}}{24} 0 -\frac{\sqrt{6}i}{24} 0 0 0 0 0 \frac{\sqrt{10}}{20} 0 \frac{\sqrt{10}i}{20} 0 0 0$	
	$\frac{\sqrt{6}}{24} 0 \frac{\sqrt{6}i}{24} 0 0 0 0 0 \frac{\sqrt{10}}{20} 0 -\frac{\sqrt{10}i}{20} 0 0 0 0$	
	$0 0 0 0 0 \frac{i}{8} 0 \frac{1}{8} 0 0 0 0 0 0 0 \frac{\sqrt{15}i}{60}$	
	$0 0 0 0 0 -\frac{i}{8} 0 \frac{1}{8} 0 0 0 0 0 0 0 -\frac{\sqrt{15}i}{60} 0$	
	$0 0 0 0 0 0 -\frac{1}{8} 0 \frac{i}{8} 0 0 0 0 0 0 0 \frac{\sqrt{15}}{60}$	
	$0 0 0 0 0 0 0 -\frac{1}{8} 0 -\frac{i}{8} 0 0 0 0 0 0 \frac{\sqrt{15}}{60} 0$	
	$0 0 0 0 0 0 0 0 0 \frac{\sqrt{30}i}{40} 0 \frac{\sqrt{30}}{40} 0 0 0$	
	$0 0 0 0 0 0 0 0 0 -\frac{\sqrt{30}i}{40} 0 \frac{\sqrt{30}}{40} 0 0 0$	
732	symmetry	$\sqrt{15}xyz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_3^{(1,0;a)}(B, 1)$	0	$\frac{\sqrt{10}}{48} \quad 0 \quad \frac{\sqrt{10}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{48} \quad 0 \quad \frac{\sqrt{6}i}{48} \quad -\frac{1}{6} \quad 0$
	$\frac{\sqrt{10}}{48}$	$0 \quad -\frac{\sqrt{10}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{48} \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad 0 \quad 0 \quad \frac{1}{6}$
	0	$-\frac{\sqrt{10}i}{48} \quad 0 \quad \frac{\sqrt{10}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad 0$
	$\frac{\sqrt{10}i}{48}$	$0 \quad \frac{\sqrt{10}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}i}{16} \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{10}}{24}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{24}$
	0	$-\frac{\sqrt{10}}{24} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad -\frac{1}{24} \quad 0$
	0	$0 \quad \frac{\sqrt{10}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad -\frac{i}{24}$
	0	$0 \quad 0 \quad -\frac{\sqrt{10}}{24} \quad -\frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{24} \quad \frac{i}{24} \quad 0 \quad 0$
	0	$\frac{\sqrt{30}}{48} \quad 0 \quad -\frac{\sqrt{30}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}}{16} \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{30}}{48}$	$0 \quad \frac{\sqrt{30}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}}{16} \quad 0 \quad \frac{\sqrt{2}i}{16} \quad 0 \quad 0 \quad 0$
733	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$
$\mathbb{T}_3^{(1,0;a)}(B, 2)$	0	$\frac{\sqrt{10}i}{48} \quad 0 \quad -\frac{\sqrt{10}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}i}{16} \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad 0$
	$-\frac{\sqrt{10}i}{48}$	$0 \quad -\frac{\sqrt{10}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}i}{16} \quad 0 \quad -\frac{\sqrt{6}}{16} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{10}}{48} \quad 0 \quad \frac{\sqrt{10}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{48} \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad \frac{1}{6} \quad 0$
	$\frac{\sqrt{10}}{48}$	$0 \quad -\frac{\sqrt{10}i}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{48} \quad 0 \quad \frac{\sqrt{6}i}{48} \quad 0 \quad 0 \quad -\frac{1}{6}$
	0	$0 \quad -\frac{\sqrt{10}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad -\frac{i}{24}$
	0	$0 \quad 0 \quad \frac{\sqrt{10}}{24} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{24} \quad \frac{i}{24} \quad 0 \quad 0$
	$\frac{\sqrt{10}}{24}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24} \quad -\frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{24}$
	0	$-\frac{\sqrt{10}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{24} \quad 0 \quad 0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad \frac{1}{24} \quad 0$
	0	$-\frac{\sqrt{30}i}{48} \quad 0 \quad -\frac{\sqrt{30}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2}i}{16} \quad 0 \quad \frac{\sqrt{2}}{16} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{30}i}{48}$	$0 \quad -\frac{\sqrt{30}}{48} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2}i}{16} \quad 0 \quad \frac{\sqrt{2}}{16} \quad 0 \quad 0 \quad 0$
734	symmetry	$\frac{x(2x^2-3y^2-3z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{3,1}^{(1,0;a)}(E, 1)$	$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{i}{8} & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}i}{24} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{96} & \frac{i}{8} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{160} & -\frac{\sqrt{15}i}{24} & 0 \\ \frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{i}{8} & \frac{7\sqrt{10}}{160} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{i}{8} & 0 & 0 & -\frac{7\sqrt{10}}{160} & 0 & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{3\sqrt{10}i}{160} & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{6}i}{96} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{8} & \frac{3\sqrt{10}i}{160} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{6}i}{96} & -\frac{3}{16} & 0 & 0 & 0 & 0 & 0 & \frac{7\sqrt{10}i}{160} & \frac{\sqrt{15}}{240} & 0 \\ 0 & 0 & \frac{5\sqrt{6}i}{96} & 0 & 0 & \frac{3}{16} & 0 & 0 & 0 & 0 & -\frac{7\sqrt{10}i}{160} & 0 & 0 & -\frac{\sqrt{15}}{240} \\ 0 & 0 & \frac{5\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{160} & 0 & 0 & \frac{\sqrt{5}i}{20} & 0 \\ 0 & 0 & 0 & -\frac{5\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{160} & -\frac{\sqrt{5}i}{20} & 0 & 0 \end{bmatrix}$	
	735	$\text{symmetry } -\frac{y(3x^2-2y^2+3z^2)}{2}$
	$\mathbb{T}_{3,2}^{(1,0;a)}(E, 1)$	$\begin{bmatrix} \frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & \frac{3\sqrt{10}}{160} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{24} \\ 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{160} & 0 & 0 & -\frac{\sqrt{15}}{24} & 0 \\ 0 & 0 & \frac{\sqrt{6}}{96} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{7\sqrt{10}}{160} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{96} & 0 & 0 & -\frac{1}{8} & 0 & 0 & 0 & 0 & \frac{7\sqrt{10}}{160} & 0 & 0 & 0 \\ 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & -\frac{3}{16} & 0 & 0 & 0 & 0 & \frac{7\sqrt{10}}{160} & 0 & 0 & -\frac{\sqrt{15}}{240} & 0 \\ \frac{5\sqrt{6}}{96} & 0 & 0 & 0 & 0 & \frac{3}{16} & 0 & 0 & \frac{7\sqrt{10}}{160} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{240} \\ 0 & 0 & 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & \frac{1}{8} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{10}}{160} & 0 & 0 & 0 \\ 0 & 0 & \frac{5\sqrt{6}}{96} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & 0 & -\frac{3\sqrt{10}}{160} & 0 & 0 & 0 & 0 \\ \frac{5\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{160} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 \\ 0 & -\frac{5\sqrt{2}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{160} & 0 & 0 & 0 & \frac{\sqrt{5}}{20} & 0 \end{bmatrix}$
	736	$\text{symmetry } -\frac{\sqrt{15}y(x-z)(x+z)}{2}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(A, 1)$	0	$-\frac{\sqrt{6}}{24} \quad 0 \quad \frac{\sqrt{6}i}{24} \quad \frac{1}{5} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad 0$
	$-\frac{\sqrt{6}}{24}$	$0 \quad -\frac{\sqrt{6}i}{24} \quad 0 \quad 0 \quad 0 \quad -\frac{1}{5} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{6}i}{24} \quad 0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad -\frac{1}{5} \quad 0 \quad 0 \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0$
	$-\frac{\sqrt{6}i}{24}$	$0 \quad \frac{\sqrt{6}}{24} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{5} \quad \frac{\sqrt{10}i}{40} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{6}}{15}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{10} \quad 0 \quad -\frac{i}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{6}}{15} \quad 0 \quad 0 \quad -\frac{1}{10} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{6}}{15} \quad 0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{15} \quad \frac{i}{10} \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{2}}{20} \quad 0 \quad -\frac{\sqrt{2}i}{20} \quad 0 \quad 0$
	$-\frac{\sqrt{2}}{20}$	$0 \quad \frac{\sqrt{2}i}{20} \quad 0 \quad 0$
739	symmetry	$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$
$\mathbb{T}_5^{(1,0;a)}(A, 2)$	0	$\frac{\sqrt{210}i}{840} \quad 0 \quad \frac{\sqrt{210}}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0$
	$-\frac{\sqrt{210}i}{840}$	$0 \quad \frac{\sqrt{210}}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$
	0	$-\frac{\sqrt{210}}{840} \quad 0 \quad \frac{\sqrt{210}i}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad -\frac{\sqrt{14}i}{56} \quad 0 \quad 0$
	$-\frac{\sqrt{210}}{840}$	$0 \quad -\frac{\sqrt{210}i}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad \frac{\sqrt{14}i}{56} \quad 0 \quad 0 \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{21}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{21} \quad 0$
	0	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad -\frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{21}$
	0	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad \frac{\sqrt{35}i}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{21}$
	0	$0 \quad 0 \quad \frac{\sqrt{42}i}{28} \quad 0 \quad \frac{\sqrt{42}}{28} \quad 0 \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{42}i}{28} \quad 0 \quad \frac{\sqrt{42}}{28} \quad 0 \quad 0 \quad 0$
740	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(A, 3)$	0	$\begin{bmatrix} 0 & \frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & -\frac{1}{5} & 0 & 0 & -\frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{40} & 0 & 0 \\ -\frac{\sqrt{6}i}{24} & 0 & \frac{\sqrt{6}}{24} & 0 & 0 & 0 & 0 & \frac{1}{5} & \frac{\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{40} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{24} & 0 & -\frac{\sqrt{6}i}{24} & -\frac{1}{5} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{40} & 0 & \frac{\sqrt{10}i}{40} & 0 & 0 \\ \frac{\sqrt{6}}{24} & 0 & \frac{\sqrt{6}i}{24} & 0 & 0 & \frac{1}{5} & 0 & 0 & \frac{\sqrt{10}}{40} & 0 & -\frac{\sqrt{10}i}{40} & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{15} & 0 & 0 & -\frac{i}{10} & 0 & \frac{1}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{15} & \frac{i}{10} & 0 & \frac{1}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{6}}{15} & 0 & 0 & 0 & 0 & \frac{1}{10} & 0 & \frac{i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{15} & 0 & 0 & \frac{1}{10} & 0 & -\frac{i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{20} & 0 & \frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{20} & 0 & \frac{\sqrt{2}}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	741	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$
	$\mathbb{T}_5^{(1,0;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{\sqrt{2}}{120} & 0 & \frac{\sqrt{2}i}{120} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{120} & 0 & -\frac{\sqrt{30}i}{120} & -\frac{\sqrt{5}}{30} & 0 \\ \frac{\sqrt{2}}{120} & 0 & -\frac{\sqrt{2}i}{120} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{120} & 0 & \frac{\sqrt{30}i}{120} & 0 & \frac{\sqrt{5}}{30} \\ 0 & -\frac{\sqrt{2}i}{120} & 0 & \frac{\sqrt{2}}{120} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{40} & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 \\ \frac{\sqrt{2}i}{120} & 0 & \frac{\sqrt{2}}{120} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{40} & 0 & -\frac{\sqrt{30}}{40} & 0 & 0 \\ \frac{\sqrt{2}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{30} & 0 & -\frac{\sqrt{3}i}{10} & -\frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{15} \\ 0 & -\frac{\sqrt{2}}{60} & 0 & 0 & \frac{\sqrt{3}}{30} & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & \frac{\sqrt{5}}{15} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{60} & 0 & 0 & -\frac{\sqrt{3}i}{30} & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & \frac{\sqrt{5}i}{15} \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{60} & \frac{\sqrt{3}i}{30} & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{60} & -\frac{\sqrt{5}i}{15} & 0 \\ 0 & \frac{\sqrt{6}}{30} & 0 & -\frac{\sqrt{6}i}{30} & -\frac{1}{10} & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 \\ \frac{\sqrt{6}}{30} & 0 & \frac{\sqrt{6}i}{30} & 0 & 0 & \frac{1}{10} & 0 & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{20} & 0 & 0 \end{bmatrix}$
	742	$-\frac{\sqrt{105}z(x-y)(x+y)(x^2+y^2-2z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_5^{(1,0;a)}(B, 2)$	$0 - \frac{\sqrt{2}i}{120} 0 \frac{\sqrt{2}}{120} 0 0 0 0 0 0 \frac{\sqrt{30}i}{40} 0 \frac{\sqrt{30}}{40} 0 0 0$	
	$\frac{\sqrt{2}i}{120} 0 \frac{\sqrt{2}}{120} 0 0 0 0 0 -\frac{\sqrt{30}i}{40} 0 \frac{\sqrt{30}}{40} 0 0 0 0$	
	$0 - \frac{\sqrt{2}}{120} 0 -\frac{\sqrt{2}i}{120} 0 0 0 0 0 \frac{\sqrt{30}}{120} 0 -\frac{\sqrt{30}i}{120} -\frac{\sqrt{5}}{30} 0$	
	$-\frac{\sqrt{2}}{120} 0 \frac{\sqrt{2}i}{120} 0 0 0 0 0 \frac{\sqrt{30}}{120} 0 \frac{\sqrt{30}i}{120} 0 0 0 \frac{\sqrt{5}}{30}$	
	$0 0 \frac{\sqrt{2}}{60} 0 0 \frac{\sqrt{3}i}{10} 0 \frac{\sqrt{3}}{30} 0 0 -\frac{\sqrt{30}}{60} 0 0 0 -\frac{\sqrt{5}i}{15}$	
	$0 0 0 -\frac{\sqrt{2}}{60} -\frac{\sqrt{3}i}{10} 0 \frac{\sqrt{3}}{30} 0 0 0 0 \frac{\sqrt{30}}{60} \frac{\sqrt{5}i}{15} 0$	
	$-\frac{\sqrt{2}}{60} 0 0 0 0 \frac{\sqrt{3}}{10} 0 -\frac{\sqrt{3}i}{30} -\frac{\sqrt{30}}{60} 0 0 0 0 0 \frac{\sqrt{5}}{15}$	
	$0 \frac{\sqrt{2}}{60} 0 0 \frac{\sqrt{3}}{10} 0 \frac{\sqrt{3}i}{30} 0 0 \frac{\sqrt{30}}{60} 0 0 0 \frac{\sqrt{5}}{15} 0$	
	$0 \frac{\sqrt{6}i}{30} 0 \frac{\sqrt{6}}{30} 0 0 -\frac{1}{10} 0 0 -\frac{\sqrt{10}i}{20} 0 \frac{\sqrt{10}}{20} 0 0 0$	
	$-\frac{\sqrt{6}i}{30} 0 \frac{\sqrt{6}}{30} 0 0 0 0 \frac{1}{10} \frac{\sqrt{10}i}{20} 0 \frac{\sqrt{10}}{20} 0 0 0 0$	
743	symmetry	$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$
$\mathbb{T}_{5,1}^{(1,0;a)}(E, 1)$	$0 0 -\frac{53\sqrt{210}}{3360} 0 0 -\frac{13\sqrt{35}i}{560} 0 0 0 0 \frac{3\sqrt{14}}{224} 0 0 \frac{\sqrt{21}i}{48}$	
	$0 0 0 \frac{53\sqrt{210}}{3360} \frac{13\sqrt{35}i}{560} 0 0 0 0 0 0 -\frac{3\sqrt{14}}{224} -\frac{\sqrt{21}i}{48} 0$	
	$-\frac{13\sqrt{210}}{840} 0 0 0 0 0 0 \frac{\sqrt{35}i}{70} \frac{\sqrt{14}}{56} 0 0 0 0 0 0$	
	$0 \frac{13\sqrt{210}}{840} 0 0 0 0 -\frac{\sqrt{35}i}{70} 0 0 -\frac{\sqrt{14}}{56} 0 0 0 0 0$	
	$0 -\frac{\sqrt{210}i}{120} 0 0 0 0 \frac{\sqrt{35}}{70} 0 0 \frac{3\sqrt{14}i}{56} 0 0 0 0 0$	
	$\frac{\sqrt{210}i}{120} 0 0 0 0 0 0 -\frac{\sqrt{35}}{70} -\frac{3\sqrt{14}i}{56} 0 0 0 0 0 0$	
	$0 0 0 \frac{\sqrt{210}i}{240} \frac{3\sqrt{35}}{280} 0 0 0 0 0 -\frac{\sqrt{14}i}{112} -\frac{\sqrt{21}}{168} 0$	
	$0 0 -\frac{\sqrt{210}i}{240} 0 0 -\frac{3\sqrt{35}}{280} 0 0 0 \frac{\sqrt{14}i}{112} 0 0 \frac{\sqrt{21}}{168}$	
	$0 0 \frac{\sqrt{70}}{160} 0 0 \frac{\sqrt{105}i}{80} 0 0 0 -\frac{\sqrt{42}}{224} 0 0 -\frac{5\sqrt{7}i}{112}$	
	$0 0 0 -\frac{\sqrt{70}}{160} -\frac{\sqrt{105}i}{80} 0 0 0 0 0 \frac{\sqrt{42}}{224} \frac{5\sqrt{7}i}{112} 0$	
744	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
$\mathbb{T}_{5,2}^{(1,0;a)}(E, 1)$	$\frac{53\sqrt{210}}{3360} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{35}}{560} \quad 0 \quad 0 \quad \frac{3\sqrt{14}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{48}$	
	$0 \quad -\frac{53\sqrt{210}}{3360} \quad 0 \quad 0 \quad -\frac{13\sqrt{35}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{14}}{224} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{48} \quad 0$	
	$0 \quad 0 \quad -\frac{13\sqrt{210}}{840} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{13\sqrt{210}}{840} \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{210}}{240} \quad 0 \quad 0 \quad \frac{3\sqrt{35}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{168} \quad 0$	
	$-\frac{\sqrt{210}}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{35}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{168}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{210}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}}{70} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{14}}{56} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{70}}{160} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{112} \quad 0$	
	$0 \quad -\frac{\sqrt{70}}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{224} \quad 0 \quad 0 \quad -\frac{5\sqrt{7}}{112} \quad 0$	
745	symmetry	$\frac{3\sqrt{35}x(y^2-2yz-z^2)(y^2+2yz-z^2)}{8}$
$\mathbb{T}_{5,1}^{(1,0;a)}(E, 2)$	$0 \quad 0 \quad -\frac{13\sqrt{6}}{480} \quad 0 \quad 0 \quad \frac{3i}{80} \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{240}$	
	$0 \quad 0 \quad 0 \quad \frac{13\sqrt{6}}{480} \quad -\frac{3i}{80} \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{32} \quad \frac{\sqrt{15}i}{240} \quad 0$	
	$-\frac{\sqrt{6}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad -\frac{i}{10} \quad -\frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{30}$	
	$0 \quad \frac{\sqrt{6}}{40} \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{30} \quad 0$	
	$0 \quad \frac{\sqrt{6}i}{40} \quad 0 \quad \frac{\sqrt{6}}{60} \quad 0 \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{6}i}{40} \quad 0 \quad \frac{\sqrt{6}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{10} \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{6}}{20} \quad 0 \quad -\frac{\sqrt{6}i}{48} \quad -\frac{1}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad 0 \quad \frac{3\sqrt{10}i}{80} \quad -\frac{\sqrt{15}}{120} \quad 0$	
	$\frac{\sqrt{6}}{20} \quad 0 \quad \frac{\sqrt{6}i}{48} \quad 0 \quad 0 \quad \frac{1}{8} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{20} \quad 0 \quad -\frac{3\sqrt{10}i}{80} \quad 0 \quad 0 \quad \frac{\sqrt{15}}{120} \quad 0$	
	$0 \quad 0 \quad -\frac{9\sqrt{2}}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{80} \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{160} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{16} \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{9\sqrt{2}}{160} \quad \frac{\sqrt{3}i}{80} \quad 0 \quad \frac{\sqrt{3}}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{160} \quad \frac{\sqrt{5}i}{16} \quad 0 \quad 0 \quad 0$	
746	symmetry	$\frac{3\sqrt{35}y(x^2-2xz-z^2)(x^2+2xz-z^2)}{8}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{5,2}^{(1,0;a)}(E, 2)$	$\frac{13\sqrt{6}}{480}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3}{80} \quad 0 \quad -\frac{i}{10} \quad -\frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{240}$
	$0 \quad -\frac{13\sqrt{6}}{480}$	$0 \quad 0 \quad \frac{3}{80} \quad 0 \quad \frac{i}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{32} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{240} \quad 0$
	$0 \quad 0 \quad -\frac{\sqrt{6}}{40}$	$0 \quad 0 \quad -\frac{i}{10} \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{15}i}{30}$
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{40}$	$\frac{i}{10} \quad 0 \quad -\frac{1}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad -\frac{\sqrt{15}i}{30} \quad 0$
	$0 \quad \frac{\sqrt{6}}{48}$	$0 \quad -\frac{\sqrt{6}i}{20} \quad -\frac{1}{8} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{10}}{80} \quad 0 \quad \frac{\sqrt{10}i}{20} \quad \frac{\sqrt{15}}{120} \quad 0$
	$\frac{\sqrt{6}}{48}$	$0 \quad \frac{\sqrt{6}i}{20} \quad 0 \quad 0 \quad \frac{1}{8} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{10}}{80} \quad 0 \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{15}}{120}$
	$0 \quad -\frac{\sqrt{6}i}{60}$	$0 \quad -\frac{\sqrt{6}}{40} \quad 0 \quad 0 \quad 0 \quad \frac{1}{10} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0$
	$\frac{\sqrt{6}i}{60}$	$0 \quad -\frac{\sqrt{6}}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{10} \quad -\frac{\sqrt{10}i}{20} \quad 0 \quad \frac{\sqrt{10}}{40} \quad 0 \quad 0 \quad 0$
	$-\frac{9\sqrt{2}}{160}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{80} \quad 0 \quad \frac{\sqrt{3}i}{10} \quad \frac{\sqrt{30}}{160} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{16}$
	$0 \quad \frac{9\sqrt{2}}{160}$	$0 \quad 0 \quad \frac{\sqrt{3}}{80} \quad 0 \quad -\frac{\sqrt{3}i}{10} \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{160} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{16} \quad 0$
747	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$
$\mathbb{T}_{5,1}^{(1,0;a)}(E, 3)$	$\frac{37\sqrt{2}}{240}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{120} \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad -\frac{\sqrt{30}}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{24}$
	$0 \quad -\frac{37\sqrt{2}}{240}$	$0 \quad 0 \quad \frac{\sqrt{3}}{120} \quad 0 \quad \frac{\sqrt{3}i}{20} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{240} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{24} \quad 0$
	$0 \quad 0 \quad -\frac{19\sqrt{2}}{120}$	$0 \quad 0 \quad -\frac{\sqrt{3}i}{20} \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{5}i}{60}$
	$0 \quad 0 \quad 0 \quad \frac{19\sqrt{2}}{120}$	$\frac{\sqrt{3}i}{20} \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{120} \quad \frac{\sqrt{5}i}{60} \quad 0$
	$0 \quad -\frac{\sqrt{2}}{30}$	$0 \quad -\frac{\sqrt{2}i}{24} \quad -\frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad -\frac{\sqrt{5}}{60} \quad 0$
	$-\frac{\sqrt{2}}{30}$	$0 \quad \frac{\sqrt{2}i}{24} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{120} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{60}$
	$0 \quad -\frac{7\sqrt{2}i}{120}$	$0 \quad -\frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{30}i}{120} \quad 0 \quad -\frac{\sqrt{30}}{24} \quad 0 \quad 0$
	$\frac{7\sqrt{2}i}{120}$	$0 \quad -\frac{\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{30} \quad \frac{\sqrt{30}i}{120} \quad 0 \quad -\frac{\sqrt{30}}{24} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{6}}{80}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{8} \quad 0 \quad -\frac{i}{20} \quad -\frac{\sqrt{10}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24}$
	$0 \quad \frac{\sqrt{6}}{80}$	$0 \quad 0 \quad \frac{1}{8} \quad 0 \quad \frac{i}{20} \quad 0 \quad 0 \quad \frac{\sqrt{10}}{80} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{15}}{24} \quad 0$
748	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{5,2}^{(1,0;a)}(E, 3)$	$0 \quad 0 \quad \frac{37\sqrt{2}}{240} \quad 0 \quad 0 \quad -\frac{\sqrt{3}i}{120} \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{30}}{240} \quad 0 \quad 0 \quad \frac{\sqrt{5}i}{24}$	
	$0 \quad 0 \quad 0 \quad -\frac{37\sqrt{2}}{240} \quad \frac{\sqrt{3}i}{120} \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{240} \quad -\frac{\sqrt{5}i}{24} \quad 0$	
	$\frac{19\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad -\frac{\sqrt{3}i}{30} \quad \frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{60}$	
	$0 \quad -\frac{19\sqrt{2}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{20} \quad 0 \quad \frac{\sqrt{3}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad \frac{\sqrt{5}}{60} \quad 0$	
	$0 \quad -\frac{\sqrt{2}i}{120} \quad 0 \quad -\frac{7\sqrt{2}}{120} \quad 0 \quad 0 \quad \frac{\sqrt{3}}{30} \quad 0 \quad 0 \quad \frac{\sqrt{30}i}{24} \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad 0$	
	$\frac{\sqrt{2}i}{120} \quad 0 \quad -\frac{7\sqrt{2}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{30} \quad -\frac{\sqrt{30}i}{24} \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{2}}{24} \quad 0 \quad -\frac{\sqrt{2}i}{30} \quad \frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad -\frac{\sqrt{5}}{60} \quad 0$	
	$-\frac{\sqrt{2}}{24} \quad 0 \quad \frac{\sqrt{2}i}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{3}}{60} \quad 0 \quad 0 \quad \frac{\sqrt{30}}{120} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{5}}{60}$	
	$0 \quad 0 \quad \frac{\sqrt{6}}{80} \quad 0 \quad 0 \quad \frac{i}{8} \quad 0 \quad \frac{1}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{15}i}{24}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{6}}{80} \quad -\frac{i}{8} \quad 0 \quad \frac{1}{20} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{10}}{80} \quad \frac{\sqrt{15}i}{24} \quad 0$	
749	symmetry	z
$\mathbb{T}_1^{(1,1;a)}(A)$	$0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0$	
	$-\frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad -\frac{3\sqrt{70}}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad -\frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad \frac{3\sqrt{70}i}{280} \quad 0 \quad 0$	
	$-\frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{14} \quad 0 \quad 0 \quad \frac{3\sqrt{70}}{280} \quad 0 \quad -\frac{3\sqrt{70}i}{280} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{70}$	
	$0 \quad 0 \quad -\frac{\sqrt{70}}{70} \quad -\frac{\sqrt{105}i}{70} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70}$	
	$0 \quad 0 \quad \frac{\sqrt{70}}{70} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70}$	
	$0 \quad 0 \quad -\frac{\sqrt{210}i}{140} \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{210}i}{140} \quad 0 \quad -\frac{\sqrt{210}}{140} \quad 0 \quad 0 \quad 0$	
750	symmetry	x

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{1,1}^{(1,1;a)}(E)$	y	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & -\frac{\sqrt{105}i}{140} \\ 0 & 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & 0 & 0 & \frac{3\sqrt{70}}{280} & \frac{\sqrt{105}i}{140} & 0 \\ -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{140} \\ 0 & \frac{\sqrt{42}}{56} & 0 & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & -\frac{\sqrt{105}}{140} & 0 \\ 0 & -\frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}i}{280} & 0 & \frac{\sqrt{70}}{280} & 0 & 0 \\ \frac{\sqrt{42}i}{56} & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}i}{280} & 0 & \frac{\sqrt{70}}{280} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & -\frac{3\sqrt{70}i}{280} & \frac{\sqrt{105}}{70} & 0 \\ \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{56} & 0 & \frac{3\sqrt{70}i}{280} & 0 & 0 & -\frac{\sqrt{105}}{70} \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & -\frac{\sqrt{21}}{28} & 0 & 0 & 0 & \frac{\sqrt{210}}{140} & 0 & 0 \end{bmatrix}$
	751	symmetry
		y
	$\mathbb{T}_{1,2}^{(1,1;a)}(E)$	$\begin{bmatrix} -\frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{28} & -\frac{3\sqrt{70}}{280} & 0 & 0 & 0 & 0 & \frac{\sqrt{105}}{140} \\ 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & 0 & \frac{\sqrt{105}}{140} & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{56} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & 0 & 0 & -\frac{\sqrt{105}i}{140} \\ 0 & 0 & 0 & \frac{\sqrt{42}}{56} & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{70}}{280} & \frac{\sqrt{105}i}{140} & 0 & 0 \\ 0 & \frac{\sqrt{42}}{56} & 0 & -\frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & \frac{\sqrt{70}i}{56} & -\frac{\sqrt{105}}{70} & 0 & 0 \\ \frac{\sqrt{42}}{56} & 0 & \frac{\sqrt{42}i}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{70}}{280} & 0 & -\frac{\sqrt{70}i}{56} & 0 & 0 & \frac{\sqrt{105}}{70} & 0 \\ 0 & \frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{280} & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & 0 \\ -\frac{\sqrt{42}i}{56} & 0 & \frac{\sqrt{42}}{56} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{280} & 0 & \frac{3\sqrt{70}}{280} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & -\frac{\sqrt{21}i}{28} & \frac{\sqrt{210}}{140} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{28} & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & -\frac{\sqrt{210}}{140} & 0 & 0 & 0 \end{bmatrix}$
		symmetry
		$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{3,2}^{(1,1;a)}(E, 1)$	$-\frac{\sqrt{42}}{224}$	0 0 0 0 0 $\frac{\sqrt{7}}{24}$ 0 $-\frac{\sqrt{7}i}{42}$ $\frac{\sqrt{70}}{672}$ 0 0 0 0 $\frac{\sqrt{105}}{168}$
	0	$\frac{\sqrt{42}}{224}$ 0 0 $\frac{\sqrt{7}}{24}$ 0 $\frac{\sqrt{7}i}{42}$ 0 0 $-\frac{\sqrt{70}}{672}$ 0 0 0 $\frac{\sqrt{105}}{168}$ 0
	0	0 0 $-\frac{\sqrt{42}}{224}$ 0 0 $-\frac{5\sqrt{7}i}{84}$ 0 $-\frac{\sqrt{7}}{24}$ 0 0 $-\frac{13\sqrt{70}}{672}$ 0 0 0 $-\frac{\sqrt{105}i}{84}$
	0	0 0 0 $\frac{\sqrt{42}}{224}$ $\frac{5\sqrt{7}i}{84}$ 0 $-\frac{\sqrt{7}}{24}$ 0 0 0 0 $\frac{13\sqrt{70}}{672}$ $\frac{\sqrt{105}i}{84}$ 0
	0	$-\frac{11\sqrt{42}}{672}$ 0 $\frac{\sqrt{42}i}{84}$ $\frac{\sqrt{7}}{48}$ 0 0 0 0 $\frac{\sqrt{70}}{672}$ 0 $-\frac{\sqrt{70}i}{84}$ $\frac{\sqrt{105}}{112}$ 0
	$-\frac{11\sqrt{42}}{672}$	0 $-\frac{\sqrt{42}i}{84}$ 0 0 $-\frac{\sqrt{7}}{48}$ 0 0 $\frac{\sqrt{70}}{672}$ 0 $\frac{\sqrt{70}i}{84}$ 0 0 $-\frac{\sqrt{105}}{112}$
	0	$\frac{5\sqrt{42}i}{168}$ 0 $\frac{17\sqrt{42}}{672}$ 0 0 $\frac{\sqrt{7}}{24}$ 0 0 $\frac{\sqrt{70}i}{168}$ 0 $-\frac{\sqrt{70}}{672}$ 0 0
	$-\frac{5\sqrt{42}i}{168}$	0 $\frac{17\sqrt{42}}{672}$ 0 0 0 0 $-\frac{\sqrt{7}}{24}$ $-\frac{\sqrt{70}i}{168}$ 0 $-\frac{\sqrt{70}}{672}$ 0 0 0
	$-\frac{\sqrt{14}}{32}$	0 0 0 0 $-\frac{\sqrt{21}}{84}$ 0 $\frac{\sqrt{21}i}{42}$ $-\frac{\sqrt{210}}{224}$ 0 0 0 0 0
	0	$\frac{\sqrt{14}}{32}$ 0 0 $-\frac{\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{42}$ 0 0 $\frac{\sqrt{210}}{224}$ 0 0 0 0
757	symmetry	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
$\mathbb{T}_{3,1}^{(1,1;a)}(E, 2)$	$\frac{\sqrt{70}}{224}$	0 0 0 0 0 $\frac{\sqrt{105}}{120}$ 0 $-\frac{\sqrt{105}i}{70}$ $\frac{17\sqrt{42}}{672}$ 0 0 0 0 $-\frac{3\sqrt{7}}{56}$
	0	$-\frac{\sqrt{70}}{224}$ 0 0 $\frac{\sqrt{105}}{120}$ 0 $\frac{\sqrt{105}i}{70}$ 0 0 $-\frac{17\sqrt{42}}{672}$ 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0
	0	0 0 $\frac{\sqrt{70}}{224}$ 0 0 $-\frac{\sqrt{105}i}{420}$ 0 $-\frac{\sqrt{105}}{120}$ 0 0 $\frac{\sqrt{42}}{224}$ 0 0 $\frac{\sqrt{7}i}{28}$
	0	0 0 0 $-\frac{\sqrt{70}}{224}$ $\frac{\sqrt{105}i}{420}$ 0 $-\frac{\sqrt{105}}{120}$ 0 0 0 0 $-\frac{\sqrt{42}}{224}$ $-\frac{\sqrt{7}i}{28}$ 0
	0	$-\frac{23\sqrt{70}}{1120}$ 0 $\frac{\sqrt{70}i}{56}$ $-\frac{\sqrt{105}}{80}$ 0 0 0 0 $-\frac{\sqrt{42}}{224}$ 0 $\frac{\sqrt{42}i}{56}$ $-\frac{5\sqrt{7}}{112}$ 0
	$-\frac{23\sqrt{70}}{1120}$	0 $-\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{105}}{80}$ 0 0 $-\frac{\sqrt{42}}{224}$ 0 $-\frac{\sqrt{42}i}{56}$ 0 0 $\frac{5\sqrt{7}}{112}$
	0	$\frac{\sqrt{70}i}{140}$ 0 $\frac{\sqrt{70}}{224}$ 0 0 $-\frac{\sqrt{105}}{120}$ 0 0 $-\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{224}$ 0 0
	$-\frac{\sqrt{70}i}{140}$	0 $\frac{\sqrt{70}}{224}$ 0 0 0 0 $\frac{\sqrt{105}}{120}$ $\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{224}$ 0 0 0
	$-\frac{\sqrt{210}}{160}$	0 0 0 0 0 $\frac{3\sqrt{35}}{140}$ 0 $-\frac{\sqrt{35}i}{70}$ $\frac{5\sqrt{14}}{224}$ 0 0 0 0
	0	$\frac{\sqrt{210}}{160}$ 0 0 $\frac{3\sqrt{35}}{140}$ 0 $\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{5\sqrt{14}}{224}$ 0 0 0 0
758	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{T}_{3,2}^{(1,1;a)}(E, 2)$	$0 \ 0 \ \frac{\sqrt{70}}{224} \ 0 \ 0 \ -\frac{\sqrt{105}i}{120} \ 0 \ -\frac{\sqrt{105}}{70} \ 0 \ 0 \ -\frac{17\sqrt{42}}{672} \ 0 \ 0 \ -\frac{3\sqrt{7}i}{56}$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{70}}{224} \ \frac{\sqrt{105}i}{120} \ 0 \ -\frac{\sqrt{105}}{70} \ 0 \ 0 \ 0 \ 0 \ \frac{17\sqrt{42}}{672} \ \frac{3\sqrt{7}i}{56} \ 0$	
	$-\frac{\sqrt{70}}{224} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{105}}{420} \ 0 \ \frac{\sqrt{105}i}{120} \ \frac{\sqrt{42}}{224} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}}{28}$	
	$0 \ \frac{\sqrt{70}}{224} \ 0 \ 0 \ -\frac{\sqrt{105}}{420} \ 0 \ -\frac{\sqrt{105}i}{120} \ 0 \ 0 \ -\frac{\sqrt{42}}{224} \ 0 \ 0 \ -\frac{\sqrt{7}}{28} \ 0$	
	$0 \ \frac{\sqrt{70}i}{224} \ 0 \ \frac{\sqrt{70}}{140} \ 0 \ 0 \ -\frac{\sqrt{105}}{120} \ 0 \ 0 \ -\frac{\sqrt{42}i}{224} \ 0 \ \frac{\sqrt{42}}{84} \ 0 \ 0$	
	$-\frac{\sqrt{70}i}{224} \ 0 \ \frac{\sqrt{70}}{140} \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{105}}{120} \ \frac{\sqrt{42}i}{224} \ 0 \ \frac{\sqrt{42}}{84} \ 0 \ 0 \ 0$	
	$0 \ \frac{\sqrt{70}}{56} \ 0 \ -\frac{23\sqrt{70}i}{1120} \ \frac{\sqrt{105}}{80} \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}}{56} \ 0 \ \frac{\sqrt{42}i}{224} \ -\frac{5\sqrt{7}}{112} \ 0$	
	$\frac{\sqrt{70}}{56} \ 0 \ \frac{23\sqrt{70}i}{1120} \ 0 \ 0 \ -\frac{\sqrt{105}}{80} \ 0 \ 0 \ -\frac{\sqrt{42}}{56} \ 0 \ -\frac{\sqrt{42}i}{224} \ 0 \ 0 \ \frac{5\sqrt{7}}{112}$	
	$0 \ 0 \ \frac{\sqrt{210}}{160} \ 0 \ 0 \ \frac{3\sqrt{35}i}{140} \ 0 \ \frac{\sqrt{35}}{70} \ 0 \ 0 \ \frac{5\sqrt{14}}{224} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ -\frac{\sqrt{210}}{160} \ -\frac{3\sqrt{35}i}{140} \ 0 \ \frac{\sqrt{35}}{70} \ 0 \ 0 \ 0 \ 0 \ -\frac{5\sqrt{14}}{224} \ 0 \ 0$	
759	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{M}_2^{(a)}(A)$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{70}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{70}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ \frac{\sqrt{70}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{70}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{7}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0$	
	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$	
760	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_2^{(a)}(B, 1)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{28} \\ 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
	761 symmetry	$\sqrt{3}xy$
	$\mathbb{M}_2^{(a)}(B, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{14}i}{28} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{35}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{28} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$\sqrt{3}xz$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{2,1}^{(a)}(E)$	0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0	
	$\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0	
	0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0	
763	symmetry	$\sqrt{3}yz$
$\mathbb{M}_{2,2}^{(a)}(E)$	$\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0	
	0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0	
	0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0	
	0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{14}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{14}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0	
764	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
	$\mathbb{M}_4^{(a)}(A, 1)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}i}{24} & 0 & 0 \\ \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{30}i}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
765	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$
	$\mathbb{M}_4^{(a)}(A, 2)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{210} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{105}i}{210} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{70}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{168} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{70}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{5\sqrt{42}i}{168} & 0 & 0 \\ -\frac{\sqrt{70}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{70}i}{40} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{42}i}{168} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
766	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_4^{(a)}(A, 3)$	$\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
767	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$ $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{14} \\ 0 & 0 & \frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 \\ -\frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{210}i}{280} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{14}i}{56} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}i}{35} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
768	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(a)}(B, 2)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\frac{\sqrt{21}i}{14}$ 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	$\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 $\frac{3\sqrt{210}i}{280}$ 0 0 0 0 0 0 0 0 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 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 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
769	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{M}_{4,1}^{(a)}(E, 1)$	$\frac{\sqrt{30}i}{80}$ 0 0 0 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 $\frac{\sqrt{30}i}{80}$ 0 0 0 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 $\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 0 0 0 0 0 $\frac{3\sqrt{2}i}{16}$ 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 $\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 0 0 0 0 0 $\frac{3\sqrt{2}i}{16}$ 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 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 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 $-\frac{3\sqrt{5}i}{40}$ 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{8}$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	$\frac{3\sqrt{10}i}{80}$ 0 0 0 0 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 $\frac{3\sqrt{10}i}{80}$ 0 0 0 0 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
770	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{4,2}^{(a)}(E, 1)$	0 0 $\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{16}$ 0 0 0	
	0 0 0 $\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{16}$ 0 0 0	
	$-\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{2}i}{16}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{2}i}{16}$ 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{5}i}{10}$ 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{3\sqrt{5}i}{40}$ 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 0 0 0 $-\frac{\sqrt{3}i}{8}$	
	0 0 $-\frac{3\sqrt{10}i}{80}$ 0 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 0	
	0 0 0 $-\frac{3\sqrt{10}i}{80}$ 0 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 0	
771	symmetry	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$
$\mathbb{M}_{4,1}^{(a)}(E, 2)$	0 0 $-\frac{\sqrt{210}i}{560}$ 0 0 0 0 0 0 $\frac{9\sqrt{14}i}{112}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{210}i}{560}$ 0 0 0 0 0 0 $\frac{9\sqrt{14}i}{112}$ 0 0 0	
	$\frac{\sqrt{210}i}{560}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{14}i}{112}$ 0 0 0 0 0	
	0 $\frac{\sqrt{210}i}{560}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{14}i}{112}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{35}i}{40}$ 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 $\frac{\sqrt{21}i}{56}$	
	0 0 $-\frac{3\sqrt{70}i}{80}$ 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{112}$ 0 0 0	
	0 0 0 $-\frac{3\sqrt{70}i}{80}$ 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{112}$ 0 0 0	
772	symmetry	$\frac{\sqrt{5}yz(6x^2 - y^2 - z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{4,2}^{(a)}(E, 2)$	$\frac{\sqrt{210}i}{560}$	0 0 0 0 0 0 0 0 $\frac{9\sqrt{14}i}{112}$ 0 0 0 0 0
	0	$\frac{\sqrt{210}i}{560}$ 0 0 0 0 0 0 0 0 $\frac{9\sqrt{14}i}{112}$ 0 0 0 0
	0	0 $\frac{\sqrt{210}i}{560}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{14}i}{112}$ 0 0 0 0
	0	0 0 0 $\frac{\sqrt{210}i}{560}$ 0 0 0 0 0 0 $-\frac{5\sqrt{14}i}{112}$ 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{35}i}{40}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{56}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{35}i}{40}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{56}$
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{3\sqrt{70}i}{80}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{112}$ 0 0 0 0 0
	0	$-\frac{3\sqrt{70}i}{80}$ 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{112}$ 0 0 0 0 0
773	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$
$\mathbb{M}_2^{(1,-1;a)}(A)$	0	$-\frac{\sqrt{7}}{28}$ 0 $\frac{\sqrt{7}i}{28}$ $\frac{\sqrt{42}}{42}$ 0 0 0 0 0 $\frac{\sqrt{105}}{420}$ 0 $\frac{\sqrt{105}i}{420}$ 0 0
	$-\frac{\sqrt{7}}{28}$	0 $-\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 0 $\frac{\sqrt{105}}{420}$ 0 $-\frac{\sqrt{105}i}{420}$ 0 0 0
	0	$-\frac{\sqrt{7}i}{28}$ 0 $-\frac{\sqrt{7}}{28}$ 0 0 $\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{105}i}{420}$ 0 $\frac{\sqrt{105}}{420}$ 0 0
	$\frac{\sqrt{7}i}{28}$	0 $-\frac{\sqrt{7}}{28}$ 0 0 0 0 $-\frac{\sqrt{42}}{42}$ 0 $-\frac{\sqrt{42}i}{42}$ $\frac{\sqrt{105}i}{420}$ 0 $\frac{\sqrt{105}}{420}$ 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{42}}{84}$ 0 $\frac{\sqrt{42}i}{84}$ $\frac{2\sqrt{105}}{105}$ 0 0 0 0 $\frac{\sqrt{70}}{140}$
	0	0 0 0 0 0 $-\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{84}$ 0 0 $-\frac{2\sqrt{105}}{105}$ 0 0 $\frac{\sqrt{70}}{140}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{42}}{84}$ 0 $-\frac{\sqrt{42}i}{84}$ 0 0 0 $\frac{2\sqrt{105}}{105}$ 0 0 $-\frac{\sqrt{70}i}{140}$
	0	0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 $-\frac{\sqrt{42}}{84}$ 0 0 0 0 $-\frac{2\sqrt{105}}{105}$ $\frac{\sqrt{70}i}{140}$ 0
	0	0 0 0 0 0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 $\frac{\sqrt{35}i}{70}$ $\frac{\sqrt{210}}{70}$ 0
	0	0 0 0 0 0 0 0 0 $-\frac{\sqrt{35}}{70}$ 0 $-\frac{\sqrt{35}i}{70}$ 0 0 $-\frac{\sqrt{210}}{70}$
774	symmetry	$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

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

continued ...

Table 9

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

continued ..

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{4,2}^{(1,-1;a)}(E, 1)$	$-\frac{\sqrt{10}}{32}$	0 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{7\sqrt{6}}{96}$ 0 0 0 0 $\frac{1}{8}$
	0	$\frac{\sqrt{10}}{32}$ 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 $-\frac{7\sqrt{6}}{96}$ 0 0 0 $\frac{1}{8}$ 0
	0	0 0 $-\frac{\sqrt{10}}{32}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 $\frac{5\sqrt{6}}{96}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{10}}{32}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 $-\frac{5\sqrt{6}}{96}$ 0 0
	0	$-\frac{\sqrt{10}}{32}$ 0 0 0 $\frac{\sqrt{15}}{48}$ 0 0 0 0 $-\frac{\sqrt{6}}{96}$ 0 0 0 $\frac{1}{16}$ 0
	$-\frac{\sqrt{10}}{32}$	0 0 0 0 0 $-\frac{\sqrt{15}}{48}$ 0 0 $-\frac{\sqrt{6}}{96}$ 0 0 0 0 $-\frac{1}{16}$
	0	0 0 0 $-\frac{\sqrt{10}}{32}$ 0 0 $\frac{\sqrt{15}}{24}$ 0 0 0 0 $\frac{5\sqrt{6}}{96}$ 0 0
	0	0 0 $-\frac{\sqrt{10}}{32}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 $\frac{5\sqrt{6}}{96}$ 0 0 0
	$\frac{\sqrt{30}}{96}$	0 0 0 0 0 0 0 $\frac{3\sqrt{2}}{32}$ 0 0 0 0 $\frac{\sqrt{3}}{12}$
	0	$-\frac{\sqrt{30}}{96}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{2}}{32}$ 0 0 0 $\frac{\sqrt{3}}{12}$ 0
785	symmetry	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$
$\mathbb{M}_{4,1}^{(1,-1;a)}(E, 2)$	$\frac{\sqrt{70}}{224}$	0 0 0 0 0 $\frac{\sqrt{105}}{168}$ 0 0 $\frac{\sqrt{42}}{672}$ 0 0 0 0 $\frac{3\sqrt{7}}{56}$
	0	$-\frac{\sqrt{70}}{224}$ 0 0 0 $\frac{\sqrt{105}}{168}$ 0 0 0 0 $-\frac{\sqrt{42}}{672}$ 0 0 0 $\frac{3\sqrt{7}}{56}$ 0
	0	0 0 $\frac{\sqrt{70}}{224}$ 0 0 0 0 $\frac{\sqrt{105}}{168}$ 0 0 0 $-\frac{13\sqrt{42}}{672}$ 0 0 $\frac{\sqrt{7}i}{14}$
	0	0 0 0 $-\frac{\sqrt{70}}{224}$ 0 0 $\frac{\sqrt{105}}{168}$ 0 0 0 0 $\frac{13\sqrt{42}}{672}$ $-\frac{\sqrt{7}i}{14}$ 0
	0	$-\frac{3\sqrt{70}}{224}$ 0 $-\frac{\sqrt{70}i}{56}$ $-\frac{5\sqrt{105}}{336}$ 0 0 0 0 $-\frac{11\sqrt{42}}{672}$ 0 $-\frac{\sqrt{42}i}{56}$ $-\frac{\sqrt{7}}{112}$ 0
	$-\frac{3\sqrt{70}}{224}$	0 $\frac{\sqrt{70}i}{56}$ 0 0 $\frac{5\sqrt{105}}{336}$ 0 0 $-\frac{11\sqrt{42}}{672}$ 0 $\frac{\sqrt{42}i}{56}$ 0 0 $\frac{\sqrt{7}}{112}$
	0	$\frac{\sqrt{70}i}{56}$ 0 $-\frac{3\sqrt{70}}{224}$ 0 0 0 $\frac{\sqrt{105}}{168}$ 0 0 $-\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{96}$ 0 0
	$-\frac{\sqrt{70}i}{56}$	0 $-\frac{3\sqrt{70}}{224}$ 0 0 0 0 $-\frac{\sqrt{105}}{168}$ $\frac{\sqrt{42}i}{56}$ 0 $\frac{\sqrt{42}}{96}$ 0 0 0
	$\frac{\sqrt{210}}{96}$	0 0 0 0 0 0 0 $-\frac{3\sqrt{14}}{224}$ 0 0 0 0 $-\frac{\sqrt{21}}{84}$
	0	$-\frac{\sqrt{210}}{96}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{14}}{224}$ 0 0 0 $-\frac{\sqrt{21}}{84}$ 0
786	symmetry	$\frac{\sqrt{5}yz(6x^2 - y^2 - z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{4,2}^{(1,-1;a)}(E, 2)$	$0 \quad 0 \quad \frac{\sqrt{70}}{224} \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}}{672} \quad 0 \quad 0 \quad \frac{3\sqrt{7}i}{56}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{224} \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{672} \quad -\frac{3\sqrt{7}i}{56} \quad 0$	
	$-\frac{\sqrt{70}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}i}{168} \quad -\frac{13\sqrt{42}}{672} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14}$	
	$0 \quad \frac{\sqrt{70}}{224} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}i}{168} \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{42}}{672} \quad 0 \quad 0 \quad -\frac{\sqrt{7}}{14} \quad 0$	
	$0 \quad -\frac{3\sqrt{70}i}{224} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{168} \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{96} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$	
	$\frac{3\sqrt{70}i}{224} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{168} \quad \frac{\sqrt{42}i}{96} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{70}}{56} \quad 0 \quad -\frac{3\sqrt{70}i}{224} \quad \frac{5\sqrt{105}}{336} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad \frac{11\sqrt{42}i}{672} \quad -\frac{\sqrt{7}}{112} \quad 0$	
	$-\frac{\sqrt{70}}{56} \quad 0 \quad \frac{3\sqrt{70}i}{224} \quad 0 \quad 0 \quad -\frac{5\sqrt{105}}{336} \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad -\frac{11\sqrt{42}i}{672} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{112}$	
	$0 \quad 0 \quad -\frac{\sqrt{210}}{96} \quad 0 \quad -\frac{3\sqrt{14}}{224} \quad 0 \quad 0 \quad \frac{\sqrt{21}i}{84}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{210}}{96} \quad 0 \quad \frac{3\sqrt{14}}{224} \quad -\frac{\sqrt{21}i}{84} \quad 0$	
787	symmetry	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$
$\mathbb{M}_6^{(1,-1;a)}(A, 1)$	$0 \quad \frac{\sqrt{231}}{616} \quad 0 \quad -\frac{\sqrt{231}i}{616} \quad -\frac{3\sqrt{154}}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{385}}{616} \quad 0 \quad -\frac{3\sqrt{385}i}{616} \quad 0 \quad 0$	
	$\frac{\sqrt{231}}{616} \quad 0 \quad \frac{\sqrt{231}i}{616} \quad 0 \quad 0 \quad \frac{3\sqrt{154}}{308} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{385}}{616} \quad 0 \quad \frac{3\sqrt{385}i}{616} \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{231}i}{462} \quad 0 \quad -\frac{\sqrt{231}}{462} \quad 0 \quad 0 \quad \frac{\sqrt{154}}{77} \quad 0 \quad 0 \quad -\frac{\sqrt{385}i}{154} \quad 0 \quad \frac{\sqrt{385}}{154} \quad 0 \quad 0$	
	$\frac{\sqrt{231}i}{462} \quad 0 \quad -\frac{\sqrt{231}}{462} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{154}}{77} \quad \frac{\sqrt{385}i}{154} \quad 0 \quad \frac{\sqrt{385}}{154} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{231}}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{154}}{308} \quad 0 \quad -\frac{\sqrt{154}i}{77} \quad -\frac{\sqrt{385}}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{2310}}{924}$	
	$0 \quad \frac{\sqrt{231}}{132} \quad 0 \quad 0 \quad -\frac{3\sqrt{154}}{308} \quad 0 \quad \frac{\sqrt{154}i}{77} \quad 0 \quad 0 \quad \frac{\sqrt{385}}{308} \quad 0 \quad 0 \quad -\frac{\sqrt{2310}}{924} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{231}}{132} \quad 0 \quad 0 \quad -\frac{3\sqrt{154}i}{308} \quad 0 \quad \frac{\sqrt{154}}{77} \quad 0 \quad 0 \quad -\frac{\sqrt{385}}{308} \quad 0 \quad 0 \quad \frac{\sqrt{2310}i}{924}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{231}}{132} \quad \frac{3\sqrt{154}i}{308} \quad 0 \quad \frac{\sqrt{154}}{77} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{385}}{308} \quad -\frac{\sqrt{2310}i}{924} \quad 0$	
	$0 \quad -\frac{\sqrt{77}}{88} \quad 0 \quad -\frac{\sqrt{77}i}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{616} \quad 0 \quad \frac{\sqrt{1155}i}{616} \quad \frac{\sqrt{770}}{308} \quad 0$	
	$-\frac{\sqrt{77}}{88} \quad 0 \quad \frac{\sqrt{77}i}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{616} \quad 0 \quad -\frac{\sqrt{1155}i}{616} \quad 0 \quad 0 \quad -\frac{\sqrt{770}}{308}$	
788	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 9

No.	multipole	matrix
$\mathbb{M}_6^{(1,-1;a)}(A, 2)$		$\begin{bmatrix} 0 & -\frac{\sqrt{33}}{264} & 0 & \frac{\sqrt{33}i}{264} & \frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & \frac{\sqrt{55}i}{88} & 0 & 0 \\ -\frac{\sqrt{33}}{264} & 0 & -\frac{\sqrt{33}i}{264} & 0 & 0 & -\frac{\sqrt{22}}{44} & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & -\frac{\sqrt{55}i}{88} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{33}}{132} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}}{44} & 0 & 0 & -\frac{\sqrt{55}}{44} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{132} \\ 0 & -\frac{\sqrt{33}}{132} & 0 & 0 & \frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{44} & 0 & 0 & 0 & -\frac{\sqrt{330}}{132} & 0 \\ 0 & 0 & -\frac{\sqrt{33}}{132} & 0 & 0 & \frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & -\frac{\sqrt{55}}{44} & 0 & 0 & 0 & \frac{\sqrt{330}i}{132} \\ 0 & 0 & 0 & \frac{\sqrt{33}}{132} & -\frac{\sqrt{22}i}{44} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{44} & -\frac{\sqrt{330}i}{132} & 0 & 0 \\ 0 & \frac{\sqrt{11}}{88} & 0 & \frac{\sqrt{11}i}{88} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{88} & 0 & \frac{\sqrt{165}i}{88} & \frac{\sqrt{110}}{44} & 0 & 0 \\ \frac{\sqrt{11}}{88} & 0 & -\frac{\sqrt{11}i}{88} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{88} & 0 & -\frac{\sqrt{165}i}{88} & 0 & 0 & -\frac{\sqrt{110}}{44} & 0 \end{bmatrix}$
		$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$
		$\begin{bmatrix} 0 & -\frac{\sqrt{66}i}{264} & 0 & -\frac{\sqrt{66}}{264} & 0 & 0 & \frac{\sqrt{11}}{22} & 0 & 0 & -\frac{\sqrt{110}i}{88} & 0 & \frac{\sqrt{110}}{88} & 0 & 0 \\ \frac{\sqrt{66}i}{264} & 0 & -\frac{\sqrt{66}}{264} & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}}{22} & \frac{\sqrt{110}i}{88} & 0 & \frac{\sqrt{110}}{88} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{66}}{264} & 0 & \frac{\sqrt{66}i}{264} & \frac{\sqrt{11}}{22} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{88} & 0 & \frac{\sqrt{110}i}{88} & 0 & 0 \\ -\frac{\sqrt{66}}{264} & 0 & -\frac{\sqrt{66}i}{264} & 0 & 0 & -\frac{\sqrt{11}}{22} & 0 & 0 & \frac{\sqrt{110}}{88} & 0 & -\frac{\sqrt{110}i}{88} & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{66}}{66} & 0 & 0 & -\frac{\sqrt{11}i}{22} & 0 & \frac{\sqrt{11}}{22} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{66}}{66} & \frac{\sqrt{11}i}{22} & 0 & \frac{\sqrt{11}}{22} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{66}}{66} & 0 & 0 & 0 & 0 & \frac{\sqrt{11}}{22} & 0 & 0 & \frac{\sqrt{11}i}{22} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{66}}{66} & 0 & 0 & \frac{\sqrt{11}}{22} & 0 & -\frac{\sqrt{11}i}{22} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{22}i}{44} & 0 & \frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{22}i}{44} & 0 & \frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
		$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$
789	symmetry	
790	symmetry	

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_6^{(1,-1;a)}(B, 1)$	$\begin{bmatrix} 0 & \frac{7\sqrt{5}}{120} & 0 & \frac{7\sqrt{5}i}{120} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & -\frac{\sqrt{3}i}{24} & -\frac{\sqrt{2}}{12} & 0 \\ \frac{7\sqrt{5}}{120} & 0 & -\frac{7\sqrt{5}i}{120} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & \frac{\sqrt{3}i}{24} & 0 & 0 & \frac{\sqrt{2}}{12} \\ 0 & \frac{\sqrt{5}i}{15} & 0 & -\frac{\sqrt{5}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{5}i}{15} & 0 & -\frac{\sqrt{5}}{15} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{5}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & -\frac{\sqrt{3}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{12} \\ 0 & -\frac{\sqrt{5}}{60} & 0 & 0 & \frac{\sqrt{30}}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & -\frac{\sqrt{2}}{12} & 0 \\ 0 & 0 & \frac{\sqrt{5}}{60} & 0 & 0 & -\frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{12} & 0 & 0 & -\frac{\sqrt{2}i}{12} \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{60} & \frac{\sqrt{30}i}{60} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{12} & \frac{\sqrt{2}i}{12} & 0 & 0 \\ 0 & \frac{\sqrt{15}}{120} & 0 & -\frac{\sqrt{15}i}{120} & -\frac{\sqrt{10}}{20} & 0 & 0 & 0 & 0 & -\frac{1}{8} & 0 & -\frac{i}{8} & 0 & 0 \\ \frac{\sqrt{15}}{120} & 0 & \frac{\sqrt{15}i}{120} & 0 & 0 & \frac{\sqrt{10}}{20} & 0 & 0 & -\frac{1}{8} & 0 & \frac{i}{8} & 0 & 0 & 0 \end{bmatrix}$
791	symmetry	$\frac{\sqrt{42}(x-y)(x+y)(x^4 - 9x^2y^2 - 5x^2z^2 + y^4 - 5y^2z^2 + 5z^4)}{8}$
	$\mathbb{M}_6^{(1,-1;a)}(B, 2)$	$\begin{bmatrix} 0 & \frac{17\sqrt{11}}{264} & 0 & \frac{17\sqrt{11}i}{264} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{264} & 0 & \frac{\sqrt{165}i}{264} & \frac{\sqrt{110}}{132} & 0 \\ \frac{17\sqrt{11}}{264} & 0 & -\frac{17\sqrt{11}i}{264} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{264} & 0 & -\frac{\sqrt{165}i}{264} & 0 & 0 & -\frac{\sqrt{110}}{132} \\ 0 & \frac{2\sqrt{11}i}{33} & 0 & -\frac{2\sqrt{11}}{33} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{2\sqrt{11}i}{33} & 0 & -\frac{2\sqrt{11}}{33} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{11}}{132} & 0 & 0 & 0 & 0 & -\frac{\sqrt{66}}{132} & 0 & 0 & \frac{\sqrt{165}}{132} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{132} \\ 0 & \frac{\sqrt{11}}{132} & 0 & 0 & -\frac{\sqrt{66}}{132} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & \frac{\sqrt{110}}{132} & 0 \\ 0 & 0 & -\frac{\sqrt{11}}{132} & 0 & 0 & \frac{\sqrt{66}i}{132} & 0 & 0 & 0 & 0 & -\frac{\sqrt{165}}{132} & 0 & 0 & 0 & \frac{\sqrt{110}i}{132} \\ 0 & 0 & 0 & \frac{\sqrt{11}}{132} & -\frac{\sqrt{66}i}{132} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{165}}{132} & 0 & -\frac{\sqrt{110}i}{132} & 0 & 0 \\ 0 & -\frac{\sqrt{33}}{264} & 0 & \frac{\sqrt{33}i}{264} & \frac{\sqrt{22}}{44} & 0 & 0 & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & \frac{\sqrt{55}i}{88} & 0 & 0 \\ -\frac{\sqrt{33}}{264} & 0 & -\frac{\sqrt{33}i}{264} & 0 & 0 & -\frac{\sqrt{22}}{44} & 0 & 0 & \frac{\sqrt{55}}{88} & 0 & -\frac{\sqrt{55}i}{88} & 0 & 0 & 0 \end{bmatrix}$
792	symmetry	$\frac{\sqrt{462}xy(x^2 - 3y^2)(3x^2 - y^2)}{16}$

continued ...

Table 9

No.	multipole	matrix
	$\mathbb{M}_6^{(1,-1;a)}(B, 3)$	$\begin{bmatrix} 0 & -\frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{4} & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
793	symmetry	$\frac{\sqrt{210}xy(x^4+2x^2y^2-16x^2z^2+y^4-16y^2z^2+16z^4)}{16}$ $\begin{bmatrix} 0 & -\frac{\sqrt{55}i}{660} & 0 & \frac{\sqrt{55}}{660} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{55}i}{660} & 0 & \frac{\sqrt{55}}{660} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{55}}{660} & 0 & -\frac{\sqrt{55}i}{660} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}}{66} & 0 & \frac{\sqrt{33}i}{66} & \frac{\sqrt{22}}{33} \\ -\frac{\sqrt{55}}{660} & 0 & \frac{\sqrt{55}i}{660} & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{33}}{66} & 0 & -\frac{\sqrt{33}i}{66} & 0 & 0 & -\frac{\sqrt{22}}{33} \\ 0 & 0 & -\frac{\sqrt{55}}{165} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}}{165} & 0 & 0 & \frac{\sqrt{33}}{33} & 0 & 0 & -\frac{\sqrt{22}i}{33} \\ 0 & 0 & 0 & \frac{\sqrt{55}}{165} & 0 & 0 & -\frac{\sqrt{330}}{165} & 0 & 0 & 0 & -\frac{\sqrt{33}}{33} & \frac{\sqrt{22}i}{33} & 0 \\ \frac{\sqrt{55}}{165} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{330}i}{165} & \frac{\sqrt{33}}{33} & 0 & 0 & 0 & 0 & \frac{\sqrt{22}}{33} \\ 0 & -\frac{\sqrt{55}}{165} & 0 & 0 & 0 & 0 & -\frac{\sqrt{330}i}{165} & 0 & 0 & -\frac{\sqrt{33}}{33} & 0 & 0 & \frac{\sqrt{22}}{33} & 0 \\ 0 & -\frac{\sqrt{165}i}{330} & 0 & -\frac{\sqrt{165}}{330} & 0 & 0 & \frac{\sqrt{110}}{55} & 0 & 0 & -\frac{\sqrt{11}i}{22} & 0 & \frac{\sqrt{11}}{22} & 0 & 0 \\ \frac{\sqrt{165}i}{330} & 0 & -\frac{\sqrt{165}}{330} & 0 & 0 & 0 & -\frac{\sqrt{110}}{55} & \frac{\sqrt{11}i}{22} & 0 & \frac{\sqrt{11}}{22} & 0 & 0 & 0 & 0 \end{bmatrix}$
794	symmetry	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{6,1}^{(1,-1;a)}(E, 1)$	0 0 $-\frac{5\sqrt{66}}{528}$ 0 0 $\frac{3\sqrt{11}i}{88}$ 0 $-\frac{\sqrt{11}}{44}$ 0 0 $-\frac{\sqrt{110}}{176}$ 0 0 $\frac{\sqrt{165}i}{264}$	
	0 0 0 $\frac{5\sqrt{66}}{528}$ $-\frac{3\sqrt{11}i}{88}$ 0 $-\frac{\sqrt{11}}{44}$ 0 0 0 0 $\frac{\sqrt{110}}{176}$ $-\frac{\sqrt{165}i}{264}$ 0	
	$-\frac{\sqrt{66}}{88}$ 0 0 0 0 $-\frac{\sqrt{11}}{44}$ 0 $-\frac{\sqrt{11}i}{22}$ $-\frac{\sqrt{110}}{88}$ 0 0 0 0 $-\frac{\sqrt{165}}{132}$	
	0 $\frac{\sqrt{66}}{88}$ 0 0 $-\frac{\sqrt{11}}{44}$ 0 $\frac{\sqrt{11}i}{22}$ 0 0 $\frac{\sqrt{110}}{88}$ 0 0 $-\frac{\sqrt{165}}{132}$ 0	
	0 $\frac{\sqrt{66}i}{88}$ 0 $-\frac{\sqrt{66}}{264}$ 0 0 $-\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0	
	$-\frac{\sqrt{66}i}{88}$ 0 $-\frac{\sqrt{66}}{264}$ 0 0 0 $\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0 0	
	0 $-\frac{\sqrt{66}}{88}$ 0 $-\frac{\sqrt{66}i}{66}$ $-\frac{\sqrt{11}}{44}$ 0 0 0 0 $-\frac{\sqrt{110}}{88}$ 0 0 $\frac{\sqrt{165}}{132}$ 0	
	$-\frac{\sqrt{66}}{88}$ 0 $\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{11}}{44}$ 0 0 $-\frac{\sqrt{110}}{88}$ 0 0 0 0 $-\frac{\sqrt{165}}{132}$	
	0 0 $-\frac{3\sqrt{22}}{176}$ 0 0 $\frac{\sqrt{33}i}{88}$ 0 $-\frac{\sqrt{33}}{44}$ 0 0 $\frac{\sqrt{330}}{176}$ 0 0 $-\frac{\sqrt{55}i}{88}$	
	0 0 0 $\frac{3\sqrt{22}}{176}$ $-\frac{\sqrt{33}i}{88}$ 0 $-\frac{\sqrt{33}}{44}$ 0 0 0 0 $-\frac{\sqrt{330}}{176}$ $\frac{\sqrt{55}i}{88}$ 0	
795	symmetry	$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$
$\mathbb{M}_{6,2}^{(1,-1;a)}(E, 1)$	$\frac{5\sqrt{66}}{528}$ 0 0 0 0 $\frac{3\sqrt{11}}{88}$ 0 $\frac{\sqrt{11}i}{44}$ $-\frac{\sqrt{110}}{176}$ 0 0 0 0 $-\frac{\sqrt{165}}{264}$	
	0 $-\frac{5\sqrt{66}}{528}$ 0 0 $\frac{3\sqrt{11}}{88}$ 0 $-\frac{\sqrt{11}i}{44}$ 0 0 $\frac{\sqrt{110}}{176}$ 0 0 0 $-\frac{\sqrt{165}}{264}$ 0	
	0 0 $-\frac{\sqrt{66}}{88}$ 0 0 $\frac{\sqrt{11}i}{44}$ 0 $-\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{110}}{88}$ 0 0 $-\frac{\sqrt{165}i}{132}$	
	0 0 0 $\frac{\sqrt{66}}{88}$ $-\frac{\sqrt{11}i}{44}$ 0 $-\frac{\sqrt{11}}{22}$ 0 0 0 0 $-\frac{\sqrt{110}}{88}$ $\frac{\sqrt{165}i}{132}$ 0	
	0 $\frac{\sqrt{66}}{66}$ 0 $\frac{\sqrt{66}i}{88}$ $-\frac{\sqrt{11}}{44}$ 0 0 0 0 0 0 $-\frac{\sqrt{110}i}{88}$ $-\frac{\sqrt{165}}{132}$ 0	
	$\frac{\sqrt{66}}{66}$ 0 $-\frac{\sqrt{66}i}{88}$ 0 0 $\frac{\sqrt{11}}{44}$ 0 0 0 0 $\frac{\sqrt{110}i}{88}$ 0 0 $\frac{\sqrt{165}}{132}$	
	0 $\frac{\sqrt{66}i}{264}$ 0 $-\frac{\sqrt{66}}{88}$ 0 0 $\frac{\sqrt{11}}{22}$ 0 0 $-\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0	
	$-\frac{\sqrt{66}i}{264}$ 0 $-\frac{\sqrt{66}}{88}$ 0 0 0 $-\frac{\sqrt{11}}{22}$ $-\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 0	
	$-\frac{3\sqrt{22}}{176}$ 0 0 0 0 $-\frac{\sqrt{33}}{88}$ 0 $-\frac{\sqrt{33}i}{44}$ $-\frac{\sqrt{330}}{176}$ 0 0 0 0 $-\frac{\sqrt{55}}{88}$	
	0 $\frac{3\sqrt{22}}{176}$ 0 0 $-\frac{\sqrt{33}}{88}$ 0 $\frac{\sqrt{33}i}{44}$ 0 0 $\frac{\sqrt{330}}{176}$ 0 0 0 $-\frac{\sqrt{55}}{88}$ 0	
796	symmetry	$\frac{\sqrt{462}xz(x^2-3z^2)(3x^2-z^2)}{16}$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{6,1}^{(1,-1;a)}(E, 3)$	$\frac{17\sqrt{55}}{1056} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{37\sqrt{330}}{5280} \quad 0 \quad \frac{\sqrt{330}i}{110} \quad \frac{\sqrt{33}}{96} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{22}}{96}$	
	$0 \quad -\frac{17\sqrt{55}}{1056} \quad 0 \quad 0 \quad \frac{37\sqrt{330}}{5280} \quad 0 \quad -\frac{\sqrt{330}i}{110} \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{96} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{22}}{96} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{55}}{66} \quad 0 \quad 0 \quad \frac{\sqrt{330}i}{110} \quad 0 \quad -\frac{\sqrt{330}}{165} \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{22}i}{66}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{55}}{66} \quad -\frac{\sqrt{330}i}{110} \quad 0 \quad -\frac{\sqrt{330}}{165} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{66} \quad -\frac{\sqrt{22}i}{66} \quad 0$	
	$0 \quad \frac{29\sqrt{55}}{2640} \quad 0 \quad \frac{\sqrt{55}i}{66} \quad \frac{\sqrt{330}}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{176} \quad 0 \quad \frac{\sqrt{33}i}{66} \quad \frac{5\sqrt{22}}{528} \quad 0$	
	$\frac{29\sqrt{55}}{2640} \quad 0 \quad -\frac{\sqrt{55}i}{66} \quad 0 \quad 0 \quad -\frac{\sqrt{330}}{240} \quad 0 \quad 0 \quad \frac{\sqrt{33}}{176} \quad 0 \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad 0 \quad -\frac{5\sqrt{22}}{528}$	
	$0 \quad \frac{7\sqrt{55}i}{330} \quad 0 \quad -\frac{\sqrt{55}}{66} \quad 0 \quad 0 \quad -\frac{\sqrt{330}}{165} \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{66} \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0$	
	$-\frac{7\sqrt{55}i}{330} \quad 0 \quad -\frac{\sqrt{55}}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}}{165} \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0 \quad 0$	
	$\frac{9\sqrt{165}}{1760} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}}{160} \quad 0 \quad \frac{\sqrt{110}i}{110} \quad \frac{5\sqrt{11}}{352} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{5\sqrt{66}}{1056}$	
	$0 \quad -\frac{9\sqrt{165}}{1760} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}}{160} \quad 0 \quad -\frac{\sqrt{110}i}{110} \quad 0 \quad 0 \quad -\frac{5\sqrt{11}}{352} \quad 0 \quad 0 \quad \frac{5\sqrt{66}}{1056} \quad 0$	
799	symmetry	$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$
$\mathbb{M}_{6,2}^{(1,-1;a)}(E, 3)$	$0 \quad 0 \quad \frac{17\sqrt{55}}{1056} \quad 0 \quad 0 \quad -\frac{37\sqrt{330}i}{5280} \quad 0 \quad \frac{\sqrt{330}}{110} \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{96} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{22}i}{96}$	
	$0 \quad 0 \quad 0 \quad -\frac{17\sqrt{55}}{1056} \quad \frac{37\sqrt{330}i}{5280} \quad 0 \quad \frac{\sqrt{330}}{110} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{96} \quad -\frac{\sqrt{22}i}{96} \quad 0$	
	$\frac{\sqrt{55}}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}}{110} \quad 0 \quad \frac{\sqrt{330}i}{165} \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{22}}{66}$	
	$0 \quad -\frac{\sqrt{55}}{66} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}}{110} \quad 0 \quad -\frac{\sqrt{330}i}{165} \quad 0 \quad 0 \quad \frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad -\frac{\sqrt{22}}{66} \quad 0$	
	$0 \quad -\frac{\sqrt{55}i}{66} \quad 0 \quad \frac{7\sqrt{55}}{330} \quad 0 \quad 0 \quad -\frac{\sqrt{330}}{165} \quad 0 \quad 0 \quad \frac{\sqrt{33}i}{66} \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{55}i}{66} \quad 0 \quad \frac{7\sqrt{55}}{330} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{330}}{165} \quad -\frac{\sqrt{33}i}{66} \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{55}}{66} \quad 0 \quad \frac{29\sqrt{55}i}{2640} \quad -\frac{\sqrt{330}}{240} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad -\frac{\sqrt{33}i}{176} \quad \frac{5\sqrt{22}}{528} \quad 0$	
	$\frac{\sqrt{55}}{66} \quad 0 \quad -\frac{29\sqrt{55}i}{2640} \quad 0 \quad 0 \quad \frac{\sqrt{330}}{240} \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{66} \quad 0 \quad \frac{\sqrt{33}i}{176} \quad 0 \quad 0 \quad -\frac{5\sqrt{22}}{528}$	
	$0 \quad 0 \quad -\frac{9\sqrt{165}}{1760} \quad 0 \quad 0 \quad \frac{\sqrt{110}i}{160} \quad 0 \quad -\frac{\sqrt{110}}{110} \quad 0 \quad 0 \quad \frac{5\sqrt{11}}{352} \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{66}i}{1056}$	
	$0 \quad 0 \quad 0 \quad \frac{9\sqrt{165}}{1760} \quad -\frac{\sqrt{110}i}{160} \quad 0 \quad -\frac{\sqrt{110}}{110} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{11}}{352} \quad \frac{5\sqrt{66}i}{1056} \quad 0$	
800	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 9

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

continued ...

Table 9

No.	multipole	matrix													
$\mathbb{M}_2^{(1,0;a)}(B, 2)$	0	$\frac{\sqrt{210}i}{168}$	0	$-\frac{\sqrt{210}}{168}$	0	0	0	0	$\frac{\sqrt{14}i}{56}$	0	$\frac{\sqrt{14}}{56}$	0	0	0	0
	$-\frac{\sqrt{210}i}{168}$	0	$-\frac{\sqrt{210}}{168}$	0	0	0	0	$-\frac{\sqrt{14}i}{56}$	0	$\frac{\sqrt{14}}{56}$	0	0	0	0	0
	0	$\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	0	0	$-\frac{\sqrt{14}}{56}$	0	$\frac{\sqrt{14}i}{56}$	$-\frac{\sqrt{21}}{42}$	0	0	0
	$\frac{\sqrt{210}}{168}$	0	$-\frac{\sqrt{210}i}{168}$	0	0	0	0	$-\frac{\sqrt{14}}{56}$	0	$-\frac{\sqrt{14}i}{56}$	0	0	0	$\frac{\sqrt{21}}{42}$	0
	0	0	$-\frac{\sqrt{210}}{84}$	0	0	0	0	0	0	$\frac{\sqrt{14}}{28}$	0	0	0	$\frac{\sqrt{21}i}{42}$	0
	0	0	0	$\frac{\sqrt{210}}{84}$	0	0	0	0	0	0	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{21}i}{42}$	0	0	0
	$\frac{\sqrt{210}}{84}$	0	0	0	0	0	0	0	$\frac{\sqrt{14}}{28}$	0	0	0	0	$-\frac{\sqrt{21}}{42}$	0
	0	$-\frac{\sqrt{210}}{84}$	0	0	0	0	0	0	$-\frac{\sqrt{14}}{28}$	0	0	0	$-\frac{\sqrt{21}}{42}$	0	0
	0	0	0	0	0	0	$-\frac{\sqrt{105}}{42}$	0	0	$-\frac{\sqrt{42}i}{84}$	0	$\frac{\sqrt{42}}{84}$	0	0	0
	0	0	0	0	0	0	$\frac{\sqrt{105}}{42}$	$\frac{\sqrt{42}i}{84}$	0	$\frac{\sqrt{42}}{84}$	0	0	0	0	0
803	symmetry	$\sqrt{3}xz$													
$\mathbb{M}_{2,1}^{(1,0;a)}(E)$	$\frac{\sqrt{210}}{168}$	0	0	0	0	0	0	$-\frac{\sqrt{35}i}{28}$	$\frac{\sqrt{14}}{56}$	0	0	0	0	$\frac{\sqrt{21}}{84}$	0
	0	$-\frac{\sqrt{210}}{168}$	0	0	0	0	$\frac{\sqrt{35}i}{28}$	0	0	$-\frac{\sqrt{14}}{56}$	0	0	$\frac{\sqrt{21}}{84}$	0	0
	0	0	$\frac{\sqrt{210}}{168}$	0	0	$\frac{\sqrt{35}i}{28}$	0	0	0	$\frac{\sqrt{14}}{56}$	0	0	$-\frac{\sqrt{21}i}{84}$	0	0
	0	0	0	$-\frac{\sqrt{210}}{168}$	$-\frac{\sqrt{35}i}{28}$	0	0	0	0	0	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{21}i}{84}$	0	0	0
	0	$\frac{\sqrt{210}}{168}$	0	$-\frac{\sqrt{210}i}{168}$	0	0	0	0	0	$-\frac{\sqrt{14}}{56}$	0	$-\frac{\sqrt{14}i}{56}$	$\frac{\sqrt{21}}{42}$	0	0
	$\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	0	0	0	$-\frac{\sqrt{14}}{56}$	0	$\frac{\sqrt{14}i}{56}$	0	0	$-\frac{\sqrt{21}}{42}$	0
	0	$\frac{\sqrt{210}i}{168}$	0	$\frac{\sqrt{210}}{168}$	0	0	0	0	0	$\frac{3\sqrt{14}i}{56}$	0	$\frac{\sqrt{14}}{56}$	0	0	0
	$-\frac{\sqrt{210}i}{168}$	0	$\frac{\sqrt{210}}{168}$	0	0	0	0	0	$-\frac{3\sqrt{14}i}{56}$	0	$\frac{\sqrt{14}}{56}$	0	0	0	0
	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	$-\frac{\sqrt{105}i}{84}$	$-\frac{\sqrt{42}}{84}$	0	0	0	0	0	0	0
	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	0	0	$\frac{\sqrt{42}}{84}$	0	0	0	0	0
804	symmetry	$\sqrt{3}yz$													

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{2,2}^{(1,0;a)}(E)$	0 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 $\frac{\sqrt{21}}{84}$	
	0 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0 0 $\frac{\sqrt{14}}{56}$ $-\frac{\sqrt{21}i}{84}$ 0	
	$-\frac{\sqrt{210}}{168}$ 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 $\frac{\sqrt{14}}{56}$ 0 0 0 0 $\frac{\sqrt{21}}{84}$	
	0 $\frac{\sqrt{210}}{168}$ 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 $-\frac{\sqrt{14}}{56}$ 0 0 0 $\frac{\sqrt{21}}{84}$ 0	
	0 $\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{14}i}{56}$ 0 $-\frac{3\sqrt{14}}{56}$ 0 0 0	
	$-\frac{\sqrt{210}i}{168}$ 0 $\frac{\sqrt{210}}{168}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{56}$ 0 $-\frac{3\sqrt{14}}{56}$ 0 0 0	
	0 $-\frac{\sqrt{210}}{168}$ 0 $\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 $\frac{\sqrt{14}i}{56}$ $\frac{\sqrt{21}}{42}$ 0	
	$-\frac{\sqrt{210}}{168}$ 0 $-\frac{\sqrt{210}i}{168}$ 0 0 0 0 0 $\frac{\sqrt{14}}{56}$ 0 $-\frac{\sqrt{14}i}{56}$ 0 0 0 $-\frac{\sqrt{21}}{42}$	
	0 0 0 0 0 $\frac{\sqrt{105}i}{84}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 0 $-\frac{\sqrt{42}}{84}$ 0 0 0	
	0 0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 $\frac{\sqrt{42}}{84}$ 0 0 0	
805	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$
$\mathbb{M}_4^{(1,0;a)}(A, 1)$	0 $\frac{\sqrt{10}}{80}$ 0 $-\frac{\sqrt{10}i}{80}$ $\frac{\sqrt{15}}{30}$ 0 0 0 0 $\frac{\sqrt{6}}{48}$ 0 $\frac{\sqrt{6}i}{48}$ 0 0	
	$\frac{\sqrt{10}}{80}$ 0 $\frac{\sqrt{10}i}{80}$ 0 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 $\frac{\sqrt{6}}{48}$ 0 $-\frac{\sqrt{6}i}{48}$ 0 0 0	
	0 $\frac{\sqrt{10}i}{80}$ 0 $\frac{\sqrt{10}}{80}$ 0 0 $-\frac{\sqrt{15}}{30}$ 0 0 $-\frac{\sqrt{6}i}{16}$ 0 $\frac{\sqrt{6}}{16}$ 0 0 0	
	$-\frac{\sqrt{10}i}{80}$ 0 $\frac{\sqrt{10}}{80}$ 0 0 0 0 $\frac{\sqrt{15}}{30}$ $\frac{\sqrt{6}i}{16}$ 0 $\frac{\sqrt{6}}{16}$ 0 0 0	
	$-\frac{\sqrt{10}}{20}$ 0 0 0 0 $-\frac{\sqrt{15}}{40}$ 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 0 $-\frac{1}{8}$	
	0 $\frac{\sqrt{10}}{20}$ 0 0 $-\frac{\sqrt{15}}{40}$ 0 $-\frac{\sqrt{15}i}{30}$ 0 0 0 0 0 0 $-\frac{1}{8}$ 0	
	0 0 $\frac{\sqrt{10}}{20}$ 0 0 $-\frac{\sqrt{15}i}{40}$ 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 0 0 0 $\frac{i}{8}$	
	0 0 0 $-\frac{\sqrt{10}}{20}$ $\frac{\sqrt{15}i}{40}$ 0 $-\frac{\sqrt{15}}{30}$ 0 0 0 0 0 0 $-\frac{i}{8}$ 0	
	0 $\frac{\sqrt{30}}{80}$ 0 $\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 $\frac{\sqrt{2}}{16}$ 0 $-\frac{\sqrt{2}i}{16}$ 0 0 0	
	$\frac{\sqrt{30}}{80}$ 0 $-\frac{\sqrt{30}i}{80}$ 0 0 0 0 0 $\frac{\sqrt{2}}{16}$ 0 $\frac{\sqrt{2}i}{16}$ 0 0 0	
806	symmetry	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,0;a)}(A, 2)$	$0 \quad \frac{\sqrt{14}}{112} \quad 0 \quad -\frac{\sqrt{14}i}{112} \quad -\frac{\sqrt{21}}{30} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{17\sqrt{210}}{1680} \quad 0 \quad \frac{17\sqrt{210}i}{1680} \quad 0 \quad 0$	
	$\frac{\sqrt{14}}{112} \quad 0 \quad \frac{\sqrt{14}i}{112} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{30} \quad 0 \quad 0 \quad \frac{17\sqrt{210}}{1680} \quad 0 \quad -\frac{17\sqrt{210}i}{1680} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{14}i}{112} \quad 0 \quad \frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad \frac{\sqrt{21}}{30} \quad 0 \quad 0 \quad -\frac{\sqrt{210}i}{560} \quad 0 \quad \frac{\sqrt{210}}{560} \quad 0 \quad 0$	
	$-\frac{\sqrt{14}i}{112} \quad 0 \quad \frac{\sqrt{14}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{30} \quad \frac{\sqrt{210}i}{560} \quad 0 \quad \frac{\sqrt{210}}{560} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{14}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{40} \quad 0 \quad \frac{\sqrt{21}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{56}$	
	$0 \quad -\frac{\sqrt{14}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{40} \quad 0 \quad -\frac{\sqrt{21}i}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}}{56} \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{14}}{20} \quad 0 \quad 0 \quad -\frac{\sqrt{21}i}{40} \quad 0 \quad -\frac{\sqrt{21}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{35}i}{56}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{14}}{20} \quad \frac{\sqrt{21}i}{40} \quad 0 \quad -\frac{\sqrt{21}}{60} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{35}i}{56} \quad 0$	
	$0 \quad -\frac{\sqrt{42}}{80} \quad 0 \quad -\frac{\sqrt{42}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{112} \quad 0 \quad -\frac{\sqrt{70}i}{112} \quad 0 \quad 0$	
	$-\frac{\sqrt{42}}{80} \quad 0 \quad \frac{\sqrt{42}i}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{112} \quad 0 \quad \frac{\sqrt{70}i}{112} \quad 0 \quad 0 \quad 0$	
807	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$
$\mathbb{M}_4^{(1,0;a)}(A, 3)$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{5} \quad 0 \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{1}{5} \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{5} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad -\frac{\sqrt{10}i}{40} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{1}{5} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{10}}{40} \quad 0 \quad \frac{\sqrt{10}i}{40} \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{6}}{10} \quad 0 \quad 0 \quad -\frac{i}{40} \quad 0 \quad \frac{1}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{6}}{10} \quad \frac{i}{40} \quad 0 \quad \frac{1}{40} \quad 0 \quad 0$	
	$-\frac{\sqrt{6}}{10} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{1}{40} \quad 0 \quad \frac{i}{40} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{6}}{10} \quad 0 \quad 0 \quad \frac{1}{40} \quad 0 \quad -\frac{i}{40} \quad 0 \quad 0$	
	$0 \quad -\frac{3\sqrt{2}i}{40} \quad 0 \quad \frac{3\sqrt{2}}{40} \quad 0 \quad 0$	
	$\frac{3\sqrt{2}i}{40} \quad 0 \quad \frac{3\sqrt{2}}{40} \quad 0 \quad 0$	
808	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,0;a)}(B, 1)$	$0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad -\frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{560} \quad 0 \quad -\frac{\sqrt{70}i}{560} \quad -\frac{\sqrt{105}}{70} \quad 0$	
	$-\frac{3\sqrt{42}}{560} \quad 0 \quad \frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{560} \quad 0 \quad \frac{\sqrt{70}i}{560} \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70}$	
	$0 \quad \frac{3\sqrt{42}i}{560} \quad 0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{70}i}{560} \quad 0 \quad -\frac{13\sqrt{70}}{560} \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{42}i}{560} \quad 0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{70}i}{560} \quad 0 \quad -\frac{13\sqrt{70}}{560} \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{42}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{40} \quad 0 \quad \frac{\sqrt{7}i}{20} \quad -\frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{105}}{280}$	
	$0 \quad \frac{3\sqrt{42}}{280} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{40} \quad 0 \quad -\frac{\sqrt{7}i}{20} \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{105}}{280} \quad 0$	
	$0 \quad 0 \quad -\frac{3\sqrt{42}}{280} \quad 0 \quad 0 \quad -\frac{\sqrt{7}i}{40} \quad 0 \quad \frac{\sqrt{7}}{20} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{105}i}{280}$	
	$0 \quad 0 \quad 0 \quad \frac{3\sqrt{42}}{280} \quad \frac{\sqrt{7}i}{40} \quad 0 \quad \frac{\sqrt{7}}{20} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{280} \quad -\frac{3\sqrt{105}i}{280} \quad 0$	
	$0 \quad -\frac{3\sqrt{14}}{80} \quad 0 \quad \frac{3\sqrt{14}i}{80} \quad \frac{\sqrt{21}}{35} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{210}}{560} \quad 0 \quad -\frac{3\sqrt{210}i}{560} \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{14}}{80} \quad 0 \quad -\frac{3\sqrt{14}i}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{35} \quad 0 \quad 0 \quad -\frac{3\sqrt{210}}{560} \quad 0 \quad \frac{3\sqrt{210}i}{560} \quad 0 \quad 0 \quad 0$	
809	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$
$\mathbb{M}_4^{(1,0;a)}(B, 2)$	$0 \quad -\frac{3\sqrt{42}i}{560} \quad 0 \quad \frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{13\sqrt{70}i}{560} \quad 0 \quad -\frac{13\sqrt{70}}{560} \quad 0 \quad 0$	
	$\frac{3\sqrt{42}i}{560} \quad 0 \quad \frac{3\sqrt{42}}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{13\sqrt{70}i}{560} \quad 0 \quad -\frac{13\sqrt{70}}{560} \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{3\sqrt{42}}{560} \quad 0 \quad -\frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{560} \quad 0 \quad \frac{\sqrt{70}i}{560} \quad \frac{\sqrt{105}}{70} \quad 0$	
	$-\frac{3\sqrt{42}}{560} \quad 0 \quad \frac{3\sqrt{42}i}{560} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{560} \quad 0 \quad -\frac{\sqrt{70}i}{560} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70}$	
	$0 \quad 0 \quad \frac{3\sqrt{42}}{280} \quad 0 \quad 0 \quad \frac{\sqrt{7}i}{20} \quad 0 \quad -\frac{\sqrt{7}}{40} \quad 0 \quad 0 \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad \frac{3\sqrt{105}i}{280}$	
	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{42}}{280} \quad -\frac{\sqrt{7}i}{20} \quad 0 \quad -\frac{\sqrt{7}}{40} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{280} \quad -\frac{3\sqrt{105}i}{280} \quad 0$	
	$-\frac{3\sqrt{42}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{7}}{20} \quad 0 \quad \frac{\sqrt{7}i}{40} \quad \frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{105}}{280}$	
	$0 \quad \frac{3\sqrt{42}}{280} \quad 0 \quad 0 \quad \frac{\sqrt{7}}{20} \quad 0 \quad -\frac{\sqrt{7}i}{40} \quad 0 \quad 0 \quad -\frac{\sqrt{70}}{280} \quad 0 \quad 0 \quad -\frac{3\sqrt{105}}{280} \quad 0$	
	$0 \quad \frac{3\sqrt{14}i}{80} \quad 0 \quad \frac{3\sqrt{14}}{80} \quad 0 \quad 0 \quad -\frac{\sqrt{21}}{35} \quad 0 \quad 0 \quad -\frac{3\sqrt{210}i}{560} \quad 0 \quad \frac{3\sqrt{210}}{560} \quad 0 \quad 0 \quad 0$	
	$-\frac{3\sqrt{14}i}{80} \quad 0 \quad \frac{3\sqrt{14}}{80} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{21}}{35} \quad \frac{3\sqrt{210}i}{560} \quad 0 \quad \frac{3\sqrt{210}}{560} \quad 0 \quad 0 \quad 0 \quad 0$	
810	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{4,1}^{(1,0;a)}(E, 1)$	$-\frac{\sqrt{6}}{160}$	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{6}}{160} & 0 & 0 & \frac{i}{40} & 0 & -\frac{1}{10} & 0 & 0 & -\frac{\sqrt{10}}{32} & 0 & 0 & \frac{\sqrt{15}i}{40} \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{160} & -\frac{i}{40} & 0 & -\frac{1}{10} & 0 & 0 & 0 & \frac{\sqrt{10}}{32} & -\frac{\sqrt{15}i}{40} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3}{20} & 0 & -\frac{i}{40} & -\frac{\sqrt{10}}{160} & 0 & 0 & 0 & 0 & \frac{\sqrt{15}}{20} \\ 0 & \frac{\sqrt{6}}{160} & 0 & 0 & \frac{3}{20} & 0 & \frac{i}{40} & 0 & 0 & \frac{\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}}{20} & 0 \\ 0 & \frac{\sqrt{6}i}{160} & 0 & \frac{\sqrt{6}}{40} & 0 & 0 & -\frac{1}{40} & 0 & 0 & \frac{\sqrt{10}i}{160} & 0 & \frac{3\sqrt{10}}{40} & 0 & 0 \\ -\frac{\sqrt{6}i}{160} & 0 & \frac{\sqrt{6}}{40} & 0 & 0 & 0 & 0 & \frac{1}{40} & -\frac{\sqrt{10}i}{160} & 0 & \frac{3\sqrt{10}}{40} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{20} & 0 & \frac{\sqrt{6}i}{32} & \frac{1}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & -\frac{\sqrt{10}i}{160} & -\frac{\sqrt{15}}{80} & 0 \\ -\frac{\sqrt{6}}{20} & 0 & -\frac{\sqrt{6}i}{32} & 0 & 0 & -\frac{1}{16} & 0 & 0 & -\frac{\sqrt{10}}{20} & 0 & \frac{\sqrt{10}i}{160} & 0 & 0 & \frac{\sqrt{15}}{80} \\ 0 & 0 & \frac{9\sqrt{2}}{160} & 0 & 0 & -\frac{\sqrt{3}i}{20} & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & \frac{\sqrt{30}}{160} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{9\sqrt{2}}{160} & \frac{\sqrt{3}i}{20} & 0 & -\frac{\sqrt{3}}{10} & 0 & 0 & 0 & -\frac{\sqrt{30}}{160} & 0 & 0 & 0 \end{bmatrix}$
	811	symmetry
		$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
		$\begin{bmatrix} -\frac{\sqrt{6}}{160} & 0 & 0 & 0 & 0 & \frac{1}{40} & 0 & \frac{i}{10} & -\frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & -\frac{\sqrt{15}}{40} \\ 0 & \frac{\sqrt{6}}{160} & 0 & 0 & \frac{1}{40} & 0 & -\frac{i}{10} & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & -\frac{\sqrt{15}}{40} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{160} & 0 & 0 & -\frac{3i}{20} & 0 & -\frac{1}{40} & 0 & 0 & \frac{\sqrt{10}}{160} & 0 & 0 & \frac{\sqrt{15}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{160} & \frac{3i}{20} & 0 & -\frac{1}{40} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{160} & -\frac{\sqrt{15}i}{20} & 0 \\ 0 & -\frac{\sqrt{6}}{32} & 0 & \frac{\sqrt{6}i}{20} & \frac{1}{16} & 0 & 0 & 0 & 0 & -\frac{\sqrt{10}}{160} & 0 & -\frac{\sqrt{10}i}{20} & \frac{\sqrt{15}}{80} & 0 \\ -\frac{\sqrt{6}}{32} & 0 & -\frac{\sqrt{6}i}{20} & 0 & 0 & -\frac{1}{16} & 0 & 0 & -\frac{\sqrt{10}}{160} & 0 & \frac{\sqrt{10}i}{20} & 0 & 0 & -\frac{\sqrt{15}}{80} \\ 0 & -\frac{\sqrt{6}i}{40} & 0 & -\frac{\sqrt{6}}{160} & 0 & 0 & \frac{1}{40} & 0 & 0 & \frac{3\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{160} & 0 & 0 \\ \frac{\sqrt{6}i}{40} & 0 & -\frac{\sqrt{6}}{160} & 0 & 0 & 0 & 0 & -\frac{1}{40} & -\frac{3\sqrt{10}i}{40} & 0 & \frac{\sqrt{10}}{160} & 0 & 0 & 0 \\ \frac{9\sqrt{2}}{160} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{20} & 0 & -\frac{\sqrt{3}i}{10} & -\frac{\sqrt{30}}{160} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{9\sqrt{2}}{160} & 0 & 0 & \frac{\sqrt{3}}{20} & 0 & \frac{\sqrt{3}i}{10} & 0 & 0 & \frac{\sqrt{30}}{160} & 0 & 0 & 0 & 0 \end{bmatrix}$
	812	symmetry
		$-\frac{\sqrt{5}xz(x^2-6y^2+z^2)}{2}$

continued ...

Table 9

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

continued ...

Table 9

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

continued ..

Table 9

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

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{2,1}^{(1,1;a)}(E)$	$\sqrt{3}yz$	$\begin{bmatrix} -\frac{\sqrt{14}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}}{105} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \\ 0 & \frac{\sqrt{14}}{42} & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & -\frac{\sqrt{210}}{105} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 \\ 0 & 0 & -\frac{\sqrt{14}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}}{105} & 0 & 0 & \frac{\sqrt{35}i}{42} \\ 0 & 0 & 0 & \frac{\sqrt{14}}{42} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{105} & -\frac{\sqrt{35}i}{42} & 0 \\ 0 & \frac{5\sqrt{14}}{168} & 0 & -\frac{5\sqrt{14}i}{168} & \frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{280} & 0 & -\frac{\sqrt{210}i}{168} & \frac{\sqrt{35}}{105} & 0 \\ \frac{5\sqrt{14}}{168} & 0 & \frac{5\sqrt{14}i}{168} & 0 & 0 & -\frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}}{280} & 0 & \frac{\sqrt{210}i}{168} & 0 & 0 & -\frac{\sqrt{35}}{105} \\ 0 & \frac{5\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & -\frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{120} & 0 & 0 \\ -\frac{5\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & \frac{\sqrt{210}i}{168} & 0 & -\frac{\sqrt{210}}{120} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & 0 & -\frac{\sqrt{105}}{105} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & 0 & 0 & -\frac{\sqrt{105}}{105} & 0 \end{bmatrix}$
	819 symmetry	$\sqrt{3}yz$
	$\mathbb{M}_{2,2}^{(1,1;a)}(E)$	$\sqrt{3}yz$
		$\begin{bmatrix} 0 & 0 & -\frac{\sqrt{14}}{42} & 0 & 0 & -\frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & -\frac{\sqrt{210}}{105} & 0 & 0 & -\frac{\sqrt{35}i}{42} \\ 0 & 0 & 0 & \frac{\sqrt{14}}{42} & \frac{\sqrt{21}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{105} & \frac{\sqrt{35}i}{42} & 0 \\ \frac{\sqrt{14}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}i}{42} & \frac{\sqrt{210}}{105} & 0 & 0 & 0 & 0 & -\frac{\sqrt{35}}{42} \\ 0 & -\frac{\sqrt{14}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{21}i}{42} & 0 & 0 & -\frac{\sqrt{210}}{105} & 0 & 0 & -\frac{\sqrt{35}}{42} & 0 \\ 0 & \frac{5\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}i}{120} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 \\ -\frac{5\sqrt{14}i}{168} & 0 & \frac{5\sqrt{14}}{168} & 0 & 0 & 0 & 0 & -\frac{\sqrt{21}}{42} & -\frac{\sqrt{210}i}{120} & 0 & \frac{\sqrt{210}}{168} & 0 & 0 & 0 \\ 0 & -\frac{5\sqrt{14}}{168} & 0 & \frac{5\sqrt{14}i}{168} & -\frac{\sqrt{21}}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{210}}{168} & 0 & -\frac{\sqrt{210}i}{280} & \frac{\sqrt{35}}{105} & 0 \\ -\frac{5\sqrt{14}}{168} & 0 & -\frac{5\sqrt{14}i}{168} & 0 & 0 & \frac{\sqrt{21}}{42} & 0 & 0 & \frac{\sqrt{210}}{168} & 0 & \frac{\sqrt{210}i}{280} & 0 & 0 & -\frac{\sqrt{35}}{105} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{70}}{70} & 0 & 0 & 0 & \frac{\sqrt{105}i}{105} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{70}}{70} & -\frac{\sqrt{105}i}{105} & 0 \end{bmatrix}$
		$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$
820	symmetry	$\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(A, 1)$	$\begin{bmatrix} 0 & \frac{2\sqrt{165}}{165} & 0 & -\frac{2\sqrt{165}i}{165} & \frac{7\sqrt{110}}{660} & 0 & 0 & 0 & 0 & -\frac{\sqrt{11}}{66} & 0 & -\frac{\sqrt{11}i}{66} & 0 & 0 \\ \frac{2\sqrt{165}}{165} & 0 & \frac{2\sqrt{165}i}{165} & 0 & 0 & -\frac{7\sqrt{110}}{660} & 0 & 0 & 0 & -\frac{\sqrt{11}}{66} & 0 & \frac{\sqrt{11}i}{66} & 0 & 0 \\ 0 & -\frac{7\sqrt{165}i}{660} & 0 & -\frac{7\sqrt{165}}{660} & 0 & 0 & -\frac{\sqrt{110}}{330} & 0 & 0 & \frac{\sqrt{11}i}{132} & 0 & -\frac{\sqrt{11}}{132} & 0 & 0 \\ \frac{7\sqrt{165}i}{660} & 0 & -\frac{7\sqrt{165}}{660} & 0 & 0 & 0 & 0 & \frac{\sqrt{110}}{330} & -\frac{\sqrt{11}i}{132} & 0 & -\frac{\sqrt{11}}{132} & 0 & 0 & 0 \\ \frac{\sqrt{165}}{220} & 0 & 0 & 0 & 0 & -\frac{\sqrt{110}}{165} & 0 & \frac{\sqrt{110}i}{330} & -\frac{5\sqrt{11}}{132} & 0 & 0 & 0 & 0 & \frac{\sqrt{66}}{66} \\ 0 & -\frac{\sqrt{165}}{220} & 0 & 0 & -\frac{\sqrt{110}}{165} & 0 & -\frac{\sqrt{110}i}{330} & 0 & 0 & \frac{5\sqrt{11}}{132} & 0 & 0 & \frac{\sqrt{66}}{66} & 0 \\ 0 & 0 & -\frac{\sqrt{165}}{220} & 0 & 0 & -\frac{\sqrt{110}i}{165} & 0 & -\frac{\sqrt{110}}{330} & 0 & 0 & -\frac{5\sqrt{11}}{132} & 0 & 0 & -\frac{\sqrt{66}i}{66} \\ 0 & 0 & 0 & \frac{\sqrt{165}}{220} & \frac{\sqrt{110}i}{165} & 0 & -\frac{\sqrt{110}}{330} & 0 & 0 & 0 & 0 & \frac{5\sqrt{11}}{132} & \frac{\sqrt{66}i}{66} & 0 \\ 0 & -\frac{\sqrt{55}}{660} & 0 & -\frac{\sqrt{55}i}{660} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{33}}{44} & 0 & -\frac{\sqrt{33}i}{44} & \frac{5\sqrt{22}}{132} & 0 \end{bmatrix}$	
	$-\frac{\sqrt{15}(x^4 - 12x^2y^2 + 6x^2z^2 + y^4 + 6y^2z^2 - 2z^4)}{12}$	
	$\begin{bmatrix} 0 & -\frac{5\sqrt{231}}{462} & 0 & \frac{5\sqrt{231}i}{462} & -\frac{19\sqrt{154}}{4620} & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{1155} & 0 & -\frac{\sqrt{385}i}{1155} & 0 & 0 \\ -\frac{5\sqrt{231}}{462} & 0 & -\frac{5\sqrt{231}i}{462} & 0 & 0 & \frac{19\sqrt{154}}{4620} & 0 & 0 & 0 & -\frac{\sqrt{385}}{1155} & 0 & \frac{\sqrt{385}i}{1155} & 0 & 0 \\ 0 & \frac{\sqrt{231}i}{84} & 0 & \frac{\sqrt{231}}{84} & 0 & 0 & \frac{\sqrt{154}}{105} & 0 & 0 & \frac{\sqrt{385}i}{420} & 0 & -\frac{\sqrt{385}}{420} & 0 & 0 \\ -\frac{\sqrt{231}i}{84} & 0 & \frac{\sqrt{231}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{154}}{105} & -\frac{\sqrt{385}i}{420} & 0 & -\frac{\sqrt{385}}{420} & 0 & 0 & 0 \\ -\frac{\sqrt{231}}{220} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{154}}{1155} & 0 & \frac{\sqrt{154}i}{210} & -\frac{5\sqrt{385}}{924} & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{462} \\ 0 & \frac{\sqrt{231}}{220} & 0 & 0 & -\frac{2\sqrt{154}}{1155} & 0 & -\frac{\sqrt{154}i}{210} & 0 & 0 & \frac{5\sqrt{385}}{924} & 0 & 0 & \frac{\sqrt{2310}}{462} & 0 \\ 0 & 0 & \frac{\sqrt{231}}{220} & 0 & 0 & -\frac{2\sqrt{154}i}{1155} & 0 & -\frac{\sqrt{154}}{210} & 0 & 0 & -\frac{5\sqrt{385}}{924} & 0 & 0 & -\frac{\sqrt{2310}i}{462} \\ 0 & 0 & 0 & -\frac{\sqrt{231}}{220} & \frac{2\sqrt{154}i}{1155} & 0 & -\frac{\sqrt{154}}{210} & 0 & 0 & 0 & 0 & \frac{5\sqrt{385}}{924} & \frac{\sqrt{2310}i}{462} & 0 \\ 0 & \frac{\sqrt{77}}{660} & 0 & \frac{\sqrt{77}i}{660} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{308} & 0 & -\frac{\sqrt{1155}i}{308} & \frac{5\sqrt{770}}{924} & 0 \\ \frac{\sqrt{77}}{660} & 0 & -\frac{\sqrt{77}i}{660} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{308} & 0 & \frac{\sqrt{1155}i}{308} & 0 & 0 & -\frac{5\sqrt{770}}{924} \end{bmatrix}$	
	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$	
	$\begin{bmatrix} 0 & -\frac{5\sqrt{231}}{462} & 0 & \frac{5\sqrt{231}i}{462} & -\frac{19\sqrt{154}}{4620} & 0 & 0 & 0 & 0 & -\frac{\sqrt{385}}{1155} & 0 & -\frac{\sqrt{385}i}{1155} & 0 & 0 \\ -\frac{5\sqrt{231}}{462} & 0 & -\frac{5\sqrt{231}i}{462} & 0 & 0 & \frac{19\sqrt{154}}{4620} & 0 & 0 & 0 & -\frac{\sqrt{385}}{1155} & 0 & \frac{\sqrt{385}i}{1155} & 0 & 0 \\ 0 & \frac{\sqrt{231}i}{84} & 0 & \frac{\sqrt{231}}{84} & 0 & 0 & \frac{\sqrt{154}}{105} & 0 & 0 & \frac{\sqrt{385}i}{420} & 0 & -\frac{\sqrt{385}}{420} & 0 & 0 \\ -\frac{\sqrt{231}i}{84} & 0 & \frac{\sqrt{231}}{84} & 0 & 0 & 0 & 0 & -\frac{\sqrt{154}}{105} & -\frac{\sqrt{385}i}{420} & 0 & -\frac{\sqrt{385}}{420} & 0 & 0 & 0 \\ -\frac{\sqrt{231}}{220} & 0 & 0 & 0 & 0 & -\frac{2\sqrt{154}}{1155} & 0 & \frac{\sqrt{154}i}{210} & -\frac{5\sqrt{385}}{924} & 0 & 0 & 0 & 0 & \frac{\sqrt{2310}}{462} \\ 0 & \frac{\sqrt{231}}{220} & 0 & 0 & -\frac{2\sqrt{154}}{1155} & 0 & -\frac{\sqrt{154}i}{210} & 0 & 0 & \frac{5\sqrt{385}}{924} & 0 & 0 & \frac{\sqrt{2310}}{462} & 0 \\ 0 & 0 & \frac{\sqrt{231}}{220} & 0 & 0 & -\frac{2\sqrt{154}i}{1155} & 0 & -\frac{\sqrt{154}}{210} & 0 & 0 & -\frac{5\sqrt{385}}{924} & 0 & 0 & -\frac{\sqrt{2310}i}{462} \\ 0 & 0 & 0 & -\frac{\sqrt{231}}{220} & \frac{2\sqrt{154}i}{1155} & 0 & -\frac{\sqrt{154}}{210} & 0 & 0 & 0 & 0 & \frac{5\sqrt{385}}{924} & \frac{\sqrt{2310}i}{462} & 0 \\ 0 & \frac{\sqrt{77}}{660} & 0 & \frac{\sqrt{77}i}{660} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{308} & 0 & -\frac{\sqrt{1155}i}{308} & \frac{5\sqrt{770}}{924} & 0 \\ \frac{\sqrt{77}}{660} & 0 & -\frac{\sqrt{77}i}{660} & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{1155}}{308} & 0 & \frac{\sqrt{1155}i}{308} & 0 & 0 & -\frac{5\sqrt{770}}{924} \end{bmatrix}$	
	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$	
	<i>continued ...</i>	

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(A, 3)$	$0 \quad \frac{3\sqrt{11}i}{44} \quad 0 \quad \frac{3\sqrt{11}}{44} \quad 0 \quad 0 \quad \frac{3\sqrt{66}}{220} \quad 0 \quad 0 \quad \frac{\sqrt{165}i}{660} \quad 0 \quad -\frac{\sqrt{165}}{660} \quad 0 \quad 0$	
	$-\frac{3\sqrt{11}i}{44} \quad 0 \quad \frac{3\sqrt{11}}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{66}}{220} \quad -\frac{\sqrt{165}i}{660} \quad 0 \quad -\frac{\sqrt{165}}{660} \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{3\sqrt{11}}{44} \quad 0 \quad -\frac{3\sqrt{11}i}{44} \quad \frac{3\sqrt{66}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{660} \quad 0 \quad -\frac{\sqrt{165}i}{660} \quad 0 \quad 0$	
	$\frac{3\sqrt{11}}{44} \quad 0 \quad \frac{3\sqrt{11}i}{44} \quad 0 \quad 0 \quad -\frac{3\sqrt{66}}{220} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{660} \quad 0 \quad \frac{\sqrt{165}i}{660} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{3\sqrt{11}}{110} \quad 0 \quad 0 \quad \frac{\sqrt{66}i}{330} \quad 0 \quad -\frac{\sqrt{66}}{330} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{11}}{110} \quad -\frac{\sqrt{66}i}{330} \quad 0 \quad -\frac{\sqrt{66}}{330} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$\frac{3\sqrt{11}}{110} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{66}}{330} \quad 0 \quad -\frac{\sqrt{66}i}{330} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{3\sqrt{11}}{110} \quad 0 \quad 0 \quad -\frac{\sqrt{66}}{330} \quad 0 \quad \frac{\sqrt{66}i}{330} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{33}i}{330} \quad 0 \quad -\frac{\sqrt{33}}{330} \quad 0 \quad 0$	
	$-\frac{\sqrt{33}i}{330} \quad 0 \quad -\frac{\sqrt{33}}{330} \quad 0 \quad 0$	
823	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$
$\mathbb{M}_4^{(1,1;a)}(B, 1)$	$0 \quad \frac{\sqrt{77}}{1540} \quad 0 \quad \frac{\sqrt{77}i}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{17\sqrt{1155}}{4620} \quad 0 \quad \frac{17\sqrt{1155}i}{4620} \quad -\frac{\sqrt{770}}{220} \quad 0$	
	$\frac{\sqrt{77}}{1540} \quad 0 \quad -\frac{\sqrt{77}i}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{17\sqrt{1155}}{4620} \quad 0 \quad -\frac{17\sqrt{1155}i}{4620} \quad 0 \quad 0 \quad \frac{\sqrt{770}}{220}$	
	$0 \quad -\frac{\sqrt{77}i}{1540} \quad 0 \quad \frac{\sqrt{77}}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{420} \quad 0 \quad \frac{\sqrt{1155}}{420} \quad 0 \quad 0$	
	$\frac{\sqrt{77}i}{1540} \quad 0 \quad \frac{\sqrt{77}}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{420} \quad 0 \quad \frac{\sqrt{1155}}{420} \quad 0 \quad 0 \quad 0$	
	$\frac{\sqrt{77}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{17\sqrt{462}}{2310} \quad 0 \quad \frac{\sqrt{462}i}{210} \quad -\frac{\sqrt{1155}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{770}}{385}$	
	$0 \quad -\frac{\sqrt{77}}{220} \quad 0 \quad 0 \quad -\frac{17\sqrt{462}}{2310} \quad 0 \quad -\frac{\sqrt{462}i}{210} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{220} \quad 0 \quad 0 \quad \frac{\sqrt{770}}{385} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{77}}{220} \quad 0 \quad 0 \quad \frac{17\sqrt{462}i}{2310} \quad 0 \quad \frac{\sqrt{462}}{210} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{220} \quad 0 \quad 0 \quad \frac{\sqrt{770}i}{385}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{77}}{220} \quad -\frac{17\sqrt{462}i}{2310} \quad 0 \quad \frac{\sqrt{462}}{210} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{220} \quad -\frac{\sqrt{770}i}{385} \quad 0$	
	$0 \quad -\frac{\sqrt{231}}{165} \quad 0 \quad \frac{\sqrt{231}i}{165} \quad -\frac{3\sqrt{154}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{385}}{770} \quad 0 \quad \frac{3\sqrt{385}i}{770} \quad 0 \quad 0$	
	$-\frac{\sqrt{231}}{165} \quad 0 \quad -\frac{\sqrt{231}i}{165} \quad 0 \quad 0 \quad \frac{3\sqrt{154}}{220} \quad 0 \quad 0 \quad \frac{3\sqrt{385}}{770} \quad 0 \quad -\frac{3\sqrt{385}i}{770} \quad 0 \quad 0$	
824	symmetry	$-\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_4^{(1,1;a)}(B, 2)$	0	$\frac{\sqrt{77}i}{1540} \quad 0 \quad -\frac{\sqrt{77}}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{420} \quad 0 \quad \frac{\sqrt{1155}}{420} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{77}i}{1540}$	$0 \quad -\frac{\sqrt{77}}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{420} \quad 0 \quad \frac{\sqrt{1155}}{420} \quad 0 \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{77}}{1540} \quad 0 \quad \frac{\sqrt{77}i}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{17\sqrt{1155}}{4620} \quad 0 \quad -\frac{17\sqrt{1155}i}{4620} \quad \frac{\sqrt{770}}{220} \quad 0 \quad 0$
	$\frac{\sqrt{77}}{1540}$	$0 \quad -\frac{\sqrt{77}i}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{17\sqrt{1155}}{4620} \quad 0 \quad \frac{17\sqrt{1155}i}{4620} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}}{220}$
	0	$0 \quad -\frac{\sqrt{77}}{220} \quad 0 \quad 0 \quad \frac{\sqrt{462}i}{210} \quad 0 \quad \frac{17\sqrt{462}}{2310} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{220} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{770}i}{385} \quad 0$
	0	$0 \quad 0 \quad \frac{\sqrt{77}}{220} \quad -\frac{\sqrt{462}i}{210} \quad 0 \quad \frac{17\sqrt{462}}{2310} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{220} \quad -\frac{\sqrt{770}i}{385} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{77}}{220}$	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{462}}{210} \quad 0 \quad -\frac{17\sqrt{462}i}{2310} \quad \frac{\sqrt{1155}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}}{385} \quad 0$
	0	$-\frac{\sqrt{77}}{220} \quad 0 \quad 0 \quad \frac{\sqrt{462}}{210} \quad 0 \quad \frac{17\sqrt{462}i}{2310} \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{220} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}}{385} \quad 0 \quad 0$
	0	$\frac{\sqrt{231}i}{165} \quad 0 \quad \frac{\sqrt{231}}{165} \quad 0 \quad 0 \quad \frac{3\sqrt{154}}{220} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{385}i}{770} \quad 0 \quad -\frac{3\sqrt{385}}{770} \quad 0 \quad 0 \quad 0$
	$-\frac{\sqrt{231}i}{165}$	$0 \quad \frac{\sqrt{231}}{165} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{154}}{220} \quad -\frac{3\sqrt{385}i}{770} \quad 0 \quad -\frac{3\sqrt{385}}{770} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
825	symmetry	$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$
$\mathbb{M}_{4,1}^{(1,1;a)}(E, 1)$	0	$0 \quad 0 \quad -\frac{\sqrt{11}}{220} \quad 0 \quad 0 \quad -\frac{7\sqrt{66}i}{660} \quad 0 \quad -\frac{3\sqrt{66}}{440} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{132} \quad 0 \quad 0 \quad -\frac{\sqrt{110}i}{110}$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{11}}{220} \quad \frac{7\sqrt{66}i}{660} \quad 0 \quad -\frac{3\sqrt{66}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{132} \quad \frac{\sqrt{110}i}{110} \quad 0$
	$\frac{\sqrt{11}}{220}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{66}}{440} \quad 0 \quad \frac{\sqrt{66}i}{330} \quad \frac{\sqrt{165}}{660} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{110}}{440} \quad 0$
	0	$-\frac{\sqrt{11}}{220} \quad 0 \quad 0 \quad -\frac{3\sqrt{66}}{440} \quad 0 \quad -\frac{\sqrt{66}i}{330} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{660} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{110}}{440} \quad 0 \quad 0$
	0	$-\frac{\sqrt{11}i}{220} \quad 0 \quad -\frac{3\sqrt{11}}{440} \quad 0 \quad 0 \quad \frac{\sqrt{66}}{330} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{165}i}{660} \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad 0 \quad 0 \quad 0$
	$\frac{\sqrt{11}i}{220}$	$0 \quad -\frac{3\sqrt{11}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{66}}{330} \quad \frac{\sqrt{165}i}{660} \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$
	0	$-\frac{9\sqrt{11}}{440} \quad 0 \quad \frac{\sqrt{11}i}{44} \quad -\frac{\sqrt{66}}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad 0 \quad \frac{\sqrt{165}i}{60} \quad -\frac{\sqrt{110}}{55} \quad 0$
	$-\frac{9\sqrt{11}}{440}$	$0 \quad -\frac{\sqrt{11}i}{44} \quad 0 \quad 0 \quad \frac{\sqrt{66}}{66} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{165}}{440} \quad 0 \quad -\frac{\sqrt{165}i}{60} \quad 0 \quad 0 \quad \frac{\sqrt{110}}{55} \quad 0$
	0	$0 \quad 0 \quad -\frac{\sqrt{33}}{165} \quad 0 \quad 0 \quad -\frac{3\sqrt{22}i}{110} \quad 0 \quad -\frac{9\sqrt{22}}{440} \quad 0 \quad 0 \quad -\frac{3\sqrt{55}}{110} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{330}i}{132} \quad 0$
	0	$0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{165} \quad \frac{3\sqrt{22}i}{110} \quad 0 \quad -\frac{9\sqrt{22}}{440} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{55}}{110} \quad \frac{\sqrt{330}i}{132} \quad 0 \quad 0 \quad 0$
826	symmetry	$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{4,2}^{(1,1;a)}(E, 1)$	$\frac{\sqrt{11}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{7\sqrt{66}}{660} \quad 0 \quad \frac{3\sqrt{66}i}{440} \quad -\frac{\sqrt{165}}{132} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}}{110}$	
	$0 \quad -\frac{\sqrt{11}}{220} \quad 0 \quad 0 \quad -\frac{7\sqrt{66}}{660} \quad 0 \quad -\frac{3\sqrt{66}i}{440} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{132} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{110}}{110} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{11}}{220} \quad 0 \quad 0 \quad \frac{3\sqrt{66}i}{440} \quad 0 \quad \frac{\sqrt{66}}{330} \quad 0 \quad 0 \quad -\frac{\sqrt{165}}{660} \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{110}i}{440}$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{11}}{220} \quad -\frac{3\sqrt{66}i}{440} \quad 0 \quad \frac{\sqrt{66}}{330} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{660} \quad \frac{3\sqrt{110}i}{440} \quad 0$	
	$0 \quad -\frac{\sqrt{11}}{44} \quad 0 \quad \frac{9\sqrt{11}i}{440} \quad -\frac{\sqrt{66}}{66} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{165}}{60} \quad 0 \quad -\frac{3\sqrt{165}i}{440} \quad \frac{\sqrt{110}}{55} \quad 0$	
	$-\frac{\sqrt{11}}{44} \quad 0 \quad -\frac{9\sqrt{11}i}{440} \quad 0 \quad 0 \quad \frac{\sqrt{66}}{66} \quad 0 \quad 0 \quad \frac{\sqrt{165}}{60} \quad 0 \quad \frac{3\sqrt{165}i}{440} \quad 0 \quad 0 \quad -\frac{\sqrt{110}}{55}$	
	$0 \quad \frac{3\sqrt{11}i}{440} \quad 0 \quad \frac{\sqrt{11}}{220} \quad 0 \quad 0 \quad -\frac{\sqrt{66}}{330} \quad 0 \quad 0 \quad -\frac{3\sqrt{165}i}{440} \quad 0 \quad -\frac{\sqrt{165}}{660} \quad 0 \quad 0$	
	$-\frac{3\sqrt{11}i}{440} \quad 0 \quad \frac{\sqrt{11}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{66}}{330} \quad \frac{3\sqrt{165}i}{440} \quad 0 \quad -\frac{\sqrt{165}}{660} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{33}}{165} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{22}}{110} \quad 0 \quad -\frac{9\sqrt{22}i}{440} \quad \frac{3\sqrt{55}}{110} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{330}}{132}$	
	$0 \quad \frac{\sqrt{33}}{165} \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{22}}{110} \quad 0 \quad \frac{9\sqrt{22}i}{440} \quad 0 \quad 0 \quad -\frac{3\sqrt{55}}{110} \quad 0 \quad 0 \quad -\frac{\sqrt{330}}{132} \quad 0$	
827	symmetry	$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$
$\mathbb{M}_{4,1}^{(1,1;a)}(E, 2)$	$-\frac{\sqrt{77}}{1540} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{29\sqrt{462}}{4620} \quad 0 \quad \frac{3\sqrt{462}i}{440} \quad -\frac{\sqrt{1155}}{420} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{77}}{1540} \quad 0 \quad 0 \quad -\frac{29\sqrt{462}}{4620} \quad 0 \quad -\frac{3\sqrt{462}i}{440} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{420} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{77}}{1540} \quad 0 \quad 0 \quad \frac{3\sqrt{462}i}{440} \quad 0 \quad \frac{17\sqrt{462}}{2310} \quad 0 \quad 0 \quad \frac{17\sqrt{1155}}{4620} \quad 0 \quad 0 \quad \frac{\sqrt{770}i}{440}$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{77}}{1540} \quad -\frac{3\sqrt{462}i}{440} \quad 0 \quad \frac{17\sqrt{462}}{2310} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{17\sqrt{1155}}{4620} \quad -\frac{\sqrt{770}i}{440} \quad 0$	
	$0 \quad -\frac{3\sqrt{77}}{220} \quad 0 \quad \frac{\sqrt{77}i}{88} \quad -\frac{\sqrt{462}}{210} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{924} \quad 0 \quad \frac{\sqrt{1155}i}{440} \quad -\frac{\sqrt{770}}{385} \quad 0$	
	$-\frac{3\sqrt{77}}{220} \quad 0 \quad -\frac{\sqrt{77}i}{88} \quad 0 \quad 0 \quad \frac{\sqrt{462}}{210} \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{924} \quad 0 \quad -\frac{\sqrt{1155}i}{440} \quad 0 \quad 0 \quad \frac{\sqrt{770}}{385}$	
	$0 \quad \frac{7\sqrt{77}i}{440} \quad 0 \quad \frac{3\sqrt{77}}{220} \quad 0 \quad 0 \quad \frac{17\sqrt{462}}{2310} \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{440} \quad 0 \quad -\frac{\sqrt{1155}}{924} \quad 0 \quad 0$	
	$-\frac{7\sqrt{77}i}{440} \quad 0 \quad \frac{3\sqrt{77}}{220} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{17\sqrt{462}}{2310} \quad -\frac{\sqrt{1155}i}{440} \quad 0 \quad -\frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0$	
	$-\frac{\sqrt{231}}{165} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{3\sqrt{154}i}{440} \quad -\frac{3\sqrt{385}}{770} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{2310}}{924}$	
	$0 \quad \frac{\sqrt{231}}{165} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{3\sqrt{154}i}{440} \quad 0 \quad 0 \quad \frac{3\sqrt{385}}{770} \quad 0 \quad 0 \quad \frac{\sqrt{2310}}{924} \quad 0$	
828	symmetry	$\frac{\sqrt{5}yz(6x^2 - y^2 - z^2)}{2}$

continued ...

Table 9

No.	multipole	matrix
$\mathbb{M}_{4,2}^{(1,1;a)}(E, 2)$	0	0 $-\frac{\sqrt{77}}{1540}$ 0 0 $\frac{29\sqrt{462}i}{4620}$ 0 $\frac{3\sqrt{462}}{440}$ 0 0 $\frac{\sqrt{1155}}{420}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{77}}{1540}$ $-\frac{29\sqrt{462}i}{4620}$ 0 $\frac{3\sqrt{462}}{440}$ 0 0 0 0 $-\frac{\sqrt{1155}}{420}$ 0 0
	$\frac{\sqrt{77}}{1540}$	0 0 0 0 0 $\frac{3\sqrt{462}}{440}$ 0 $-\frac{17\sqrt{462}i}{2310}$ $\frac{17\sqrt{1155}}{4620}$ 0 0 0 0 $-\frac{\sqrt{770}}{440}$
	0	$-\frac{\sqrt{77}}{1540}$ 0 0 $\frac{3\sqrt{462}}{440}$ 0 $\frac{17\sqrt{462}i}{2310}$ 0 0 $-\frac{17\sqrt{1155}}{4620}$ 0 0 $-\frac{\sqrt{770}}{440}$ 0
	0	$\frac{3\sqrt{77}i}{220}$ 0 $\frac{7\sqrt{77}}{440}$ 0 0 $\frac{17\sqrt{462}}{2310}$ 0 0 $\frac{\sqrt{1155}i}{924}$ 0 $-\frac{\sqrt{1155}}{440}$ 0 0
	$-\frac{3\sqrt{77}i}{220}$	0 $\frac{7\sqrt{77}}{440}$ 0 0 0 0 $-\frac{17\sqrt{462}}{2310}$ $-\frac{\sqrt{1155}i}{924}$ 0 $-\frac{\sqrt{1155}}{440}$ 0 0 0
	0	$\frac{\sqrt{77}}{88}$ 0 $-\frac{3\sqrt{77}i}{220}$ $\frac{\sqrt{462}}{210}$ 0 0 0 0 $-\frac{\sqrt{1155}}{440}$ 0 $\frac{\sqrt{1155}i}{924}$ $-\frac{\sqrt{770}}{385}$ 0
	$\frac{\sqrt{77}}{88}$	0 $\frac{3\sqrt{77}i}{220}$ 0 0 $-\frac{\sqrt{462}}{210}$ 0 0 $-\frac{\sqrt{1155}}{440}$ 0 $-\frac{\sqrt{1155}i}{924}$ 0 0 $\frac{\sqrt{770}}{385}$
	0	0 $\frac{\sqrt{231}}{165}$ 0 0 0 0 $-\frac{3\sqrt{154}}{440}$ 0 0 $-\frac{3\sqrt{385}}{770}$ 0 0 $-\frac{\sqrt{2310}i}{924}$
	0	0 0 0 $-\frac{\sqrt{231}}{165}$ 0 0 $-\frac{3\sqrt{154}}{440}$ 0 0 0 $\frac{3\sqrt{385}}{770}$ $\frac{\sqrt{2310}i}{924}$ 0

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

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

Table 10: (f,f) block.

No.	multipole	matrix
829	symmetry	1

continued ...

Table 10

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

continued ...

Table 10

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

continued ...

Table 10

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

832 symmetry

 $\sqrt{3}xy$

continued ...

Table 10

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

833 symmetry

 $\sqrt{3}xz$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{2,1}^{(a)}(E)$	0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0	
	$\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0	
	0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0	
	0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0	
	0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0	
	0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0	
	0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$	
	0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 0 0 0 0 0 0 0	
834 symmetry		$\sqrt{3}yz$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{2,2}^{(a)}(E)$	0	0 0 0 0 0 0 $-\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0
	0	0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0
	0	0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0
	0	0 0 0 $\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0
	$-\frac{5\sqrt{21}}{84}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0
	0	$-\frac{5\sqrt{21}}{84}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{35}}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$
	0	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}}{42}$ 0 0
835	symmetry	$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A, 2)$	$\frac{\sqrt{1155}}{308} \quad 0 \quad \frac{\sqrt{77}}{44} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{1155}}{308} \quad 0 \quad \frac{\sqrt{77}}{44} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{1155}}{308} \quad 0 \quad -\frac{\sqrt{77}}{44} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{308} \quad 0 \quad -\frac{\sqrt{77}}{44} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{66} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{1155}}{66} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$\frac{\sqrt{77}}{44} \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{77}}{44} \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{77}}{44} \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{77}}{44} \quad 0 \quad \frac{\sqrt{1155}}{924} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{1155}}{154} \quad 0$	
	$0 \quad 0 \quad \frac{\sqrt{1155}}{154}$	
837	symmetry	$\frac{\sqrt{35}xy(x-y)(x+y)}{2}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(A, 3)$	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 $-\frac{\sqrt{33}}{22}$ 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 $\frac{\sqrt{55}}{22}$ 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 $-\frac{\sqrt{33}}{22}$ 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 $-\frac{\sqrt{33}}{22}$ 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	
838	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(a)}(B, 1)$	0	0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{231}}{154}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{231}}{154}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{3\sqrt{231}}{154}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{385}}{77}$ 0 0 0 0 0
	0	$-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{385}}{77}$ 0 0 0 0
	0	0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 $\frac{\sqrt{385}}{77}$ 0 0 0
	0	0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 $\frac{\sqrt{385}}{77}$ 0 0
	0	0 0 0 0 $\frac{\sqrt{231}}{154}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{231}}{154}$ 0 0 0 0 0 0 0 0
839	symmetry	$\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$

continued ...

Table 10

No.	multipole	matrix											
$\mathbb{Q}_4^{(a)}(B, 2)$	0	0	0	0	0	0	0	0	0	$-\frac{3\sqrt{231}}{154}$	0	0	0
	0	0	0	0	0	0	0	0	0	$-\frac{3\sqrt{231}}{154}$	0	0	0
	0	0	0	0	0	0	0	$\frac{3\sqrt{231}}{154}$	0	0	0	0	0
	0	0	0	0	0	0	0	0	$\frac{3\sqrt{231}}{154}$	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{231}}{154}$	0	0
	0	0	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{231}}{154}$	0
	0	0	$\frac{3\sqrt{231}}{154}$	0	0	0	0	0	0	$\frac{\sqrt{385}}{77}$	0	0	0
	0	0	0	$\frac{3\sqrt{231}}{154}$	0	0	0	0	0	$\frac{\sqrt{385}}{77}$	0	0	0
	$-\frac{3\sqrt{231}}{154}$	0	0	0	0	0	0	$\frac{\sqrt{385}}{77}$	0	0	0	0	0
	0	$-\frac{3\sqrt{231}}{154}$	0	0	0	0	0	0	$\frac{\sqrt{385}}{77}$	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	$-\frac{\sqrt{231}}{154}$	0	0	0	0	0	0
$\frac{\sqrt{35}yz(y-z)(y+z)}{2}$													

840 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{4,1}^{(a)}(E, 1)$	0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0	
	0 0 0 0 0 $\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$	
	0 0 $\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0	
	0 0 0 $\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0	
	$-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{22}}{88}$ 0 0 0 0 0 0	
	0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{22}}{88}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{5\sqrt{22}}{88}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0	
	0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0	
	0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0	
	0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0	
		$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$
841	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{4,2}^{(a)}(E, 1)$	0	0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{330}}{88}$	0 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{22}}{88}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{22}}{88}$ 0 0 0
	0	0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{88}$ 0
	0	0 0 0 0 0 $\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{88}$
	0	0 0 0 0 0 0 $\frac{5\sqrt{22}}{88}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{5\sqrt{22}}{88}$ 0 0 0 0 0 0 0
	$\frac{3\sqrt{22}}{88}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0 0
	0	$\frac{3\sqrt{22}}{88}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{330}}{88}$ 0 0 0 0 0 0
$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$		
842	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_{4,1}^{(a)}(E, 2)$	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	$\frac{3\sqrt{154}}{88}$	0	0	
	0	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	$\frac{3\sqrt{154}}{88}$	0	
	0	0	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	
	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	0	$-\frac{\sqrt{154}}{56}$	0	0	0	0	0	
	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	$-\frac{\sqrt{154}}{56}$	0	0	0	0	0	
	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	0	$\frac{3\sqrt{154}}{616}$	0	0	0	0	
	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	0	0	0	$\frac{3\sqrt{154}}{616}$	0	0	0	0	
	0	0	0	0	$-\frac{\sqrt{154}}{56}$	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	
	0	0	0	0	0	$-\frac{\sqrt{154}}{56}$	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{616}$	0	
	0	0	0	0	0	0	$\frac{3\sqrt{154}}{616}$	0	0	0	0	0	0	0	
	$\frac{3\sqrt{154}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	0	0	0	
843	symmetry	$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$													

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{4,2}^{(a)}(E, 2)$	0	0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{154}}{88}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $-\frac{3\sqrt{154}}{88}$
	0	0 0 $\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $\frac{\sqrt{154}}{56}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $\frac{\sqrt{154}}{56}$ 0 0 0
	$-\frac{\sqrt{2310}}{616}$	0 0 0 0 0 0 0 $\frac{3\sqrt{154}}{616}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{2310}}{616}$ 0 0 0 0 0 0 0 $\frac{3\sqrt{154}}{616}$ 0 0 0 0 0
	0	0 0 0 0 0 $\frac{3\sqrt{154}}{616}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{3\sqrt{154}}{616}$ 0 0 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{154}}{56}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{154}}{56}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$
	0	0 0 $-\frac{3\sqrt{154}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0 0 0
	0	0 0 0 $-\frac{3\sqrt{154}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2310}}{616}$ 0 0 0
844	symmetry	$\frac{\sqrt{2}(2x^6 - 15x^4y^2 - 15x^4z^2 - 15x^2y^4 + 180x^2y^2z^2 - 15x^2z^4 + 2y^6 - 15y^4z^2 - 15y^2z^4 + 2z^6)}{8}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A, 1)$	$-\frac{\sqrt{231}}{1848}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{385}}{88}$ 0 0 0 0 0
	0	$-\frac{\sqrt{231}}{1848}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{385}}{88}$ 0 0 0 0 0
	0	0 $-\frac{\sqrt{231}}{1848}$ 0 0 0 0 0 0 0 $\frac{\sqrt{385}}{88}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{231}}{1848}$ 0 0 0 0 0 0 $\frac{\sqrt{385}}{88}$ 0 0 0
	0	0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{3\sqrt{231}}{154}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{2\sqrt{231}}{77}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{2\sqrt{231}}{77}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{385}}{88}$	0 0 0 0 0 0 0 0 $-\frac{5\sqrt{231}}{616}$ 0 0 0 0 0
	0	$-\frac{\sqrt{385}}{88}$ 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{231}}{616}$ 0 0 0 0
	0	0 0 $\frac{\sqrt{385}}{88}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{231}}{616}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{385}}{88}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{231}}{616}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{231}}{462}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{231}}{462}$
845	symmetry	$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A, 2)$	$-\frac{\sqrt{33}}{264} \quad 0 \quad \frac{\sqrt{55}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad -\frac{\sqrt{33}}{264} \quad 0 \quad \frac{\sqrt{55}}{88} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{33}}{264} \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{33}}{264} \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{33}}{22} \quad 0 \quad 0$	
	$0 \quad 0 \quad 0$	
	$\frac{\sqrt{55}}{88} \quad 0 \quad -\frac{5\sqrt{33}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad \frac{\sqrt{55}}{88} \quad 0 \quad -\frac{5\sqrt{33}}{88} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0 \quad -\frac{5\sqrt{33}}{88} \quad 0 \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad 0 \quad -\frac{\sqrt{55}}{88} \quad 0 \quad -\frac{5\sqrt{33}}{88} \quad 0 \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{5\sqrt{33}}{66} \quad 0 \quad 0$	
	$0 \quad 0 \quad \frac{5\sqrt{33}}{66}$	
846	symmetry	$-\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(A, 3)$	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{66}}{22}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{66}}{22}$ 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{66}}{22}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{66}}{22}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
847	symmetry	$-\frac{\sqrt{2310}(x-y)(x+y)(x-z)(x+z)(y-z)(y+z)}{8}$

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{8} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{3}}{24} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}}{8} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
848	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
$\mathbb{Q}_6^{(a)}(B, 2)$	$\frac{\sqrt{11}}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0
	0	$\frac{\sqrt{11}}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0
	0	0 $-\frac{\sqrt{11}}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0
	0	0 0 $-\frac{\sqrt{11}}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{11}}{8}$ 0 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{165}}{66}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{165}}{66}$
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{165}}{264}$	0 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$ 0 0 0 0 0
	0	$-\frac{\sqrt{165}}{264}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$ 0 0 0 0 0
	0	0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0
	0	0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{165}}{264}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0
	0	0 0 0 0 $\frac{\sqrt{165}}{66}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{165}}{66}$ 0 0 0 0 0 0 0 0 0
849	symmetry	$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$

continued ...

Table 10

continued ..

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(a)}(B, 4)$	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{33}}{66}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{33}}{66}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{2\sqrt{33}}{33}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{2\sqrt{33}}{33}$	
	0 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0	
	$\frac{\sqrt{33}}{66}$ 0 0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0 0 0 0	
	0 $\frac{\sqrt{33}}{66}$ 0 0 0 0 0 0 0 $\frac{\sqrt{55}}{22}$ 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{2\sqrt{33}}{33}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{2\sqrt{33}}{33}$ 0 0 0 0 0 0 0	
851	symmetry	$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{6,1}^{(a)}(E, 1)$	0 0 0 0 0 0 $-\frac{3\sqrt{11}}{44}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{3\sqrt{11}}{44}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0	
	0 0 0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{88}$	
	0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0	
	0 0 0 $-\frac{5\sqrt{11}}{88}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0	
	$-\frac{3\sqrt{11}}{44}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{44}$ 0 0 0 0 0	
	0 $-\frac{3\sqrt{11}}{44}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{44}$ 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{165}}{44}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{44}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$	
	0 0 0 $-\frac{\sqrt{165}}{88}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{11}}{88}$ 0 0 0	
$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$		
852	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_{6,2}^{(a)}(E, 1)$	0	0	0	0	$\frac{5\sqrt{11}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0
	0	0	0	0	0	$\frac{5\sqrt{11}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0
	0	0	0	0	0	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	0	0
	$\frac{5\sqrt{11}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0	0	0	0	0
	0	$\frac{5\sqrt{11}}{88}$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0	0	0	0
	0	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{44}$	0	0	0	0
	0	0	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	0	$\frac{\sqrt{165}}{44}$	0	0	0	0
	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0	0	0	0	0	0	$-\frac{5\sqrt{11}}{88}$	0	0
	0	0	0	0	0	$-\frac{\sqrt{165}}{88}$	0	0	0	0	0	0	0	$-\frac{5\sqrt{11}}{88}$	0
	0	0	0	0	0	0	$\frac{\sqrt{165}}{44}$	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{44}$	0	0	0	0	0	0	0
853	symmetry														$\frac{\sqrt{462}xz(x^2-3z^2)(3x^2-z^2)}{16}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{6,1}^{(a)}(E, 2)$	0 0 0 0 $\frac{\sqrt{6}}{32}$	0 0 0 0 0 0 0 0 - $\frac{\sqrt{10}}{32}$ 0
	0 0 0 0 0	$\frac{\sqrt{6}}{32}$ 0 0 0 0 0 0 0 0 - $\frac{\sqrt{10}}{32}$
	0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	$\frac{\sqrt{6}}{32}$ 0 0 0 0	0 0 0 - $\frac{3\sqrt{10}}{32}$ 0 0 0 0 0 0
	0 $\frac{\sqrt{6}}{32}$ 0 0 0	0 0 0 0 0 - $\frac{3\sqrt{10}}{32}$ 0 0 0 0
	0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	0 0 0 0 - $\frac{3\sqrt{10}}{32}$	0 0 0 0 0 0 0 0 $\frac{5\sqrt{6}}{32}$ 0
	0 0 0 0 - $\frac{3\sqrt{10}}{32}$	0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{6}}{32}$
	0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
	- $\frac{\sqrt{10}}{32}$ 0 0 0 0	0 0 0 $\frac{5\sqrt{6}}{32}$ 0 0 0 0 0 0
	0 - $\frac{\sqrt{10}}{32}$ 0 0 0	0 0 0 0 0 0 $\frac{5\sqrt{6}}{32}$ 0 0 0 0
$\frac{\sqrt{462yz(y^2-3z^2)(3y^2-z^2)}}{16}$		

854 symmetry

continued ...

Table 10

No.	multipole	matrix
		$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{10}}{32} \\ 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{10}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{32} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{32} \\ 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{10}}{32} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{5\sqrt{6}}{32} & 0 \end{pmatrix}$
855	symmetry	$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{6,1}^{(a)}(E, 3)$	0	0 0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $\frac{9\sqrt{22}}{352}$ 0
	0	0 0 0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $\frac{9\sqrt{22}}{352}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0
	$\frac{17\sqrt{330}}{1056}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0
	0	$\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{22}}{32}$ 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$ 0
	0	0 0 0 0 0 0 $\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0 0 0 0 0
	$\frac{9\sqrt{22}}{352}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0 0 0 0
	0	$\frac{9\sqrt{22}}{352}$ 0 0 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$ 0 0 0 0 0
$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$		
856	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{6,2}^{(a)}(E, 3)$	0 0 0 0 0 0 $\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 0 $-\frac{9\sqrt{22}}{352}$ 0	
	0 0 0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 0 $-\frac{9\sqrt{22}}{352}$	
	0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{32}$ 0 0 0	
	0 0 0 $\frac{17\sqrt{330}}{1056}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{32}$ 0 0	
	$\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0 0	
	0 $\frac{\sqrt{330}}{66}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{22}}{32}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$	
	0 0 0 $-\frac{9\sqrt{22}}{352}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $-\frac{9\sqrt{22}}{352}$ 0 0 0 0 0 0 0 0 $\frac{5\sqrt{330}}{1056}$ 0 0	
857	symmetry	$-\frac{x^2}{2} - \frac{y^2}{2} + z^2$

continued ...

Table 10

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

continued ...

Table 10

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

859 symmetry

 $\sqrt{3}xy$

continued ...

Table 10

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

860 symmetry

 $\sqrt{3}xz$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{2,1}^{(1,-1;a)}(E)$	0	0 0 0 $-\frac{3\sqrt{7}i}{28}$ 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0
	0	0 0 $-\frac{3\sqrt{7}i}{28}$ 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0
	0	$\frac{3\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0 0 0
	$\frac{3\sqrt{7}i}{28}$	0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0
	$-\frac{\sqrt{42}i}{56}$	0 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0
	0	$\frac{\sqrt{42}i}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{42}i}{28}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0 0 0 0 $\frac{\sqrt{42}i}{28}$
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 0
$\sqrt{3}yz$		

861 symmetry

 $\sqrt{3}yz$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{2,2}^{(1,-1;a)}(E)$	0	0 0 0 $-\frac{3\sqrt{7}}{28}$ $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0 0 0
	0	0 0 $\frac{3\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0 0
	0	$\frac{3\sqrt{7}}{28}$ 0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0
	$-\frac{3\sqrt{7}}{28}$	0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{42}i}{56}$	0 0 0 0 0 0 0 $-\frac{\sqrt{7}}{14}$ $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0
	0	$\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 $-\frac{\sqrt{42}i}{56}$ 0 0 $\frac{\sqrt{7}}{14}$ 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 0 0 $\frac{\sqrt{42}i}{56}$ $-\frac{\sqrt{7}}{14}$ 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0
	0	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{7}}{28}$ $\frac{\sqrt{42}i}{28}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}}{28}$ 0 0 $-\frac{\sqrt{42}i}{28}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{7}}{28}$ 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0 0 0 0
$\frac{\sqrt{21}(x^4 - 3x^2y^2 - 3x^2z^2 + y^4 - 3y^2z^2 + z^4)}{6}$		

862 symmetry

continued ...

Table 10

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

863 symmetry

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,-1;a)}(A, 2)$	0	0	$\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	0	0	0	$-\frac{\sqrt{14}}{24}$	
	0	0	0	$-\frac{\sqrt{35}i}{42}$	$-\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	0	0	0	$\frac{\sqrt{14}}{24}$	0	
	$-\frac{\sqrt{35}i}{42}$	0	0	0	0	$-\frac{\sqrt{210}i}{168}$	0	$\frac{\sqrt{210}}{168}$	0	0	0	0	0	$-\frac{\sqrt{14}i}{24}$	
	0	$\frac{\sqrt{35}i}{42}$	0	0	$-\frac{\sqrt{210}i}{168}$	0	$-\frac{\sqrt{210}}{168}$	0	0	0	0	0	$-\frac{\sqrt{14}i}{24}$	0	
	0	$-\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{14}}{24}$	0	$\frac{\sqrt{14}i}{24}$	0	0	
	$\frac{\sqrt{210}}{168}$	0	$\frac{\sqrt{210}i}{168}$	0	0	0	0	$\frac{\sqrt{35}i}{42}$	$-\frac{\sqrt{14}}{24}$	0	$\frac{\sqrt{14}i}{24}$	0	0	0	
	0	$-\frac{\sqrt{210}i}{168}$	0	$-\frac{\sqrt{210}}{168}$	$\frac{\sqrt{35}i}{42}$	0	0	0	$\frac{\sqrt{14}i}{24}$	0	$-\frac{\sqrt{14}}{24}$	0	0	0	
	$-\frac{\sqrt{210}i}{168}$	0	$\frac{\sqrt{210}}{168}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{14}i}{24}$	0	$\frac{\sqrt{14}}{24}$	0	0	0	
	0	0	0	0	0	$-\frac{\sqrt{14}}{24}$	0	$-\frac{\sqrt{14}i}{24}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$-\frac{\sqrt{210}}{168}$	
	0	0	0	0	$\frac{\sqrt{14}}{24}$	0	$-\frac{\sqrt{14}i}{24}$	0	$\frac{\sqrt{14}}{24}$	$\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{35}i}{42}$	$\frac{\sqrt{210}}{168}$	
	0	0	0	0	0	$-\frac{\sqrt{14}i}{24}$	0	$-\frac{\sqrt{14}}{24}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{210}i}{168}$	
	0	$\frac{\sqrt{14}}{24}$	0	$\frac{\sqrt{14}i}{24}$	0	0	0	0	$\frac{\sqrt{210}}{168}$	0	$-\frac{\sqrt{210}i}{168}$	0	0	0	
	$-\frac{\sqrt{14}}{24}$	0	$\frac{\sqrt{14}i}{24}$	0	0	0	0	$-\frac{\sqrt{210}}{168}$	0	$-\frac{\sqrt{210}i}{168}$	0	0	0	0	

864 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1:a)}(A, 3)$	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 $\frac{\sqrt{6}}{12}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$ 0 $-\frac{\sqrt{6}}{12}$ 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$ 0 $\frac{\sqrt{6}}{12}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0 $-\frac{\sqrt{6}i}{12}$ 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}}{12}$ 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 $\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 $-\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{6}}{12}$ 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0	
	$\frac{\sqrt{6}i}{12}$ 0 $-\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{6}i}{12}$ 0 $\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0 0 0 0 0	
865	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$

continued ...

Table 10

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

866 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_4^{(1,-1;a)}(B, 2)$	0	0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{42}i}{168}$
	0	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}i}{168}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}}{168}$
	0	0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{42}}{168}$ 0
	0	$\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ $\frac{\sqrt{7}i}{14}$ 0
	$\frac{\sqrt{70}i}{56}$	0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{168}$ 0 $\frac{\sqrt{42}}{168}$ 0 0 $-\frac{\sqrt{7}i}{14}$
	0	$\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ 0 0 0
	$-\frac{\sqrt{70}}{56}$	0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{42}}{168}$ 0 $\frac{\sqrt{42}i}{168}$ 0 0 0 0
	$-\frac{\sqrt{7}i}{14}$	0 0 0 0 $\frac{\sqrt{42}i}{168}$ 0 $\frac{\sqrt{42}}{168}$ 0 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$
	0	$\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ 0 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0
	0	0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 0 $-\frac{\sqrt{70}}{56}$
	0	0 0 0 $\frac{\sqrt{7}i}{14}$ $-\frac{\sqrt{42}}{168}$ 0 $-\frac{\sqrt{42}i}{168}$ 0 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0
	0	$-\frac{\sqrt{42}i}{168}$ 0 $-\frac{\sqrt{42}}{168}$ $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0
	$-\frac{\sqrt{42}i}{168}$	0 $\frac{\sqrt{42}}{168}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0 0

867 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{4,1}^{(1,-1;a)}(E, 1)$	0 0 0 $-\frac{\sqrt{15}}{24}$ $\frac{\sqrt{10}i}{16}$ 0 0 0 0 0 0 $-\frac{1}{8}$ $\frac{\sqrt{6}i}{48}$ 0	
	0 0 $\frac{\sqrt{15}}{24}$ 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 0 0 $\frac{1}{8}$ 0 0 $-\frac{\sqrt{6}i}{48}$	
	0 $\frac{\sqrt{15}}{24}$ 0 0 0 0 $\frac{\sqrt{10}i}{16}$ 0 0 $\frac{1}{8}$ 0 0 0 0	
	$-\frac{\sqrt{15}}{24}$ 0 0 0 0 0 0 $-\frac{\sqrt{10}i}{16}$ $-\frac{1}{8}$ 0 0 0 0 0	
	$-\frac{\sqrt{10}i}{16}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{6}i}{48}$ 0 0 0 0 0	
	0 $\frac{\sqrt{10}i}{16}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{6}i}{48}$ 0 0 0 0	
	0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0 $\frac{\sqrt{6}i}{48}$ 0 0 $\frac{1}{8}$	
	0 0 0 $\frac{\sqrt{10}i}{16}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $-\frac{\sqrt{6}i}{48}$ $-\frac{1}{8}$ 0	
	0 0 0 $-\frac{1}{8}$ $\frac{\sqrt{6}i}{48}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{10}i}{16}$ 0	
	0 0 $\frac{1}{8}$ 0 0 $-\frac{\sqrt{6}i}{48}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{10}i}{16}$	
	0 $\frac{1}{8}$ 0 0 0 0 $-\frac{\sqrt{6}i}{48}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0	
	$-\frac{1}{8}$ 0 0 0 0 0 0 $\frac{\sqrt{6}i}{48}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0	
	$-\frac{\sqrt{6}i}{48}$ 0 0 0 0 0 0 $-\frac{1}{8}$ $\frac{\sqrt{10}i}{16}$ 0 0 0 0 0	
	0 $\frac{\sqrt{6}i}{48}$ 0 0 0 0 $\frac{1}{8}$ 0 0 $-\frac{\sqrt{10}i}{16}$ 0 0 0 0	
$-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$		
868	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_{4,2}^{(1,-1;a)}(E, 1)$	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	0	$-\frac{i}{8}$	0	0	
	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	0	$\frac{\sqrt{10}i}{16}$	0	0	$-\frac{i}{8}$	0	0	0	
	0	$-\frac{\sqrt{15}i}{24}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0	0	$\frac{i}{8}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	
	$-\frac{\sqrt{15}i}{24}$	0	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	$\frac{i}{8}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	
	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	
	0	0	0	$\frac{\sqrt{10}i}{16}$	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	
	$\frac{\sqrt{10}i}{16}$	0	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$\frac{i}{8}$	
	0	$-\frac{\sqrt{10}i}{16}$	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$\frac{i}{8}$	0	0	
	0	0	0	$-\frac{i}{8}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	
	0	0	$-\frac{i}{8}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	0	
	0	$\frac{i}{8}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	
	$\frac{i}{8}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	0	$\frac{\sqrt{10}i}{16}$	
	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$-\frac{i}{8}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0	
	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$-\frac{i}{8}$	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	

869 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{4,1}^{(1,-1;a)}(E, 2)$	0 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{70}i}{112}$ 0 0 $\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0	
	0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{70}i}{112}$ $-\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0	
	0 $\frac{\sqrt{105}i}{168}$ 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{42}i}{48}$ 0	
	$\frac{\sqrt{105}i}{168}$ 0 0 0 0 $\frac{\sqrt{70}i}{112}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{42}i}{48}$	
	0 0 $\frac{\sqrt{70}i}{112}$ 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 $\frac{\sqrt{7}}{14}$	
	0 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 $\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{42}i}{48}$ $-\frac{\sqrt{7}}{14}$ 0	
	$-\frac{\sqrt{70}i}{112}$ 0 0 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 0 0 $\frac{3\sqrt{7}i}{56}$	
	0 $\frac{\sqrt{70}i}{112}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{42}i}{48}$ 0 0 $\frac{3\sqrt{7}i}{56}$ 0	
	0 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{42}i}{48}$ 0 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0	
	$\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 0 $\frac{\sqrt{105}i}{168}$ 0 0	
	0 $\frac{3\sqrt{7}i}{56}$ 0 $-\frac{\sqrt{7}}{14}$ $-\frac{\sqrt{42}i}{48}$ 0 0 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 $\frac{\sqrt{70}i}{112}$ 0	
	$\frac{3\sqrt{7}i}{56}$ 0 $\frac{\sqrt{7}}{14}$ 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 $-\frac{\sqrt{105}i}{168}$ 0 0 0 0 $-\frac{\sqrt{70}i}{112}$	
	0 0 $\frac{\sqrt{42}i}{48}$ 0 0 $-\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{42}i}{48}$ $\frac{\sqrt{7}}{14}$ 0 $-\frac{3\sqrt{7}i}{56}$ 0 0 0 0 $\frac{\sqrt{70}i}{112}$ 0 0	
$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$		

870 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{4,2}^{(1,-1;a)}(E, 2)$	0	0 0 0 $-\frac{\sqrt{105}}{168}$ $\frac{\sqrt{70}i}{112}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 $\frac{3\sqrt{7}}{56}$ $-\frac{\sqrt{42}i}{48}$ 0
	0	0 0 $\frac{\sqrt{105}}{168}$ 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{42}i}{48}$
	0	$\frac{\sqrt{105}}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{112}$ 0 0 0 $-\frac{3\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0
	$-\frac{\sqrt{105}}{168}$	0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{112}$ $\frac{3\sqrt{7}}{56}$ 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0
	$-\frac{\sqrt{70}i}{112}$	0 0 0 0 0 0 0 $\frac{\sqrt{105}}{168}$ $\frac{\sqrt{42}i}{48}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$
	0	$\frac{\sqrt{70}i}{112}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 0 $-\frac{\sqrt{42}i}{48}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0
	0	0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 0 0 $-\frac{\sqrt{42}i}{48}$ 0 0 $-\frac{3\sqrt{7}}{56}$
	0	0 0 0 $\frac{\sqrt{70}i}{112}$ $\frac{\sqrt{105}}{168}$ 0 0 0 0 0 $\frac{\sqrt{42}i}{48}$ $\frac{3\sqrt{7}}{56}$ 0
	0	$-\frac{\sqrt{7}i}{14}$ 0 $\frac{3\sqrt{7}}{56}$ $-\frac{\sqrt{42}i}{48}$ 0 0 0 0 0 0 $\frac{\sqrt{105}}{168}$ $-\frac{\sqrt{70}i}{112}$ 0
	$-\frac{\sqrt{7}i}{14}$	0 $-\frac{3\sqrt{7}}{56}$ 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 $\frac{\sqrt{70}i}{112}$
	0	$-\frac{3\sqrt{7}}{56}$ 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 $\frac{\sqrt{42}i}{48}$ 0 0 0 $-\frac{\sqrt{105}}{168}$ 0 0 0 0
	$\frac{3\sqrt{7}}{56}$	0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 $-\frac{\sqrt{42}i}{48}$ $\frac{\sqrt{105}}{168}$ 0 0 0 0 0
	$\frac{\sqrt{42}i}{48}$	0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $\frac{3\sqrt{7}}{56}$ $\frac{\sqrt{70}i}{112}$ 0 0 0 0 0
	0	$-\frac{\sqrt{42}i}{48}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 $-\frac{3\sqrt{7}}{56}$ 0 0 0 $-\frac{\sqrt{70}i}{112}$ 0 0 0 0

871 symmetry

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

continued ...

Table 10

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

$$-\frac{\sqrt{14}(x^6 - 15x^4z^2 + 15x^2z^4 + y^6 - 15y^4z^2 + 15y^2z^4 - 2z^6)}{8}$$

872 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_6^{(1,-1;a)}(A, 2)$	0	0	$-\frac{\sqrt{22}i}{88}$	0	0	$-\frac{\sqrt{33}}{88}$	0	$-\frac{\sqrt{33}i}{132}$	0	0	$-\frac{\sqrt{330}i}{264}$	0	0	$-\frac{\sqrt{55}}{88}$	
	0	0	0	$\frac{\sqrt{22}i}{88}$	$\frac{\sqrt{33}}{88}$	0	$-\frac{\sqrt{33}i}{132}$	0	0	0	$\frac{\sqrt{330}i}{264}$	$\frac{\sqrt{55}}{88}$	0		
	$\frac{\sqrt{22}i}{88}$	0	0	0	0	$\frac{\sqrt{33}i}{88}$	0	$-\frac{\sqrt{33}}{132}$	$-\frac{\sqrt{330}i}{264}$	0	0	0	0	$-\frac{\sqrt{55}i}{88}$	
	0	$-\frac{\sqrt{22}i}{88}$	0	0	$\frac{\sqrt{33}i}{88}$	0	$\frac{\sqrt{33}}{132}$	0	0	$\frac{\sqrt{330}i}{264}$	0	0	$-\frac{\sqrt{55}i}{88}$	0	
	0	$\frac{\sqrt{33}}{88}$	0	$-\frac{\sqrt{33}i}{88}$	0	0	$\frac{\sqrt{22}i}{22}$	0	0	$\frac{\sqrt{55}}{88}$	0	$\frac{\sqrt{55}i}{88}$	0	0	0
	$-\frac{\sqrt{33}}{88}$	0	$-\frac{\sqrt{33}i}{88}$	0	0	0	0	$-\frac{\sqrt{22}i}{22}$	$-\frac{\sqrt{55}}{88}$	0	$\frac{\sqrt{55}i}{88}$	0	0	0	
	0	$\frac{\sqrt{33}i}{132}$	0	$\frac{\sqrt{33}}{132}$	$-\frac{\sqrt{22}i}{22}$	0	0	0	0	$-\frac{\sqrt{55}i}{44}$	0	$\frac{\sqrt{55}}{44}$	0	0	0
	$\frac{\sqrt{33}i}{132}$	0	$-\frac{\sqrt{33}}{132}$	0	0	$\frac{\sqrt{22}i}{22}$	0	0	$-\frac{\sqrt{55}i}{44}$	0	$-\frac{\sqrt{55}}{44}$	0	0	0	
	0	0	$\frac{\sqrt{330}i}{264}$	0	0	$-\frac{\sqrt{55}}{88}$	0	$\frac{\sqrt{55}i}{44}$	0	0	$-\frac{5\sqrt{22}i}{88}$	0	0	$-\frac{5\sqrt{33}}{264}$	
	0	0	0	$-\frac{\sqrt{330}i}{264}$	$\frac{\sqrt{55}}{88}$	0	$\frac{\sqrt{55}i}{44}$	0	0	0	0	$\frac{5\sqrt{22}i}{88}$	$\frac{5\sqrt{33}}{264}$	0	
	$\frac{\sqrt{330}i}{264}$	0	0	0	0	$-\frac{\sqrt{55}i}{88}$	0	$-\frac{\sqrt{55}}{44}$	$\frac{5\sqrt{22}i}{88}$	0	0	0	0	$\frac{5\sqrt{33}i}{264}$	
	0	$-\frac{\sqrt{330}i}{264}$	0	0	$-\frac{\sqrt{55}i}{88}$	0	$\frac{\sqrt{55}}{44}$	0	0	$-\frac{5\sqrt{22}i}{88}$	0	0	$\frac{5\sqrt{33}i}{264}$	0	
	0	$\frac{\sqrt{55}}{88}$	0	$\frac{\sqrt{55}i}{88}$	0	0	0	0	$-\frac{5\sqrt{33}}{264}$	0	$-\frac{5\sqrt{33}i}{264}$	0	0	0	
	$-\frac{\sqrt{55}}{88}$	0	$\frac{\sqrt{55}i}{88}$	0	0	0	0	$-\frac{5\sqrt{33}}{264}$	0	$-\frac{5\sqrt{33}i}{264}$	0	0	0	0	
873	symmetry	$\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$													

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(A,3)$	0	0 0 0 0 0 $-\frac{\sqrt{66}i}{264}$ 0 $-\frac{\sqrt{66}}{264}$ $\frac{\sqrt{165}i}{66}$ 0 0 0 0 $\frac{\sqrt{110}i}{44}$
	0	0 0 0 0 $-\frac{\sqrt{66}i}{264}$ 0 $\frac{\sqrt{66}}{264}$ 0 0 $-\frac{\sqrt{165}i}{66}$ 0 0 $\frac{\sqrt{110}i}{44}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{66}}{264}$ 0 $\frac{\sqrt{66}i}{264}$ 0 0 $-\frac{\sqrt{165}i}{66}$ 0 0 $-\frac{\sqrt{110}i}{44}$
	0	0 0 0 0 $\frac{\sqrt{66}}{264}$ 0 $\frac{\sqrt{66}i}{264}$ 0 0 0 0 $\frac{\sqrt{165}i}{66}$ $\frac{\sqrt{110}}{44}$ 0
	0	$\frac{\sqrt{66}i}{264}$ 0 $\frac{\sqrt{66}}{264}$ 0 0 0 0 0 $\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0
	$\frac{\sqrt{66}i}{264}$	0 $-\frac{\sqrt{66}}{264}$ 0 0 0 0 0 $\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 0
	0	$\frac{\sqrt{66}}{264}$ 0 $-\frac{\sqrt{66}i}{264}$ 0 0 0 0 0 $-\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ 0 0
	$-\frac{\sqrt{66}}{264}$	0 $-\frac{\sqrt{66}i}{264}$ 0 0 0 0 0 $\frac{\sqrt{110}}{88}$ 0 $-\frac{\sqrt{110}i}{88}$ 0 0 0
	$-\frac{\sqrt{165}i}{66}$	0 0 0 0 0 $-\frac{\sqrt{110}i}{88}$ 0 $\frac{\sqrt{110}}{88}$ 0 0 0 0 0
	0	$\frac{\sqrt{165}i}{66}$ 0 0 $-\frac{\sqrt{110}i}{88}$ 0 $-\frac{\sqrt{110}}{88}$ 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{165}i}{66}$ 0 0 $\frac{\sqrt{110}}{88}$ 0 $\frac{\sqrt{110}i}{88}$ 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{165}i}{66}$ $-\frac{\sqrt{110}}{88}$ 0 $\frac{\sqrt{110}i}{88}$ 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{110}i}{44}$ 0 $\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{110}i}{44}$	0 $-\frac{\sqrt{110}}{44}$ 0 0 0 0 0 0 0 0 0 0 0 0

874 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(B, 1)$	0 0 0 0 0 $-\frac{\sqrt{5}}{24}$ 0 $-\frac{\sqrt{5}i}{12}$ 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 $\frac{\sqrt{3}}{24}$	
	0 0 0 0 $\frac{\sqrt{5}}{24}$ 0 $-\frac{\sqrt{5}i}{12}$ 0 0 0 0 $-\frac{\sqrt{2}i}{12}$ $-\frac{\sqrt{3}}{24}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{5}i}{24}$ 0 $\frac{\sqrt{5}}{12}$ $-\frac{\sqrt{2}i}{12}$ 0 0 0 0 $-\frac{\sqrt{3}i}{24}$	
	0 0 0 0 $-\frac{\sqrt{5}i}{24}$ 0 $-\frac{\sqrt{5}}{12}$ 0 0 $\frac{\sqrt{2}i}{12}$ 0 0 $-\frac{\sqrt{3}i}{24}$ 0	
	0 $\frac{\sqrt{5}}{24}$ 0 $\frac{\sqrt{5}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{24}$ 0 0	
	$-\frac{\sqrt{5}}{24}$ 0 $\frac{\sqrt{5}i}{24}$ 0 0 0 0 0 $\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{24}$ 0 0 0	
	0 $\frac{\sqrt{5}i}{12}$ 0 $-\frac{\sqrt{5}}{12}$ 0 0 0 0 0 $-\frac{\sqrt{3}i}{12}$ 0 $-\frac{\sqrt{3}}{12}$ $-\frac{\sqrt{2}i}{6}$ 0	
	$\frac{\sqrt{5}i}{12}$ 0 $\frac{\sqrt{5}}{12}$ 0 0 0 0 0 $-\frac{\sqrt{3}i}{12}$ 0 $\frac{\sqrt{3}}{12}$ 0 0 $-\frac{\sqrt{2}i}{6}$	
	0 0 $\frac{\sqrt{2}i}{12}$ 0 0 $\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 $\frac{\sqrt{5}}{24}$	
	0 0 0 $-\frac{\sqrt{2}i}{12}$ $-\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{12}$ 0 0 0 0 0 $-\frac{\sqrt{5}}{24}$ 0	
	$-\frac{\sqrt{2}i}{12}$ 0 0 0 0 $-\frac{\sqrt{3}i}{24}$ 0 $\frac{\sqrt{3}}{12}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{24}$	
	0 $\frac{\sqrt{2}i}{12}$ 0 0 $-\frac{\sqrt{3}i}{24}$ 0 $-\frac{\sqrt{3}}{12}$ 0 0 0 0 0 $\frac{\sqrt{5}i}{24}$ 0	
	0 $-\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{24}$ 0 0 $-\frac{\sqrt{2}i}{6}$ 0 0 $-\frac{\sqrt{5}}{24}$ 0 $-\frac{\sqrt{5}i}{24}$ 0 0	
	$\frac{\sqrt{3}}{24}$ 0 $\frac{\sqrt{3}i}{24}$ 0 0 0 0 $\frac{\sqrt{2}i}{6}$ $\frac{\sqrt{5}}{24}$ 0 $-\frac{\sqrt{5}i}{24}$ 0 0 0	
875	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
$\mathbb{Q}_6^{(1,-1;a)}(B, 2)$	0	0 0 0 0 0 $-\frac{19\sqrt{11}}{264}$ 0 $-\frac{7\sqrt{11}i}{132}$ 0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 $-\frac{\sqrt{165}}{264}$
	0	0 0 0 0 $\frac{19\sqrt{11}}{264}$ 0 $-\frac{7\sqrt{11}i}{132}$ 0 0 0 0 $\frac{\sqrt{110}i}{132}$ $\frac{\sqrt{165}}{264}$ 0
	0	0 0 0 0 0 $-\frac{19\sqrt{11}i}{264}$ 0 $\frac{7\sqrt{11}}{132}$ $\frac{\sqrt{110}i}{132}$ 0 0 0 0 $\frac{\sqrt{165}i}{264}$
	0	0 0 0 0 $-\frac{19\sqrt{11}i}{264}$ 0 $-\frac{7\sqrt{11}}{132}$ 0 0 $-\frac{\sqrt{110}i}{132}$ 0 0 $\frac{\sqrt{165}i}{264}$ 0
	0	$\frac{19\sqrt{11}}{264}$ 0 $\frac{19\sqrt{11}i}{264}$ 0 0 0 0 0 $\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{264}$ 0 0
	$-\frac{19\sqrt{11}}{264}$	0 $\frac{19\sqrt{11}i}{264}$ 0 0 0 0 0 $-\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{264}$ 0 0 0
	0	$\frac{7\sqrt{11}i}{132}$ 0 $-\frac{7\sqrt{11}}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{165}i}{132}$ 0 $\frac{\sqrt{165}}{132}$ $-\frac{\sqrt{110}i}{66}$ 0
	$\frac{7\sqrt{11}i}{132}$	0 $\frac{7\sqrt{11}}{132}$ 0 0 0 0 0 0 $\frac{\sqrt{165}i}{132}$ 0 $-\frac{\sqrt{165}}{132}$ 0 0 $\frac{\sqrt{110}i}{66}$
	0	0 $-\frac{\sqrt{110}i}{132}$ 0 0 $-\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $-\frac{5\sqrt{11}}{264}$
	0	0 0 0 $\frac{\sqrt{110}i}{132}$ $\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{132}$ 0 0 0 0 0 $\frac{5\sqrt{11}}{264}$ 0
	$\frac{\sqrt{110}i}{132}$	0 0 0 0 0 $\frac{\sqrt{165}i}{264}$ 0 $-\frac{\sqrt{165}}{132}$ 0 0 0 0 0 $-\frac{5\sqrt{11}i}{264}$
	0	$-\frac{\sqrt{110}i}{132}$ 0 0 $\frac{\sqrt{165}i}{264}$ 0 $\frac{\sqrt{165}}{132}$ 0 0 0 0 0 $-\frac{5\sqrt{11}i}{264}$ 0
	0	$\frac{\sqrt{165}}{264}$ 0 $-\frac{\sqrt{165}i}{264}$ 0 0 0 0 $-\frac{\sqrt{110}i}{66}$ $-\frac{5\sqrt{11}}{264}$ 0 $\frac{5\sqrt{11}i}{264}$ 0 0
	$-\frac{\sqrt{165}}{264}$	0 $-\frac{\sqrt{165}i}{264}$ 0 0 0 0 0 $-\frac{\sqrt{110}i}{66}$ $-\frac{5\sqrt{11}}{264}$ 0 $\frac{5\sqrt{11}i}{264}$ 0 0
$\frac{\sqrt{462}xy(x^2-3y^2)(3x^2-y^2)}{16}$		

876 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_6^{(1,-1;a)}(B,3)$		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{1}{4} & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{4} & 0 & -\frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{4} & 0 & \frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{4} & 0 & -\frac{1}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{1}{4} & 0 & \frac{i}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
877	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
$\mathbb{Q}_6^{(1,-1;a)}(B, 4)$	0	0 0 0 0 0 $\frac{\sqrt{55}i}{132}$ 0 $\frac{\sqrt{55}}{132}$ $-\frac{\sqrt{22}i}{33}$ 0 0 0 0 $-\frac{\sqrt{33}i}{66}$
	0	0 0 0 0 0 $\frac{\sqrt{55}i}{132}$ 0 $-\frac{\sqrt{55}}{132}$ 0 0 $\frac{\sqrt{22}i}{33}$ 0 0 $-\frac{\sqrt{33}i}{66}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{55}}{132}$ 0 $\frac{\sqrt{55}i}{132}$ 0 0 $-\frac{\sqrt{22}i}{33}$ 0 0 $-\frac{\sqrt{33}}{66}$
	0	0 0 0 0 0 $\frac{\sqrt{55}}{132}$ 0 $\frac{\sqrt{55}i}{132}$ 0 0 0 0 $\frac{\sqrt{22}i}{33}$ $\frac{\sqrt{33}}{66}$ 0
	0	$-\frac{\sqrt{55}i}{132}$ 0 $\frac{\sqrt{55}}{132}$ 0 0 0 0 0 $-\frac{\sqrt{33}i}{33}$ 0 $-\frac{\sqrt{33}}{33}$ $\frac{2\sqrt{22}i}{33}$ 0
	$-\frac{\sqrt{55}i}{132}$	0 $-\frac{\sqrt{55}}{132}$ 0 0 0 0 0 $-\frac{\sqrt{33}i}{33}$ 0 $\frac{\sqrt{33}}{33}$ 0 0 $-\frac{2\sqrt{22}i}{33}$
	0	$-\frac{\sqrt{55}}{132}$ 0 $-\frac{\sqrt{55}i}{132}$ 0 0 0 0 0 $\frac{\sqrt{33}}{66}$ 0 $-\frac{\sqrt{33}i}{66}$ 0 0 0
	$\frac{\sqrt{55}}{132}$	0 $-\frac{\sqrt{55}i}{132}$ 0 0 0 0 0 $-\frac{\sqrt{33}}{66}$ 0 $-\frac{\sqrt{33}i}{66}$ 0 0 0
	$\frac{\sqrt{22}i}{33}$	0 0 0 0 0 $\frac{\sqrt{33}i}{33}$ 0 $-\frac{\sqrt{33}}{66}$ 0 0 0 0 0 $\frac{\sqrt{55}i}{66}$
	0	$-\frac{\sqrt{22}i}{33}$ 0 0 0 $\frac{\sqrt{33}i}{33}$ 0 $\frac{\sqrt{33}}{66}$ 0 0 0 0 0 $\frac{\sqrt{55}i}{66}$
	0	0 $\frac{\sqrt{22}i}{33}$ 0 0 0 $\frac{\sqrt{33}}{33}$ 0 $\frac{\sqrt{33}i}{66}$ 0 0 0 0 0 $-\frac{\sqrt{55}}{66}$
	0	0 0 0 $-\frac{\sqrt{22}i}{33}$ $-\frac{\sqrt{33}}{33}$ 0 $\frac{\sqrt{33}i}{66}$ 0 0 0 0 0 $\frac{\sqrt{55}}{66}$ 0
	0	$\frac{\sqrt{33}i}{66}$ 0 $\frac{\sqrt{33}}{66}$ $-\frac{2\sqrt{22}i}{33}$ 0 0 0 0 $-\frac{\sqrt{55}i}{66}$ 0 $\frac{\sqrt{55}}{66}$ 0 0
	$\frac{\sqrt{33}i}{66}$	0 $-\frac{\sqrt{33}}{66}$ 0 0 0 $\frac{2\sqrt{22}i}{33}$ 0 0 $-\frac{\sqrt{55}i}{66}$ 0 $-\frac{\sqrt{55}}{66}$ 0 0 0
$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$		
878	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_{6,1}^{(1,-1;a)}(E, 1)$	0	0	0	$-\frac{\sqrt{11}}{176}$	$-\frac{\sqrt{66}i}{176}$	0	0	0	0	0	$\frac{3\sqrt{165}}{176}$	$-\frac{3\sqrt{110}i}{176}$	0		
	0	0	$\frac{\sqrt{11}}{176}$	0	0	$\frac{\sqrt{66}i}{176}$	0	0	0	0	$-\frac{3\sqrt{165}}{176}$	0	0	$\frac{3\sqrt{110}i}{176}$	
	0	$\frac{\sqrt{11}}{176}$	0	0	0	0	$\frac{\sqrt{66}i}{66}$	0	0	$\frac{5\sqrt{165}}{528}$	0	$\frac{\sqrt{165}i}{66}$	0	0	
	$-\frac{\sqrt{11}}{176}$	0	0	0	0	0	0	$-\frac{\sqrt{66}i}{66}$	$-\frac{5\sqrt{165}}{528}$	0	$\frac{\sqrt{165}i}{66}$	0	0	0	
	$\frac{\sqrt{66}i}{176}$	0	0	0	0	0	0	$\frac{\sqrt{11}}{44}$	$-\frac{3\sqrt{110}i}{176}$	0	0	0	0	$-\frac{\sqrt{165}i}{66}$	
	0	$-\frac{\sqrt{66}i}{176}$	0	0	0	0	$-\frac{\sqrt{11}}{44}$	0	0	$\frac{3\sqrt{110}i}{176}$	0	0	$-\frac{\sqrt{165}i}{66}$	0	
	0	0	$-\frac{\sqrt{66}i}{66}$	0	0	$-\frac{\sqrt{11}}{44}$	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{132}$	
	0	0	0	$\frac{\sqrt{66}i}{66}$	$\frac{\sqrt{11}}{44}$	0	0	0	0	0	0	$-\frac{\sqrt{165}}{132}$	0		
	0	0	0	$-\frac{5\sqrt{165}}{528}$	$\frac{3\sqrt{110}i}{176}$	0	0	0	0	0	$-\frac{5\sqrt{11}}{176}$	$\frac{5\sqrt{66}i}{528}$	0		
	0	0	$\frac{5\sqrt{165}}{528}$	0	0	$-\frac{3\sqrt{110}i}{176}$	0	0	0	0	$\frac{5\sqrt{11}}{176}$	0	0	$-\frac{5\sqrt{66}i}{528}$	
	0	$-\frac{3\sqrt{165}}{176}$	0	$-\frac{\sqrt{165}i}{66}$	0	0	0	0	0	$\frac{5\sqrt{11}}{176}$	0	0	0	0	
	$\frac{3\sqrt{165}}{176}$	0	$-\frac{\sqrt{165}i}{66}$	0	0	0	0	0	$-\frac{5\sqrt{11}}{176}$	0	0	0	0	0	
	$\frac{3\sqrt{110}i}{176}$	0	0	0	0	$\frac{\sqrt{66}i}{66}$	0	$-\frac{\sqrt{165}}{132}$	$-\frac{5\sqrt{66}i}{528}$	0	0	0	0	0	
	0	$-\frac{3\sqrt{110}i}{176}$	0	0	$\frac{\sqrt{165}i}{66}$	0	$\frac{\sqrt{165}}{132}$	0	0	$\frac{5\sqrt{66}i}{528}$	0	0	0	0	
879	symmetry	$\frac{3\sqrt{7}xz(x-z)(x+z)(x^2-10y^2+z^2)}{4}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{Q}_{6,2}^{(1,-1;a)}(E, 1)$	0	0	0	$\frac{\sqrt{11}i}{176}$	0	0	$-\frac{\sqrt{66}i}{66}$	0	0	$-\frac{\sqrt{165}}{66}$	0	$-\frac{5\sqrt{165}i}{528}$	0	0	0	
	0	0	$\frac{\sqrt{11}i}{176}$	0	0	0	0	$\frac{\sqrt{66}i}{66}$	$\frac{\sqrt{165}}{66}$	0	$-\frac{5\sqrt{165}i}{528}$	0	0	0	0	
	0	$-\frac{\sqrt{11}i}{176}$	0	0	$-\frac{\sqrt{66}i}{176}$	0	0	0	0	$-\frac{3\sqrt{165}i}{176}$	0	0	$\frac{3\sqrt{110}i}{176}$	0	0	
	$-\frac{\sqrt{11}i}{176}$	0	0	0	0	$\frac{\sqrt{66}i}{176}$	0	0	$-\frac{3\sqrt{165}i}{176}$	0	0	0	0	$-\frac{3\sqrt{110}i}{176}$	0	
	0	0	$\frac{\sqrt{66}i}{176}$	0	0	0	0	$-\frac{\sqrt{11}i}{44}$	0	0	$\frac{3\sqrt{110}i}{176}$	0	0	$\frac{\sqrt{165}}{66}$	0	0
	0	0	0	$-\frac{\sqrt{66}i}{176}$	0	0	$-\frac{\sqrt{11}i}{44}$	0	0	0	$-\frac{3\sqrt{110}i}{176}$	$-\frac{\sqrt{165}}{66}$	0	0	0	0
	$\frac{\sqrt{66}i}{66}$	0	0	0	0	$\frac{\sqrt{11}i}{44}$	0	0	0	0	0	0	0	$\frac{\sqrt{165}i}{132}$	0	0
	0	$-\frac{\sqrt{66}i}{66}$	0	0	$\frac{\sqrt{11}i}{44}$	0	0	0	0	0	0	0	$\frac{\sqrt{165}i}{132}$	0	0	0
	0	$\frac{\sqrt{165}}{66}$	0	$\frac{3\sqrt{165}i}{176}$	0	0	0	0	0	0	$\frac{5\sqrt{11}i}{176}$	0	0	0	0	0
	$-\frac{\sqrt{165}}{66}$	0	$\frac{3\sqrt{165}i}{176}$	0	0	0	0	0	0	$-\frac{5\sqrt{11}i}{176}$	0	0	$\frac{5\sqrt{66}i}{528}$	0	0	0
	0	$\frac{5\sqrt{165}i}{528}$	0	0	$-\frac{3\sqrt{110}i}{176}$	0	0	0	0	$-\frac{5\sqrt{11}i}{176}$	0	0	$\frac{5\sqrt{66}i}{528}$	0	0	0
	$\frac{5\sqrt{165}i}{528}$	0	0	0	$\frac{3\sqrt{110}i}{176}$	0	0	$-\frac{5\sqrt{11}i}{176}$	0	0	0	0	$-\frac{5\sqrt{66}i}{528}$	0	0	0
	0	0	$-\frac{3\sqrt{110}i}{176}$	0	0	$-\frac{\sqrt{165}}{66}$	0	$-\frac{\sqrt{165}i}{132}$	0	0	$-\frac{5\sqrt{66}i}{528}$	0	0	0	0	0
	0	0	0	$\frac{3\sqrt{110}i}{176}$	$\frac{\sqrt{165}}{66}$	0	$-\frac{\sqrt{165}i}{132}$	0	0	0	0	$\frac{5\sqrt{66}i}{528}$	0	0	0	0
$\frac{\sqrt{462xz}(x^2 - 3z^2)(3x^2 - z^2)}{16}$																
880	symmetry															

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{6,2}^{(1,-1;a)}(E, 2)$	0	0 0 0 $-\frac{\sqrt{6}}{64}$ $\frac{3i}{32}$ 0 0 0 0 0 0 $-\frac{3\sqrt{10}}{64}$ $\frac{\sqrt{15}i}{32}$ 0
	0	0 0 $\frac{\sqrt{6}}{64}$ 0 0 $-\frac{3i}{32}$ 0 0 0 0 $\frac{3\sqrt{10}}{64}$ 0 0 $-\frac{\sqrt{15}i}{32}$
	0	$\frac{\sqrt{6}}{64}$ 0 0 0 0 0 $\frac{i}{16}$ 0 0 $\frac{\sqrt{10}}{64}$ 0 0 0 0
	$-\frac{\sqrt{6}}{64}$	0 0 0 0 0 0 $-\frac{i}{16}$ $-\frac{\sqrt{10}}{64}$ 0 0 0 0 0
	$-\frac{3i}{32}$	0 0 0 0 0 0 $\frac{\sqrt{6}}{16}$ $-\frac{\sqrt{15}i}{32}$ 0 0 0 0 0
	0	$\frac{3i}{32}$ 0 0 0 0 $-\frac{\sqrt{6}}{16}$ 0 0 $\frac{\sqrt{15}i}{32}$ 0 0 0 0
	0	0 $-\frac{i}{16}$ 0 0 $-\frac{\sqrt{6}}{16}$ 0 0 0 0 $-\frac{\sqrt{15}i}{16}$ 0 0 $-\frac{\sqrt{10}}{16}$
	0	0 0 $\frac{i}{16}$ $\frac{\sqrt{6}}{16}$ 0 0 0 0 0 $\frac{\sqrt{15}i}{16}$ $\frac{\sqrt{10}}{16}$ 0
	0	0 0 $-\frac{\sqrt{10}}{64}$ $\frac{\sqrt{15}i}{32}$ 0 0 0 0 0 0 $-\frac{5\sqrt{6}}{64}$ $\frac{5i}{32}$ 0
	0	$\frac{\sqrt{10}}{64}$ 0 0 $-\frac{\sqrt{15}i}{32}$ 0 0 0 0 0 $\frac{5\sqrt{6}}{64}$ 0 0 $-\frac{5i}{32}$
	0	$\frac{3\sqrt{10}}{64}$ 0 0 0 0 $\frac{\sqrt{15}i}{16}$ 0 0 $\frac{5\sqrt{6}}{64}$ 0 0 0 0
	$-\frac{3\sqrt{10}}{64}$	0 0 0 0 0 0 $-\frac{\sqrt{15}i}{16}$ $-\frac{5\sqrt{6}}{64}$ 0 0 0 0
	$-\frac{\sqrt{15}i}{32}$	0 0 0 0 0 0 $\frac{\sqrt{10}}{16}$ $-\frac{5i}{32}$ 0 0 0 0
	0	$\frac{\sqrt{15}i}{32}$ 0 0 0 $-\frac{\sqrt{10}}{16}$ 0 0 $\frac{5i}{32}$ 0 0 0 0
$\frac{\sqrt{210}xz(x^4 - 16x^2y^2 + 2x^2z^2 + 16y^4 - 16y^2z^2 + z^4)}{16}$		

882 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{6,1}^{(1,-1;a)}(E, 3)$	0	0 0 0 $-\frac{\sqrt{330}i}{2112}$ 0 0 $-\frac{7\sqrt{55}i}{528}$ 0 0 $-\frac{\sqrt{22}}{33}$ 0 $-\frac{91\sqrt{22}i}{2112}$ 0 0
	0	0 0 $-\frac{\sqrt{330}i}{2112}$ 0 0 0 0 $\frac{7\sqrt{55}i}{528}$ $\frac{\sqrt{22}}{33}$ 0 $-\frac{91\sqrt{22}i}{2112}$ 0 0 0
	0	$\frac{\sqrt{330}i}{2112}$ 0 0 $-\frac{19\sqrt{55}i}{1056}$ 0 0 0 0 $-\frac{47\sqrt{22}i}{2112}$ 0 $\frac{2\sqrt{22}}{33}$ $-\frac{9\sqrt{33}i}{352}$ 0
	$\frac{\sqrt{330}i}{2112}$	0 0 0 0 0 $\frac{19\sqrt{55}i}{1056}$ 0 0 $-\frac{47\sqrt{22}i}{2112}$ 0 $-\frac{2\sqrt{22}}{33}$ 0 0 $\frac{9\sqrt{33}i}{352}$
	0	0 0 $\frac{19\sqrt{55}i}{1056}$ 0 0 0 0 $\frac{\sqrt{330}i}{528}$ 0 0 $-\frac{7\sqrt{33}i}{352}$ 0 0 $-\frac{\sqrt{22}}{33}$
	0	0 0 0 $-\frac{19\sqrt{55}i}{1056}$ 0 0 $\frac{\sqrt{330}i}{528}$ 0 0 0 0 $\frac{7\sqrt{33}i}{352}$ $\frac{\sqrt{22}}{33}$ 0
	$\frac{7\sqrt{55}i}{528}$	0 0 0 0 0 $-\frac{\sqrt{330}i}{528}$ 0 0 $-\frac{\sqrt{33}i}{176}$ 0 0 0 0 $0 -\frac{\sqrt{22}i}{48}$
	0	$-\frac{7\sqrt{55}i}{528}$ 0 0 $-\frac{\sqrt{330}i}{528}$ 0 0 0 0 $\frac{\sqrt{33}i}{176}$ 0 0 $-\frac{\sqrt{22}i}{48}$ 0
	0	$\frac{\sqrt{22}}{33}$ 0 $\frac{47\sqrt{22}i}{2112}$ 0 0 $\frac{\sqrt{33}i}{176}$ 0 0 0 0 $-\frac{5\sqrt{330}i}{2112}$ 0 0
	$-\frac{\sqrt{22}}{33}$	0 $\frac{47\sqrt{22}i}{2112}$ 0 0 0 0 $-\frac{\sqrt{33}i}{176}$ 0 0 $-\frac{5\sqrt{330}i}{2112}$ 0 0 0
	0	$\frac{91\sqrt{22}i}{2112}$ 0 $-\frac{2\sqrt{22}}{33}$ $\frac{7\sqrt{33}i}{352}$ 0 0 0 0 $\frac{5\sqrt{330}i}{2112}$ 0 0 $-\frac{5\sqrt{55}i}{1056}$ 0
	$\frac{91\sqrt{22}i}{2112}$	0 $\frac{2\sqrt{22}}{33}$ 0 0 $-\frac{7\sqrt{33}i}{352}$ 0 0 $\frac{5\sqrt{330}i}{2112}$ 0 0 0 0 $\frac{5\sqrt{55}i}{1056}$
	0	0 0 $\frac{9\sqrt{33}i}{352}$ 0 0 $\frac{\sqrt{22}}{33}$ 0 $\frac{\sqrt{22}i}{48}$ 0 0 $\frac{5\sqrt{55}i}{1056}$ 0 0 0
	0	0 0 0 $-\frac{9\sqrt{33}i}{352}$ $-\frac{\sqrt{22}}{33}$ 0 $\frac{\sqrt{22}i}{48}$ 0 0 0 0 $-\frac{5\sqrt{55}i}{1056}$ 0 0
$\frac{\sqrt{210}yz(16x^4 - 16x^2y^2 - 16x^2z^2 + y^4 + 2y^2z^2 + z^4)}{16}$		
883	symmetry	

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{6,2}^{(1,-1;a)}(E, 3)$	0	0 0 0 $-\frac{\sqrt{330}}{2112}$ $\frac{19\sqrt{55}i}{1056}$ 0 0 0 0 $\frac{2\sqrt{22}i}{33}$ 0 $-\frac{47\sqrt{22}}{2112}$ $-\frac{9\sqrt{33}i}{352}$ 0
	0	0 0 $\frac{\sqrt{330}}{2112}$ 0 0 $-\frac{19\sqrt{55}i}{1056}$ 0 0 $\frac{2\sqrt{22}i}{33}$ 0 $\frac{47\sqrt{22}}{2112}$ 0 0 $\frac{9\sqrt{33}i}{352}$
	0	$\frac{\sqrt{330}}{2112}$ 0 0 0 0 0 $-\frac{7\sqrt{55}i}{528}$ 0 0 $-\frac{91\sqrt{22}}{2112}$ 0 $-\frac{\sqrt{22}i}{33}$ 0 0
	$-\frac{\sqrt{330}}{2112}$	0 0 0 0 0 0 $\frac{7\sqrt{55}i}{528}$ $\frac{91\sqrt{22}}{2112}$ 0 $-\frac{\sqrt{22}i}{33}$ 0 0 0
	$-\frac{19\sqrt{55}i}{1056}$	0 0 0 0 0 0 $\frac{\sqrt{330}}{528}$ $-\frac{7\sqrt{33}i}{352}$ 0 0 0 0 $-\frac{\sqrt{22}i}{33}$
	0	$\frac{19\sqrt{55}i}{1056}$ 0 0 0 0 $-\frac{\sqrt{330}}{528}$ 0 0 $\frac{7\sqrt{33}i}{352}$ 0 0 $-\frac{\sqrt{22}i}{33}$ 0
	0	0 0 $\frac{7\sqrt{55}i}{528}$ 0 0 $-\frac{\sqrt{330}}{528}$ 0 0 0 0 $\frac{\sqrt{33}i}{176}$ 0 0 $\frac{\sqrt{22}}{48}$
	0	0 0 0 $-\frac{7\sqrt{55}i}{528}$ $\frac{\sqrt{330}}{528}$ 0 0 0 0 0 $-\frac{\sqrt{33}i}{176}$ $-\frac{\sqrt{22}}{48}$ 0
	0	$-\frac{2\sqrt{22}i}{33}$ 0 $\frac{91\sqrt{22}}{2112}$ $\frac{7\sqrt{33}i}{352}$ 0 0 0 0 0 0 $-\frac{5\sqrt{330}}{2112}$ $\frac{5\sqrt{55}i}{1056}$ 0
	$-\frac{2\sqrt{22}i}{33}$	0 $-\frac{91\sqrt{22}}{2112}$ 0 0 $-\frac{7\sqrt{33}i}{352}$ 0 0 0 0 $\frac{5\sqrt{330}}{2112}$ 0 0 $-\frac{5\sqrt{55}i}{1056}$
	0	$\frac{47\sqrt{22}}{2112}$ 0 $\frac{\sqrt{22}i}{33}$ 0 0 $-\frac{\sqrt{33}i}{176}$ 0 0 $\frac{5\sqrt{330}}{2112}$ 0 0 0 0
	$-\frac{47\sqrt{22}}{2112}$	0 $\frac{\sqrt{22}i}{33}$ 0 0 0 0 $\frac{\sqrt{33}i}{176}$ $-\frac{5\sqrt{330}}{2112}$ 0 0 0 0
	$\frac{9\sqrt{33}i}{352}$	0 0 0 0 $\frac{\sqrt{22}i}{33}$ 0 $-\frac{\sqrt{22}}{48}$ $-\frac{5\sqrt{55}i}{1056}$ 0 0 0 0
	0	$-\frac{9\sqrt{33}i}{352}$ 0 0 $\frac{\sqrt{22}i}{33}$ 0 $\frac{\sqrt{22}}{48}$ 0 0 $\frac{5\sqrt{55}i}{1056}$ 0 0 0 0

884 symmetry

1

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_2^{(1,1;a)}(A)$	0	$\begin{bmatrix} 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & \frac{\sqrt{42}}{42} & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & \frac{\sqrt{42}i}{42} & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{42}i}{42} & 0 & \frac{\sqrt{42}}{42} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}}{42} & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{42}}{42} & 0 & -\frac{\sqrt{42}i}{42} & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{42}i}{42} & 0 & \frac{\sqrt{42}}{42} & \frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{42}i}{42} & 0 & -\frac{\sqrt{42}}{42} & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & \frac{\sqrt{42}}{42} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{7}i}{14} & -\frac{\sqrt{42}}{42} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}i}{14} & 0 & 0 & -\frac{\sqrt{42}i}{42} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{42}}{42} & 0 & \frac{\sqrt{42}i}{42} \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{42}}{42} & 0 & \frac{\sqrt{42}i}{42} & 0 & 0 & 0 \end{bmatrix}$
	886	symmetry
		$\frac{\sqrt{3}(x-y)(x+y)}{2}$

continued ...

Table 10

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

887 symmetry

 $\sqrt{3}xy$

continued ...

Table 10

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

888 symmetry

 $\sqrt{3}xz$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_{2,1}^{(1,1;a)}(E)$	0	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	$\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0
	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	0	0	$\frac{\sqrt{14}i}{21}$	$-\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0	0
	0	$\frac{\sqrt{21}i}{42}$	0	0	$\frac{\sqrt{14}i}{21}$	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	0
	$\frac{\sqrt{21}i}{42}$	0	0	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	$-\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	0	0	0	0
	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	0	0	$\frac{\sqrt{21}i}{42}$	0	0	0	0	0	$\frac{\sqrt{35}}{42}$	0
	0	0	0	$\frac{\sqrt{14}i}{21}$	0	0	$\frac{\sqrt{21}i}{42}$	0	0	0	0	0	$-\frac{\sqrt{35}}{42}$	0	0
	$\frac{\sqrt{14}i}{21}$	0	0	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	0	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	0
	0	$-\frac{\sqrt{14}i}{21}$	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	0	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	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	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	0	0
	0	$-\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	0	0	0	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	$-\frac{\sqrt{14}i}{21}$	0	0
	$-\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	0	0	0	$-\frac{\sqrt{21}i}{42}$	0	0	0	0	$\frac{\sqrt{14}i}{21}$	0
	0	0	0	0	0	$-\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	$\frac{\sqrt{14}i}{21}$	0	0	0	0
	0	0	0	0	$\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	0

889 symmetry

 $\sqrt{3}yz$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_{2,2}^{(1,1;a)}(E)$	0	0	0	$-\frac{\sqrt{21}}{42}$	$-\frac{\sqrt{14}i}{21}$	0	0	0	0	$\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	0	0	0
	0	0	$\frac{\sqrt{21}}{42}$	0	0	$\frac{\sqrt{14}i}{21}$	0	0	$\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	0	0
	0	$\frac{\sqrt{21}}{42}$	0	0	0	0	$-\frac{\sqrt{14}i}{21}$	0	0	$\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0
	$-\frac{\sqrt{21}}{42}$	0	0	0	0	0	0	$\frac{\sqrt{14}i}{21}$	$-\frac{\sqrt{35}}{42}$	0	$\frac{\sqrt{35}i}{42}$	0	0	0	0
	$\frac{\sqrt{14}i}{21}$	0	0	0	0	0	0	$\frac{\sqrt{21}}{42}$	0	0	0	0	0	$\frac{\sqrt{35}i}{42}$	0
	0	$-\frac{\sqrt{14}i}{21}$	0	0	0	0	$-\frac{\sqrt{21}}{42}$	0	0	0	0	0	$\frac{\sqrt{35}i}{42}$	0	0
	0	0	$\frac{\sqrt{14}i}{21}$	0	0	$-\frac{\sqrt{21}}{42}$	0	0	0	0	0	0	0	0	$\frac{\sqrt{35}}{42}$
	0	0	0	$-\frac{\sqrt{14}i}{21}$	$\frac{\sqrt{21}}{42}$	0	0	0	0	0	0	$-\frac{\sqrt{35}}{42}$	0	0	0
	0	$-\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	0	0	0	0	0	0	$\frac{\sqrt{21}}{42}$	$\frac{\sqrt{14}i}{21}$	0	0	0
	$-\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	0	0	0	0	0	$-\frac{\sqrt{21}}{42}$	0	0	$-\frac{\sqrt{14}i}{21}$	0
	0	$\frac{\sqrt{35}}{42}$	0	$-\frac{\sqrt{35}i}{42}$	0	0	0	0	0	$-\frac{\sqrt{21}}{42}$	0	0	0	0	0
	$-\frac{\sqrt{35}}{42}$	0	$-\frac{\sqrt{35}i}{42}$	0	0	0	0	0	$\frac{\sqrt{21}}{42}$	0	0	0	0	0	0
	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	0	$-\frac{\sqrt{35}}{42}$	$-\frac{\sqrt{14}i}{21}$	0	0	0	0	0	0	0
	0	0	0	0	$-\frac{\sqrt{35}i}{42}$	0	$\frac{\sqrt{35}}{42}$	0	0	$\frac{\sqrt{14}i}{21}$	0	0	0	0	0

890 symmetry

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

continued ...

Table 10

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

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	$-\frac{5\sqrt{154}i}{1848}$	0	0	$-\frac{2\sqrt{231}}{231}$	0	$\frac{13\sqrt{231}i}{924}$	0	0	$\frac{\sqrt{2310}i}{440}$	0	0	$-\frac{\sqrt{385}}{660}$		
	0	0	0	$\frac{5\sqrt{154}i}{1848}$	$\frac{2\sqrt{231}}{231}$	0	$\frac{13\sqrt{231}i}{924}$	0	0	0	$-\frac{\sqrt{2310}i}{440}$	$\frac{\sqrt{385}}{660}$	0	0		
	$\frac{5\sqrt{154}i}{1848}$	0	0	0	0	$\frac{2\sqrt{231}i}{231}$	0	$\frac{13\sqrt{231}i}{924}$	$\frac{\sqrt{2310}i}{440}$	0	0	0	0	$-\frac{\sqrt{385}i}{660}$		
	0	$-\frac{5\sqrt{154}i}{1848}$	0	0	$\frac{2\sqrt{231}i}{231}$	0	$-\frac{13\sqrt{231}}{924}$	0	0	$-\frac{\sqrt{2310}i}{440}$	0	0	$-\frac{\sqrt{385}i}{660}$	0		
	0	$\frac{2\sqrt{231}}{231}$	0	$-\frac{2\sqrt{231}i}{231}$	0	0	$\frac{5\sqrt{154}i}{462}$	0	0	$-\frac{13\sqrt{385}}{2310}$	0	$-\frac{13\sqrt{385}i}{2310}$	0	0		
	$-\frac{2\sqrt{231}}{231}$	0	$-\frac{2\sqrt{231}i}{231}$	0	0	0	0	$-\frac{5\sqrt{154}i}{462}$	$\frac{13\sqrt{385}}{2310}$	0	$-\frac{13\sqrt{385}i}{2310}$	0	0	0		
	0	$-\frac{13\sqrt{231}i}{924}$	0	$-\frac{13\sqrt{231}}{924}$	$-\frac{5\sqrt{154}i}{462}$	0	0	0	0	$\frac{19\sqrt{385}i}{4620}$	0	$-\frac{19\sqrt{385}}{4620}$	0	0		
	$-\frac{13\sqrt{231}i}{924}$	0	$\frac{13\sqrt{231}}{924}$	0	0	$\frac{5\sqrt{154}i}{462}$	0	0	$\frac{19\sqrt{385}i}{4620}$	0	$\frac{19\sqrt{385}}{4620}$	0	0	0		
	0	0	$-\frac{\sqrt{2310}i}{440}$	0	0	$\frac{13\sqrt{385}}{2310}$	0	$-\frac{19\sqrt{385}i}{4620}$	0	0	$-\frac{25\sqrt{154}i}{1848}$	0	0	$\frac{5\sqrt{231}}{924}$		
	0	0	0	$\frac{\sqrt{2310}i}{440}$	$-\frac{13\sqrt{385}}{2310}$	0	$-\frac{19\sqrt{385}i}{4620}$	0	0	0	$\frac{25\sqrt{154}i}{1848}$	$-\frac{5\sqrt{231}}{924}$	0			
	$-\frac{\sqrt{2310}i}{440}$	0	0	0	0	$\frac{13\sqrt{385}i}{2310}$	0	$\frac{19\sqrt{385}}{4620}$	$\frac{25\sqrt{154}i}{1848}$	0	0	0	0	$-\frac{5\sqrt{231}i}{924}$		
	0	$\frac{\sqrt{2310}i}{440}$	0	0	$\frac{13\sqrt{385}i}{2310}$	0	$-\frac{19\sqrt{385}}{4620}$	0	0	$-\frac{25\sqrt{154}i}{1848}$	0	0	$-\frac{5\sqrt{231}i}{924}$	0		
	0	$\frac{\sqrt{385}}{660}$	0	$\frac{\sqrt{385}i}{660}$	0	0	0	0	$-\frac{5\sqrt{231}}{924}$	0	$\frac{5\sqrt{231}i}{924}$	0	0	0		
	$-\frac{\sqrt{385}}{660}$	0	$\frac{\sqrt{385}i}{660}$	0	0	0	0	0	$\frac{5\sqrt{231}}{924}$	0	$\frac{5\sqrt{231}i}{924}$	0	0	0		

892 symmetry

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,1;a)}(A, 3)$	0	0	0	0	0	$\frac{3\sqrt{11}i}{44}$	0	$\frac{3\sqrt{11}}{44}$	$\frac{3\sqrt{110}i}{220}$	0	0	0	0	$-\frac{\sqrt{165}i}{330}$	
	0	0	0	0	$\frac{3\sqrt{11}i}{44}$	0	$-\frac{3\sqrt{11}}{44}$	0	0	$-\frac{3\sqrt{110}i}{220}$	0	0	$-\frac{\sqrt{165}i}{330}$	0	
	0	0	0	0	0	$\frac{3\sqrt{11}}{44}$	0	$-\frac{3\sqrt{11}i}{44}$	0	0	$-\frac{3\sqrt{110}i}{220}$	0	0	$\frac{\sqrt{165}}{330}$	
	0	0	0	0	$-\frac{3\sqrt{11}}{44}$	0	$-\frac{3\sqrt{11}i}{44}$	0	0	0	0	$\frac{3\sqrt{110}i}{220}$	$-\frac{\sqrt{165}}{330}$	0	
	0	$-\frac{3\sqrt{11}i}{44}$	0	$-\frac{3\sqrt{11}}{44}$	0	0	0	0	0	$-\frac{\sqrt{165}i}{660}$	0	$\frac{\sqrt{165}}{660}$	0	0	
	$-\frac{3\sqrt{11}i}{44}$	0	$\frac{3\sqrt{11}}{44}$	0	0	0	0	0	$-\frac{\sqrt{165}i}{660}$	0	$-\frac{\sqrt{165}}{660}$	0	0	0	
	0	$-\frac{3\sqrt{11}}{44}$	0	$\frac{3\sqrt{11}i}{44}$	0	0	0	0	0	$\frac{\sqrt{165}}{660}$	0	$\frac{\sqrt{165}i}{660}$	0	0	
	$\frac{3\sqrt{11}}{44}$	0	$\frac{3\sqrt{11}i}{44}$	0	0	0	0	0	$-\frac{\sqrt{165}i}{660}$	0	$\frac{\sqrt{165}i}{660}$	0	0	0	
	$-\frac{3\sqrt{110}i}{220}$	0	0	0	0	$\frac{\sqrt{165}i}{660}$	0	$-\frac{\sqrt{165}}{660}$	0	0	0	0	0	0	
	0	$\frac{3\sqrt{110}i}{220}$	0	0	$\frac{\sqrt{165}i}{660}$	0	$\frac{\sqrt{165}}{660}$	0	0	0	0	0	0	0	
	0	0	$\frac{3\sqrt{110}i}{220}$	0	0	$-\frac{\sqrt{165}}{660}$	0	$-\frac{\sqrt{165}i}{660}$	0	0	0	0	0	0	
	0	0	0	$-\frac{3\sqrt{110}i}{220}$	$\frac{\sqrt{165}}{660}$	0	$-\frac{\sqrt{165}i}{660}$	0	0	0	0	0	0	0	
	0	$\frac{\sqrt{165}i}{330}$	0	$-\frac{\sqrt{165}}{330}$	0	0	0	0	0	0	0	0	0	0	
	$\frac{\sqrt{165}i}{330}$	0	$\frac{\sqrt{165}}{330}$	0	0	0	0	0	0	0	0	0	0	0	
893	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$													

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_4^{(1,1;a)}(B, 2)$	0	0	0	0	0	$-\frac{\sqrt{77}i}{308}$	0	$-\frac{\sqrt{77}}{308}$	$-\frac{\sqrt{770}i}{220}$	0	0	0	0	$\frac{\sqrt{1155}i}{165}$	
	0	0	0	0	$-\frac{\sqrt{77}i}{308}$	0	$\frac{\sqrt{77}}{308}$	0	0	$\frac{\sqrt{770}i}{220}$	0	0	$\frac{\sqrt{1155}i}{165}$	0	
	0	0	0	0	0	$\frac{\sqrt{77}}{308}$	0	$-\frac{\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{770}i}{220}$	0	0	$\frac{\sqrt{1155}i}{165}$	
	0	0	0	0	$-\frac{\sqrt{77}}{308}$	0	$-\frac{\sqrt{77}i}{308}$	0	0	0	0	$\frac{\sqrt{770}i}{220}$	$-\frac{\sqrt{1155}i}{165}$	0	
	0	$\frac{\sqrt{77}i}{308}$	0	$-\frac{\sqrt{77}}{308}$	0	0	0	0	0	$\frac{23\sqrt{1155}i}{4620}$	0	$\frac{23\sqrt{1155}}{4620}$	$\frac{\sqrt{770}i}{110}$	0	
	$\frac{\sqrt{77}i}{308}$	0	$\frac{\sqrt{77}}{308}$	0	0	0	0	0	$\frac{23\sqrt{1155}i}{4620}$	0	$-\frac{23\sqrt{1155}}{4620}$	0	0	$-\frac{\sqrt{770}i}{110}$	
	0	$\frac{\sqrt{77}}{308}$	0	$\frac{\sqrt{77}i}{308}$	0	0	0	0	0	$\frac{\sqrt{1155}}{924}$	0	$-\frac{\sqrt{1155}i}{924}$	0	0	
	$-\frac{\sqrt{77}}{308}$	0	$\frac{\sqrt{77}i}{308}$	0	0	0	0	0	$-\frac{\sqrt{1155}}{924}$	0	$-\frac{\sqrt{1155}i}{924}$	0	0	0	
	$\frac{\sqrt{770}i}{220}$	0	0	0	$-\frac{23\sqrt{1155}i}{4620}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	0	0	0	$-\frac{\sqrt{77}i}{154}$	
	0	$-\frac{\sqrt{770}i}{220}$	0	0	$-\frac{23\sqrt{1155}i}{4620}$	0	$\frac{\sqrt{1155}}{924}$	0	0	0	0	0	$-\frac{\sqrt{77}i}{154}$	0	
	0	0	$\frac{\sqrt{770}i}{220}$	0	0	$-\frac{23\sqrt{1155}}{4620}$	0	$\frac{\sqrt{1155}i}{924}$	0	0	0	0	0	$\frac{\sqrt{77}}{154}$	
	0	0	0	$-\frac{\sqrt{770}i}{220}$	$\frac{23\sqrt{1155}}{4620}$	0	$\frac{\sqrt{1155}i}{924}$	0	0	0	0	0	$-\frac{\sqrt{77}}{154}$	0	
	0	$-\frac{\sqrt{1155}i}{165}$	0	$-\frac{\sqrt{1155}}{165}$	$-\frac{\sqrt{770}i}{110}$	0	0	0	0	$\frac{\sqrt{77}i}{154}$	0	$-\frac{\sqrt{77}}{154}$	0	0	
	$-\frac{\sqrt{1155}i}{165}$	0	$\frac{\sqrt{1155}}{165}$	0	0	$\frac{\sqrt{770}i}{110}$	0	0	$\frac{\sqrt{77}i}{154}$	0	$\frac{\sqrt{77}}{154}$	0	0	0	

895 symmetry

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

continued ...

Table 10

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

896 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{Q}_{4,2}^{(1,1;a)}(E, 1)$	0	0 0 0 $\frac{\sqrt{66}i}{264}$ 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{3\sqrt{110}}{220}$ 0 $-\frac{\sqrt{110}i}{440}$ 0 0
	0	0 0 $\frac{\sqrt{66}i}{264}$ 0 0 0 0 $-\frac{\sqrt{11}i}{44}$ $\frac{3\sqrt{110}}{220}$ 0 $-\frac{\sqrt{110}i}{440}$ 0 0 0
	0	$-\frac{\sqrt{66}i}{264}$ 0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 0 0 0 $\frac{7\sqrt{110}i}{440}$ 0 0 $\frac{\sqrt{165}i}{165}$ 0
	$-\frac{\sqrt{66}i}{264}$	0 0 0 0 0 $\frac{\sqrt{11}i}{44}$ 0 0 $\frac{7\sqrt{110}i}{440}$ 0 0 0 0 $-\frac{\sqrt{165}i}{165}$
	0	0 0 $\frac{\sqrt{11}i}{44}$ 0 0 0 0 $-\frac{\sqrt{66}i}{66}$ 0 0 $-\frac{7\sqrt{165}i}{660}$ 0 0 $\frac{3\sqrt{110}}{220}$
	0	0 0 0 $-\frac{\sqrt{11}i}{44}$ 0 0 $-\frac{\sqrt{66}i}{66}$ 0 0 0 0 $\frac{7\sqrt{165}i}{660}$ $-\frac{3\sqrt{110}}{220}$ 0
	$-\frac{\sqrt{11}i}{44}$	0 0 0 0 0 $\frac{\sqrt{66}i}{66}$ 0 0 $\frac{\sqrt{165}i}{60}$ 0 0 0 0 $-\frac{\sqrt{110}i}{55}$
	0	$\frac{\sqrt{11}i}{44}$ 0 0 $\frac{\sqrt{66}i}{66}$ 0 0 0 0 $-\frac{\sqrt{165}i}{60}$ 0 0 $-\frac{\sqrt{110}i}{55}$ 0
	0	$\frac{3\sqrt{110}}{220}$ 0 $-\frac{7\sqrt{110}i}{440}$ 0 0 $-\frac{\sqrt{165}i}{60}$ 0 0 0 0 $\frac{5\sqrt{66}i}{264}$ 0 0
	$-\frac{3\sqrt{110}}{220}$	0 $-\frac{7\sqrt{110}i}{440}$ 0 0 0 0 0 $\frac{\sqrt{165}i}{60}$ 0 0 $\frac{5\sqrt{66}i}{264}$ 0 0
	0	$\frac{\sqrt{110}i}{440}$ 0 0 $\frac{7\sqrt{165}i}{660}$ 0 0 0 0 $-\frac{5\sqrt{66}i}{264}$ 0 0 $-\frac{\sqrt{11}i}{22}$ 0
	$\frac{\sqrt{110}i}{440}$	0 0 0 0 $-\frac{7\sqrt{165}i}{660}$ 0 0 $-\frac{5\sqrt{66}i}{264}$ 0 0 0 0 $\frac{\sqrt{11}i}{22}$
	0	0 0 $-\frac{\sqrt{165}i}{165}$ 0 0 $-\frac{3\sqrt{110}}{220}$ 0 $\frac{\sqrt{110}i}{55}$ 0 0 $\frac{\sqrt{11}i}{22}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{165}i}{165}$ $\frac{3\sqrt{110}}{220}$ 0 $\frac{\sqrt{110}i}{55}$ 0 0 0 0 $-\frac{\sqrt{11}i}{22}$ 0 0
897 symmetry		$-\frac{\sqrt{5}xz(x^2 - 6y^2 + z^2)}{2}$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{Q}_{4,1}^{(1,1;a)}(E, 2)$	0	0	0	$-\frac{\sqrt{462}i}{1848}$	0	0	$-\frac{\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{770}}{220}$	0	$\frac{3\sqrt{770}i}{440}$	0	0	
	0	0	$-\frac{\sqrt{462}i}{1848}$	0	0	0	0	$\frac{\sqrt{77}i}{308}$	$\frac{\sqrt{770}}{220}$	0	$\frac{3\sqrt{770}i}{440}$	0	0	0	
	0	$\frac{\sqrt{462}i}{1848}$	0	0	$\frac{\sqrt{77}i}{308}$	0	0	0	0	$\frac{3\sqrt{770}i}{440}$	0	$\frac{\sqrt{770}}{110}$	$\frac{\sqrt{1155}i}{165}$	0	
	$\frac{\sqrt{462}i}{1848}$	0	0	0	0	$-\frac{\sqrt{77}i}{308}$	0	0	$\frac{3\sqrt{770}i}{440}$	0	$-\frac{\sqrt{770}}{110}$	0	0	$-\frac{\sqrt{1155}i}{165}$	
	0	0	$-\frac{\sqrt{77}i}{308}$	0	0	0	0	$\frac{\sqrt{462}i}{462}$	0	0	$\frac{23\sqrt{1155}i}{4620}$	0	0	$-\frac{\sqrt{770}}{220}$	
	0	0	0	$\frac{\sqrt{77}i}{308}$	0	0	$\frac{\sqrt{462}i}{462}$	0	0	0	0	$-\frac{23\sqrt{1155}i}{4620}$	$\frac{\sqrt{770}}{220}$	0	
	$\frac{\sqrt{77}i}{308}$	0	0	0	0	$-\frac{\sqrt{462}i}{462}$	0	0	$\frac{\sqrt{1155}i}{924}$	0	0	0	0	0	
	0	$-\frac{\sqrt{77}i}{308}$	0	0	$-\frac{\sqrt{462}i}{462}$	0	0	0	0	$-\frac{\sqrt{1155}i}{924}$	0	0	0	0	
	0	$\frac{\sqrt{770}}{220}$	0	$-\frac{3\sqrt{770}i}{440}$	0	0	$-\frac{\sqrt{1155}i}{924}$	0	0	0	0	$-\frac{5\sqrt{462}i}{1848}$	0	0	
	$-\frac{\sqrt{770}}{220}$	0	$-\frac{3\sqrt{770}i}{440}$	0	0	0	0	$\frac{\sqrt{1155}i}{924}$	0	0	$-\frac{5\sqrt{462}i}{1848}$	0	0	0	
	0	$-\frac{3\sqrt{770}i}{440}$	0	$-\frac{\sqrt{770}}{110}$	$-\frac{23\sqrt{1155}i}{4620}$	0	0	0	0	$\frac{5\sqrt{462}i}{1848}$	0	0	$\frac{\sqrt{77}i}{154}$	0	
	$-\frac{3\sqrt{770}i}{440}$	0	$\frac{\sqrt{770}}{110}$	0	0	$\frac{23\sqrt{1155}i}{4620}$	0	0	$\frac{5\sqrt{462}i}{1848}$	0	0	0	0	$-\frac{\sqrt{77}i}{154}$	
	0	0	$-\frac{\sqrt{1155}i}{165}$	0	0	$\frac{\sqrt{770}}{220}$	0	0	0	0	$-\frac{\sqrt{77}i}{154}$	0	0	0	
	0	0	0	$\frac{\sqrt{1155}i}{165}$	$-\frac{\sqrt{770}}{220}$	0	0	0	0	0	$\frac{\sqrt{77}i}{154}$	0	0	0	

898 symmetry

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

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{Q}_{4,2}^{(1,1;a)}(E, 2)$	0	0	0	$-\frac{\sqrt{462}}{1848}$	$-\frac{\sqrt{77i}}{308}$	0	0	0	0	$\frac{\sqrt{770i}}{110}$	0	$\frac{3\sqrt{770}}{440}$	$\frac{\sqrt{1155i}}{165}$	0		
	0	0	$\frac{\sqrt{462}}{1848}$	0	0	$\frac{\sqrt{77i}}{308}$	0	0	$\frac{\sqrt{770i}}{110}$	0	$-\frac{3\sqrt{770}}{440}$	0	0	$-\frac{\sqrt{1155i}}{165}$		
	0	$\frac{\sqrt{462}}{1848}$	0	0	0	0	$-\frac{\sqrt{77i}}{308}$	0	0	$\frac{3\sqrt{770}}{440}$	0	$-\frac{\sqrt{770i}}{220}$	0	0		
	$-\frac{\sqrt{462}}{1848}$	0	0	0	0	0	0	$\frac{\sqrt{77i}}{308}$	$-\frac{3\sqrt{770}}{440}$	0	$-\frac{\sqrt{770i}}{220}$	0	0	0		
	$\frac{\sqrt{77i}}{308}$	0	0	0	0	0	0	$\frac{\sqrt{462}}{462}$	$\frac{23\sqrt{1155i}}{4620}$	0	0	0	0	$-\frac{\sqrt{770i}}{220}$		
	0	$-\frac{\sqrt{77i}}{308}$	0	0	0	0	$-\frac{\sqrt{462}}{462}$	0	0	$-\frac{23\sqrt{1155i}}{4620}$	0	0	$-\frac{\sqrt{770i}}{220}$	0		
	0	0	$\frac{\sqrt{77i}}{308}$	0	0	$-\frac{\sqrt{462}}{462}$	0	0	0	0	$-\frac{\sqrt{1155i}}{924}$	0	0	0		
	0	0	0	$-\frac{\sqrt{77i}}{308}$	$\frac{\sqrt{462}}{462}$	0	0	0	0	0	$\frac{\sqrt{1155i}}{924}$	0	0			
	0	$-\frac{\sqrt{770i}}{110}$	0	$-\frac{3\sqrt{770}}{440}$	$-\frac{23\sqrt{1155i}}{4620}$	0	0	0	0	0	0	$-\frac{5\sqrt{462}}{1848}$	$-\frac{\sqrt{77i}}{154}$	0		
	$-\frac{\sqrt{770i}}{110}$	0	$\frac{3\sqrt{770}}{440}$	0	0	$\frac{23\sqrt{1155i}}{4620}$	0	0	0	0	$\frac{5\sqrt{462}}{1848}$	0	0	$\frac{\sqrt{77i}}{154}$		
	0	$-\frac{3\sqrt{770}}{440}$	0	$\frac{\sqrt{770i}}{220}$	0	0	$\frac{\sqrt{1155i}}{924}$	0	0	$\frac{5\sqrt{462}}{1848}$	0	0	0	0		
	$\frac{3\sqrt{770}}{440}$	0	$\frac{\sqrt{770i}}{220}$	0	0	0	0	$-\frac{\sqrt{1155i}}{924}$	$-\frac{5\sqrt{462}}{1848}$	0	0	0	0	0		
	$-\frac{\sqrt{1155i}}{165}$	0	0	0	0	$\frac{\sqrt{770i}}{220}$	0	0	$\frac{\sqrt{77i}}{154}$	0	0	0	0	0		
	0	$\frac{\sqrt{1155i}}{165}$	0	0	$\frac{\sqrt{770i}}{220}$	0	0	0	0	$-\frac{\sqrt{77i}}{154}$	0	0	0	0		

899 symmetry

z

continued ...

Table 10

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

900 symmetry

x

continued ...

Table 10

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

901 symmetry

y

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_{1,2}^{(1,0;a)}(E)$	0	0 0 0 $\frac{3\sqrt{7}i}{28}$ 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0
	0	0 0 $\frac{3\sqrt{7}i}{28}$ 0 0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0
	0	$-\frac{3\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0 0 0
	$-\frac{3\sqrt{7}i}{28}$	0 0 0 0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{42}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{42}i}{56}$ 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0
	$-\frac{\sqrt{42}i}{56}$	0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0
	0	$\frac{\sqrt{42}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 0 0 $\frac{\sqrt{7}i}{28}$ 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 $\frac{\sqrt{7}i}{28}$ 0 0
	0	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 $-\frac{\sqrt{42}i}{28}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 0 $-\frac{\sqrt{7}i}{28}$ 0 0 0 0 $\frac{\sqrt{42}i}{28}$
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{28}$ 0 0 0
$-\frac{z(3x^2+3y^2-2z^2)}{2}$		

902 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_3^{(1,0;a)}(A)$	0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 $\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 $-\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{6}}{12}$ 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{6}i}{12}$ 0 $\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{6}i}{12}$ 0 $-\frac{\sqrt{6}}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{6}}{12}$ 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{6}}{12}$ 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}}{12}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}}{12}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 $-\frac{\sqrt{6}}{12}$ 0 0	
	0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 $\frac{\sqrt{6}}{12}$ 0 0 0 0 0	

903 symmetry

 $\sqrt{15}xyz$

continued ...

Table 10

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

904 symmetry

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

continued ...

Table 10

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

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix												
$\mathbb{G}_{3,2}^{(1,0;a)}(E,1)$	0	0	0	$\frac{i}{8}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0
	0	0	$\frac{i}{8}$	0	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0
	0	$-\frac{i}{8}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0
	$-\frac{i}{8}$	0	0	0	0	$\frac{\sqrt{6}i}{48}$	0	0	$-\frac{\sqrt{15}i}{24}$	0	0	0	$\frac{\sqrt{10}i}{16}$	0
	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0	0	$-\frac{i}{8}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0
	0	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	$-\frac{i}{8}$	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0
	$-\frac{\sqrt{6}i}{48}$	0	0	0	0	$\frac{i}{8}$	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0	$-\frac{\sqrt{15}i}{24}$	0
	0	$\frac{\sqrt{6}i}{48}$	0	0	$\frac{i}{8}$	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	$-\frac{\sqrt{15}i}{24}$	0	0
	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	$-\frac{i}{8}$	0	0	0
	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	$\frac{\sqrt{10}i}{16}$	0	0	$-\frac{i}{8}$	0	0	0	0
	0	$-\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	0	$\frac{i}{8}$	0	0	$\frac{\sqrt{6}i}{48}$	0	0
	$-\frac{\sqrt{15}i}{24}$	0	0	0	$\frac{\sqrt{10}i}{16}$	0	0	$\frac{i}{8}$	0	0	0	0	$-\frac{\sqrt{6}i}{48}$	0
	0	0	$\frac{\sqrt{10}i}{16}$	0	0	0	$\frac{\sqrt{15}i}{24}$	0	0	$-\frac{\sqrt{6}i}{48}$	0	0	0	0
	0	0	0	$-\frac{\sqrt{10}i}{16}$	0	0	$\frac{\sqrt{15}i}{24}$	0	0	0	$\frac{\sqrt{6}i}{48}$	0	0	0

907 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_{3,1}^{(1,0;a)}(E, 2)$	0	0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{10}i}{48}$ 0 0 $-\frac{1}{6}$ 0 $-\frac{i}{24}$ 0 0
	0	0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $\frac{\sqrt{10}i}{48}$ $\frac{1}{6}$ 0 $-\frac{i}{24}$ 0 0 0
	0	$\frac{\sqrt{15}i}{24}$ 0 0 0 $\frac{\sqrt{10}i}{48}$ 0 0 0 0 $\frac{i}{24}$ 0 $-\frac{1}{6}$ $-\frac{\sqrt{6}i}{16}$ 0
	$\frac{\sqrt{15}i}{24}$	0 0 0 0 0 $-\frac{\sqrt{10}i}{48}$ 0 0 $\frac{i}{24}$ 0 $\frac{1}{6}$ 0 0 $\frac{\sqrt{6}i}{16}$
	0	0 0 $-\frac{\sqrt{10}i}{48}$ 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 $-\frac{1}{6}$
	0	0 0 0 $\frac{\sqrt{10}i}{48}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{\sqrt{6}i}{16}$ $\frac{1}{6}$ 0
	$\frac{\sqrt{10}i}{48}$	0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 0 0 $\frac{i}{24}$
	0	$-\frac{\sqrt{10}i}{48}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $-\frac{\sqrt{6}i}{16}$ 0 0 $\frac{i}{24}$ 0
	0	$\frac{1}{6}$ 0 $-\frac{i}{24}$ 0 0 0 $-\frac{\sqrt{6}i}{16}$ 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0
	$-\frac{1}{6}$	0 $-\frac{i}{24}$ 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0
	0	$\frac{i}{24}$ 0 $\frac{1}{6}$ $-\frac{\sqrt{6}i}{16}$ 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 $-\frac{\sqrt{10}i}{48}$ 0
	$\frac{i}{24}$	0 $-\frac{1}{6}$ 0 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 $\frac{\sqrt{10}i}{48}$
	0	0 $\frac{\sqrt{6}i}{16}$ 0 0 $\frac{1}{6}$ 0 $-\frac{i}{24}$ 0 0 0 $\frac{\sqrt{10}i}{48}$ 0 0 0
	0	0 0 0 $-\frac{\sqrt{6}i}{16}$ $-\frac{1}{6}$ 0 $-\frac{i}{24}$ 0 0 0 0 $-\frac{\sqrt{10}i}{48}$ 0 0

908 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_{3,2}^{(1,0;a)}(E, 2)$	0	0 0 0 $-\frac{\sqrt{15}}{24}$ $-\frac{\sqrt{10}i}{48}$ 0 0 0 0 $-\frac{i}{6}$ 0 $\frac{1}{24}$ $-\frac{\sqrt{6}i}{16}$ 0
	0	0 0 $\frac{\sqrt{15}}{24}$ 0 0 $\frac{\sqrt{10}i}{48}$ 0 0 $-\frac{i}{6}$ 0 $-\frac{1}{24}$ 0 0 $\frac{\sqrt{6}i}{16}$
	0	$\frac{\sqrt{15}}{24}$ 0 0 0 0 $-\frac{\sqrt{10}i}{48}$ 0 0 $-\frac{1}{24}$ 0 $-\frac{i}{6}$ 0 0 0
	$-\frac{\sqrt{15}}{24}$	0 0 0 0 0 0 $\frac{\sqrt{10}i}{48}$ $\frac{1}{24}$ 0 $-\frac{i}{6}$ 0 0 0 0
	$\frac{\sqrt{10}i}{48}$	0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $\frac{\sqrt{6}i}{16}$ 0 0 0 0 $-\frac{i}{6}$
	0	$-\frac{\sqrt{10}i}{48}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $-\frac{\sqrt{6}i}{16}$ 0 0 $-\frac{i}{6}$ 0
	0	0 0 $\frac{\sqrt{10}i}{48}$ 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 $-\frac{\sqrt{6}i}{16}$ 0 0 $-\frac{1}{24}$
	0	0 0 0 $-\frac{\sqrt{10}i}{48}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0 $\frac{\sqrt{6}i}{16}$ $\frac{1}{24}$ 0
	0	$\frac{i}{6}$ 0 $\frac{1}{24}$ $-\frac{\sqrt{6}i}{16}$ 0 0 0 0 0 0 $\frac{\sqrt{15}}{24}$ $\frac{\sqrt{10}i}{48}$ 0
	$\frac{i}{6}$	0 $-\frac{1}{24}$ 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 $-\frac{\sqrt{10}i}{48}$
	0	$-\frac{1}{24}$ 0 $\frac{i}{6}$ 0 0 $\frac{\sqrt{6}i}{16}$ 0 0 0 $-\frac{\sqrt{15}}{24}$ 0 0 0 0
	$\frac{1}{24}$	0 $\frac{i}{6}$ 0 0 0 0 0 $-\frac{\sqrt{6}i}{16}$ $\frac{\sqrt{15}}{24}$ 0 0 0 0 0
	$\frac{\sqrt{6}i}{16}$	0 0 0 0 0 $\frac{i}{6}$ 0 $\frac{1}{24}$ $-\frac{\sqrt{10}i}{48}$ 0 0 0 0 0
	0	$-\frac{\sqrt{6}i}{16}$ 0 0 $\frac{i}{6}$ 0 $-\frac{1}{24}$ 0 0 0 $\frac{\sqrt{10}i}{48}$ 0 0 0 0

909 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(A, 1)$	0 0 0 0 0 $-\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 $-\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{10}}{20}$	
	0 0 0 0 $\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 0 0 $\frac{\sqrt{15}i}{15}$ $-\frac{\sqrt{10}}{20}$ 0	
	0 0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ $-\frac{\sqrt{15}i}{15}$ 0 0 0 $\frac{\sqrt{10}}{20}$	
	0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0	
	0 $\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 $\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0	
	$-\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 $-\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0 0	
	0 $-\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0	
	$-\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{40}$ 0 0 0	
	0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{10}}{40}$ 0 $-\frac{\sqrt{10}i}{40}$ 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{15}$ $\frac{\sqrt{10}}{40}$ 0 $-\frac{\sqrt{10}i}{40}$ 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{15}i}{15}$ 0 0 0 0 $-\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{40}$ 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{10}}{20}$ 0 $-\frac{\sqrt{10}i}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$		
910	symmetry	

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_5^{(1,0;a)}(A, 3)$	0	0 0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $\frac{\sqrt{6}}{24}$ $-\frac{\sqrt{15}i}{15}$ 0 0 0 0 $\frac{\sqrt{10}i}{20}$
	0	0 0 0 0 0 $\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{10}i}{20}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 $\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{10}}{20}$
	0	0 0 0 0 $-\frac{\sqrt{6}}{24}$ 0 $-\frac{\sqrt{6}i}{24}$ 0 0 0 0 $-\frac{\sqrt{15}i}{15}$ $\frac{\sqrt{10}}{20}$ 0
	0	$-\frac{\sqrt{6}i}{24}$ 0 $-\frac{\sqrt{6}}{24}$ 0 0 0 0 0 $\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0
	$-\frac{\sqrt{6}i}{24}$	0 $\frac{\sqrt{6}}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{40}$ 0 0 0
	0	$-\frac{\sqrt{6}}{24}$ 0 $\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 0 $-\frac{\sqrt{10}}{40}$ 0 $-\frac{\sqrt{10}i}{40}$ 0 0
	$\frac{\sqrt{6}}{24}$	0 $\frac{\sqrt{6}i}{24}$ 0 0 0 0 0 0 $\frac{\sqrt{10}}{40}$ 0 $-\frac{\sqrt{10}i}{40}$ 0 0 0
	$\frac{\sqrt{15}i}{15}$	0 0 0 0 $-\frac{\sqrt{10}i}{40}$ 0 $\frac{\sqrt{10}}{40}$ 0 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{15}i}{15}$ 0 0 $-\frac{\sqrt{10}i}{40}$ 0 $-\frac{\sqrt{10}}{40}$ 0 0 0 0 0 0 0 0
	0	0 $-\frac{\sqrt{15}i}{15}$ 0 0 $\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{15}i}{15}$ $-\frac{\sqrt{10}}{40}$ 0 $\frac{\sqrt{10}i}{40}$ 0 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{10}i}{20}$ 0 $\frac{\sqrt{10}}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{10}i}{20}$	0 $-\frac{\sqrt{10}}{20}$ 0 0 0 0 0 0 0 0 0 0 0 0 0
$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$		

912 symmetry

continued ...

Table 10

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

913 symmetry

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

continued ...

Table 10

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

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

914 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{G}_{5,1}^{(1,0;a)}(E, 1)$	0	0 0 0 $-\frac{\sqrt{35}}{224}$ $-\frac{11\sqrt{210}i}{672}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{96}$ $\frac{\sqrt{14}i}{32}$ 0
	0	0 0 $\frac{\sqrt{35}}{224}$ 0 0 $\frac{11\sqrt{210}i}{672}$ 0 0 0 0 $\frac{\sqrt{21}}{96}$ 0 0 $-\frac{\sqrt{14}i}{32}$
	0	$\frac{\sqrt{35}}{224}$ 0 0 0 0 0 $\frac{5\sqrt{210}i}{336}$ 0 0 0 $-\frac{5\sqrt{21}}{96}$ 0 0 0
	$-\frac{\sqrt{35}}{224}$	0 0 0 0 0 0 0 $-\frac{5\sqrt{210}i}{336}$ $\frac{5\sqrt{21}}{96}$ 0 0 0 0
	$\frac{11\sqrt{210}i}{672}$	0 0 0 0 0 0 0 $\frac{\sqrt{35}}{56}$ $\frac{5\sqrt{14}i}{224}$ 0 0 0 0
	0	$-\frac{11\sqrt{210}i}{672}$ 0 0 0 0 0 $-\frac{\sqrt{35}}{56}$ 0 0 0 $-\frac{5\sqrt{14}i}{224}$ 0 0 0
	0	0 $-\frac{5\sqrt{210}i}{336}$ 0 0 0 $-\frac{\sqrt{35}}{56}$ 0 0 0 0 $-\frac{\sqrt{14}i}{112}$ 0 0 $\frac{\sqrt{21}}{24}$
	0	0 0 0 $\frac{5\sqrt{210}i}{336}$ $\frac{\sqrt{35}}{56}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{112}$ $-\frac{\sqrt{21}}{24}$ 0
	0	0 0 0 $\frac{5\sqrt{21}}{96}$ $-\frac{5\sqrt{14}i}{224}$ 0 0 0 0 0 0 $-\frac{5\sqrt{35}}{224}$ $-\frac{\sqrt{210}i}{672}$ 0
	0	0 $-\frac{5\sqrt{21}}{96}$ 0 0 0 $\frac{5\sqrt{14}i}{224}$ 0 0 0 0 $\frac{5\sqrt{35}}{224}$ 0 0 $\frac{\sqrt{210}i}{672}$
	0	$\frac{\sqrt{21}}{96}$ 0 0 0 0 0 $\frac{\sqrt{14}i}{112}$ 0 0 0 $\frac{5\sqrt{35}}{224}$ 0 0 0
	$-\frac{\sqrt{21}}{96}$	0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{112}$ $-\frac{5\sqrt{35}}{224}$ 0 0 0 0
	$-\frac{\sqrt{14}i}{32}$	0 0 0 0 0 0 0 $-\frac{\sqrt{21}}{24}$ $\frac{\sqrt{210}i}{672}$ 0 0 0 0
	0	$\frac{\sqrt{14}i}{32}$ 0 0 0 0 0 $\frac{\sqrt{21}}{24}$ 0 0 $-\frac{\sqrt{210}i}{672}$ 0 0 0 0
915	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
$\mathbb{G}_{5,2}^{(1,0;a)}(E, 1)$	0 0 0 $\frac{\sqrt{35}i}{224}$ 0 0 $-\frac{5\sqrt{210}i}{336}$ 0 0 0 0 $\frac{5\sqrt{21}i}{96}$ 0 0	
	0 0 $\frac{\sqrt{35}i}{224}$ 0 0 0 0 $\frac{5\sqrt{210}i}{336}$ 0 0 $\frac{5\sqrt{21}i}{96}$ 0 0 0	
	0 $-\frac{\sqrt{35}i}{224}$ 0 0 $-\frac{11\sqrt{210}i}{672}$ 0 0 0 0 $\frac{\sqrt{21}i}{96}$ 0 0 $-\frac{\sqrt{14}i}{32}$ 0	
	$-\frac{\sqrt{35}i}{224}$ 0 0 0 0 $\frac{11\sqrt{210}i}{672}$ 0 0 $\frac{\sqrt{21}i}{96}$ 0 0 0 0 $\frac{\sqrt{14}i}{32}$	
	0 0 $\frac{11\sqrt{210}i}{672}$ 0 0 0 0 $-\frac{\sqrt{35}i}{56}$ 0 0 $-\frac{5\sqrt{14}i}{224}$ 0 0 0	
	0 0 0 $-\frac{11\sqrt{210}i}{672}$ 0 0 0 $-\frac{\sqrt{35}i}{56}$ 0 0 0 0 $\frac{5\sqrt{14}i}{224}$ 0 0	
	$\frac{5\sqrt{210}i}{336}$ 0 0 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 $-\frac{\sqrt{14}i}{112}$ 0 0 0 0 $\frac{\sqrt{21}i}{24}$	
	0 $-\frac{5\sqrt{210}i}{336}$ 0 0 $\frac{\sqrt{35}i}{56}$ 0 0 0 0 $\frac{\sqrt{14}i}{112}$ 0 0 $\frac{\sqrt{21}i}{24}$ 0	
	0 0 0 $-\frac{\sqrt{21}i}{96}$ 0 0 $\frac{\sqrt{14}i}{112}$ 0 0 0 0 $\frac{5\sqrt{35}i}{224}$ 0 0	
	0 0 $-\frac{\sqrt{21}i}{96}$ 0 0 0 0 $-\frac{\sqrt{14}i}{112}$ 0 0 0 0 $\frac{5\sqrt{35}i}{224}$ 0 0	
	$-\frac{5\sqrt{21}i}{96}$ 0 0 0 0 $-\frac{5\sqrt{14}i}{224}$ 0 0 0 0 $-\frac{5\sqrt{35}i}{224}$ 0 0 $-\frac{\sqrt{210}i}{672}$ 0	
	0 0 $\frac{\sqrt{14}i}{32}$ 0 0 0 0 $-\frac{\sqrt{21}i}{24}$ 0 0 $\frac{\sqrt{210}i}{672}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{14}i}{32}$ 0 0 $-\frac{\sqrt{21}i}{24}$ 0 0 0 0 $-\frac{\sqrt{210}i}{672}$ 0 0	
$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$		
916	symmetry	

continued ...

Table 10

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

continued ...

Table 10

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

918 symmetry

continued ...

Table 10

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

continued ...

Table 10

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

920 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$T_2^{(1,0;a)}(A)$	0 0 0 0 0 $\frac{5\sqrt{42}i}{168}$ 0 $-\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{5\sqrt{42}i}{168}$ 0 $-\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $\frac{5\sqrt{42}}{168}$ 0 $\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{5\sqrt{42}}{168}$ 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 0 0	
	0 $\frac{5\sqrt{42}i}{168}$ 0 $\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0	
	$-\frac{5\sqrt{42}i}{168}$ 0 $\frac{5\sqrt{42}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $-\frac{\sqrt{70}}{56}$ 0 0 0 0	
	0 $-\frac{5\sqrt{42}}{168}$ 0 $\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $\frac{\sqrt{70}i}{56}$ 0 0 0	
	$-\frac{5\sqrt{42}}{168}$ 0 $-\frac{5\sqrt{42}i}{168}$ 0 0 0 0 0 0 $\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0	
	0 0 0 0 0 $\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{42}i}{84}$	
	0 0 0 0 $-\frac{\sqrt{70}i}{56}$ 0 $\frac{\sqrt{70}}{56}$ 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{84}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{70}}{56}$ 0 $-\frac{\sqrt{70}i}{56}$ 0 0 0 0 0 0 $\frac{\sqrt{42}}{84}$ 0	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{84}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{42}i}{84}$ 0 $\frac{\sqrt{42}}{84}$ 0 0 0 0	
$\frac{\sqrt{3}(x-y)(x+y)}{2}$		

921 symmetry

continued ...

Table 10

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

continued ...

Table 10

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

923 symmetry

 $\sqrt{3}xz$

continued ...

Table 10

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

924 symmetry

 $\sqrt{3}yz$

continued ...

Table 10

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

925 symmetry

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

continued ...

Table 10

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

926 symmetry

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

continued ...

Table 10

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

927 symmetry

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

continued ...

Table 10

No.	multipole	matrix												
$\mathbb{T}_4^{(1,0;a)}(A,3)$	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{55}$	0	0	0	0	$\frac{3\sqrt{110}}{220}$	
	0	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{55}$	0	0	$\frac{3\sqrt{110}}{220}$	0	
	0	0	0	0	0	0	0	0	0	$\frac{\sqrt{165}}{55}$	0	0	$\frac{3\sqrt{110}i}{220}$	
	0	0	0	0	0	0	0	0	0	0	$-\frac{\sqrt{165}}{55}$	$-\frac{3\sqrt{110}i}{220}$	0	
	0	0	0	0	$\frac{\sqrt{11}}{11}$	0	0	0	0	$-\frac{\sqrt{110}}{220}$	0	$-\frac{\sqrt{110}i}{220}$	0	
	0	0	0	0	0	$-\frac{\sqrt{11}}{11}$	0	0	$-\frac{\sqrt{110}}{220}$	0	$\frac{\sqrt{110}i}{220}$	0	0	
	0	0	0	0	0	0	$-\frac{\sqrt{11}}{11}$	0	0	$-\frac{\sqrt{110}i}{220}$	0	$\frac{\sqrt{110}}{220}$	0	
	0	0	0	0	0	0	0	$\frac{\sqrt{11}}{11}$	$\frac{\sqrt{110}i}{220}$	0	$\frac{\sqrt{110}}{220}$	0	0	
	$-\frac{\sqrt{165}}{55}$	0	0	0	0	$-\frac{\sqrt{110}}{220}$	0	$-\frac{\sqrt{110}i}{220}$	0	0	0	0	0	
	0	$\frac{\sqrt{165}}{55}$	0	0	$-\frac{\sqrt{110}}{220}$	0	$\frac{\sqrt{110}i}{220}$	0	0	0	0	0	0	
	0	0	$\frac{\sqrt{165}}{55}$	0	0	$-\frac{\sqrt{110}i}{220}$	0	$\frac{\sqrt{110}}{220}$	0	0	0	0	0	
	0	0	0	$-\frac{\sqrt{165}}{55}$	$\frac{\sqrt{110}i}{220}$	0	$\frac{\sqrt{110}}{220}$	0	0	0	0	0	0	
	0	$\frac{3\sqrt{110}}{220}$	0	$\frac{3\sqrt{110}i}{220}$	0	0	0	0	0	0	0	0	0	
	$\frac{3\sqrt{110}}{220}$	0	$-\frac{3\sqrt{110}i}{220}$	0	0	0	0	0	0	0	0	0	0	
928	symmetry	$\frac{\sqrt{5}(x-y)(x+y)(x^2+y^2-6z^2)}{4}$												

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_4^{(1,0;a)}(B,1)$	0	0	0	0	0	$-\frac{3\sqrt{462}i}{616}$	0	$-\frac{3\sqrt{462}}{616}$	0	0	$-\frac{3\sqrt{1155}}{770}$	0	0	$\frac{3\sqrt{770}i}{440}$		
	0	0	0	0	$\frac{3\sqrt{462}i}{616}$	0	$-\frac{3\sqrt{462}}{616}$	0	0	0	$\frac{3\sqrt{1155}}{770}$	$-\frac{3\sqrt{770}i}{440}$	0			
	0	0	0	0	0	$\frac{3\sqrt{462}}{616}$	0	$-\frac{3\sqrt{462}i}{616}$	$\frac{3\sqrt{1155}}{770}$	0	0	0	0	$\frac{3\sqrt{770}}{440}$		
	0	0	0	0	$\frac{3\sqrt{462}}{616}$	0	$\frac{3\sqrt{462}i}{616}$	0	0	$-\frac{3\sqrt{1155}}{770}$	0	0	$\frac{3\sqrt{770}}{440}$	0		
	0	$-\frac{3\sqrt{462}i}{616}$	0	$\frac{3\sqrt{462}}{616}$	0	0	0	0	$\frac{\sqrt{770}i}{616}$	0	$\frac{\sqrt{770}}{616}$	0	0	0		
	$\frac{3\sqrt{462}i}{616}$	0	$\frac{3\sqrt{462}}{616}$	0	0	0	0	0	$-\frac{\sqrt{770}i}{616}$	0	$\frac{\sqrt{770}}{616}$	0	0	0		
	0	$-\frac{3\sqrt{462}}{616}$	0	$-\frac{3\sqrt{462}i}{616}$	0	0	0	0	0	$-\frac{19\sqrt{770}}{3080}$	0	$\frac{19\sqrt{770}i}{3080}$	$-\frac{\sqrt{1155}}{770}$	0		
	$-\frac{3\sqrt{462}}{616}$	0	$\frac{3\sqrt{462}i}{616}$	0	0	0	0	0	$-\frac{19\sqrt{770}}{3080}$	0	$-\frac{19\sqrt{770}i}{3080}$	0	0	$\frac{\sqrt{1155}}{770}$		
	0	0	$\frac{3\sqrt{1155}}{770}$	0	0	$\frac{\sqrt{770}i}{616}$	0	$-\frac{19\sqrt{770}}{3080}$	0	0	$\frac{\sqrt{77}}{77}$	0	0	$\frac{3\sqrt{462}i}{616}$		
	0	0	0	$-\frac{3\sqrt{1155}}{770}$	$-\frac{\sqrt{770}i}{616}$	0	$-\frac{19\sqrt{770}}{3080}$	0	0	0	$-\frac{\sqrt{77}}{77}$	$-\frac{3\sqrt{462}i}{616}$	0			
	$-\frac{3\sqrt{1155}}{770}$	0	0	0	0	$\frac{\sqrt{770}}{616}$	0	$\frac{19\sqrt{770}i}{3080}$	$\frac{\sqrt{77}}{77}$	0	0	0	0	$-\frac{3\sqrt{462}}{616}$		
	0	$\frac{3\sqrt{1155}}{770}$	0	0	$\frac{\sqrt{770}}{616}$	0	$-\frac{19\sqrt{770}i}{3080}$	0	0	$-\frac{\sqrt{77}}{77}$	0	0	$-\frac{3\sqrt{462}}{616}$	0		
	0	$\frac{3\sqrt{770}i}{440}$	0	$\frac{3\sqrt{770}}{440}$	0	0	$-\frac{\sqrt{1155}}{770}$	0	$\frac{3\sqrt{462}i}{616}$	0	$-\frac{3\sqrt{462}}{616}$	0	0	0		
	$-\frac{3\sqrt{770}i}{440}$	0	$\frac{3\sqrt{770}}{440}$	0	0	0	0	$\frac{\sqrt{1155}}{770}$	$-\frac{3\sqrt{462}i}{616}$	0	$-\frac{3\sqrt{462}}{616}$	0	0	0		
929	symmetry	$\frac{\sqrt{5}xy(x^2+y^2-6z^2)}{2}$														

continued ...

Table 10

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

930 symmetry

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

continued ...

Table 10

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

931 symmetry

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

continued ...

Table 10

No.	multipole	matrix												
$\mathbb{T}_{4,2}^{(1,0;a)}(E, 1)$	0	$-\frac{3\sqrt{11}i}{88}$	0	0	0	0	$-\frac{\sqrt{66}}{176}$	0	0	$\frac{7\sqrt{165}i}{440}$	0	$-\frac{\sqrt{165}}{220}$	0	0
	$\frac{3\sqrt{11}i}{88}$	0	0	0	0	0	0	$\frac{\sqrt{66}}{176}$	$-\frac{7\sqrt{165}i}{440}$	0	$-\frac{\sqrt{165}}{220}$	0	0	0
	0	0	0	$-\frac{3\sqrt{11}i}{88}$	$\frac{\sqrt{66}}{176}$	0	0	0	$\frac{\sqrt{165}}{110}$	0	$\frac{\sqrt{165}i}{88}$	$-\frac{9\sqrt{110}}{880}$	0	0
	0	0	$\frac{3\sqrt{11}i}{88}$	0	0	$-\frac{\sqrt{66}}{176}$	0	0	$\frac{\sqrt{165}}{110}$	0	$-\frac{\sqrt{165}i}{88}$	0	0	$\frac{9\sqrt{110}}{880}$
	0	0	$\frac{\sqrt{66}}{176}$	0	0	$\frac{3\sqrt{11}i}{44}$	0	$-\frac{\sqrt{11}}{88}$	0	0	$\frac{7\sqrt{110}}{880}$	0	0	$-\frac{\sqrt{165}i}{220}$
	0	0	0	$-\frac{\sqrt{66}}{176}$	$-\frac{3\sqrt{11}i}{44}$	0	$-\frac{\sqrt{11}}{88}$	0	0	0	$-\frac{7\sqrt{110}}{880}$	$\frac{\sqrt{165}i}{220}$	0	0
	$-\frac{\sqrt{66}}{176}$	0	0	0	0	$-\frac{\sqrt{11}}{88}$	0	$\frac{\sqrt{11}i}{11}$	$-\frac{\sqrt{110}}{880}$	0	0	0	0	$-\frac{\sqrt{165}}{440}$
	0	$\frac{\sqrt{66}}{176}$	0	0	$-\frac{\sqrt{11}}{88}$	0	$-\frac{\sqrt{11}i}{11}$	0	0	$\frac{\sqrt{110}}{880}$	0	0	$-\frac{\sqrt{165}}{440}$	0
	0	$\frac{7\sqrt{165}i}{440}$	0	$\frac{\sqrt{165}}{110}$	0	0	$-\frac{\sqrt{110}}{880}$	0	0	$\frac{3\sqrt{11}i}{88}$	0	$\frac{\sqrt{11}}{44}$	0	0
	$-\frac{7\sqrt{165}i}{440}$	0	$\frac{\sqrt{165}}{110}$	0	0	0	0	$\frac{\sqrt{110}}{880}$	$-\frac{3\sqrt{11}i}{88}$	0	$\frac{\sqrt{11}}{44}$	0	0	0
	0	$-\frac{\sqrt{165}}{220}$	0	$\frac{\sqrt{165}i}{88}$	$\frac{7\sqrt{110}}{880}$	0	0	0	0	$\frac{\sqrt{11}}{44}$	0	$-\frac{5\sqrt{11}i}{88}$	$-\frac{\sqrt{66}}{176}$	0
	$-\frac{\sqrt{165}}{220}$	0	$-\frac{\sqrt{165}i}{88}$	0	0	$-\frac{7\sqrt{110}}{880}$	0	0	$\frac{\sqrt{11}}{44}$	0	$\frac{5\sqrt{11}i}{88}$	0	0	$\frac{\sqrt{66}}{176}$
	0	0	$-\frac{9\sqrt{110}}{880}$	0	0	$-\frac{\sqrt{165}i}{220}$	0	$-\frac{\sqrt{165}}{440}$	0	0	$-\frac{\sqrt{66}}{176}$	0	0	$-\frac{3\sqrt{11}i}{44}$
	0	0	0	$\frac{9\sqrt{110}}{880}$	$\frac{\sqrt{165}i}{220}$	0	$-\frac{\sqrt{165}}{440}$	0	0	0	0	$\frac{\sqrt{66}}{176}$	$\frac{3\sqrt{11}i}{44}$	0

932 symmetry

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{T}_{4,1}^{(1,0;a)}(E, 2)$	0	$\frac{3\sqrt{77}i}{616}$	0	0	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$\frac{13\sqrt{1155}i}{3080}$	0	$\frac{\sqrt{1155}}{140}$	0	0	
	$-\frac{3\sqrt{77}i}{616}$	0	0	0	0	0	0	$-\frac{\sqrt{462}}{1232}$	$-\frac{13\sqrt{1155}i}{3080}$	0	$\frac{\sqrt{1155}}{140}$	0	0	0	
	0	0	0	$\frac{3\sqrt{77}i}{616}$	$-\frac{\sqrt{462}}{1232}$	0	0	0	0	$-\frac{\sqrt{1155}}{385}$	0	$-\frac{\sqrt{1155}i}{3080}$	$-\frac{9\sqrt{770}}{880}$	0	
	0	0	$-\frac{3\sqrt{77}i}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{1155}}{385}$	0	$\frac{\sqrt{1155}i}{3080}$	0	0	$\frac{9\sqrt{770}}{880}$	
	0	0	$-\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{77}i}{44}$	0	$-\frac{\sqrt{77}}{88}$	0	0	$\frac{17\sqrt{770}}{6160}$	0	0	$-\frac{\sqrt{1155}i}{1540}$	
	0	0	0	$\frac{\sqrt{462}}{1232}$	$\frac{\sqrt{77}i}{44}$	0	$-\frac{\sqrt{77}}{88}$	0	0	0	0	$-\frac{17\sqrt{770}}{6160}$	$\frac{\sqrt{1155}i}{1540}$	0	
	$\frac{\sqrt{462}}{1232}$	0	0	0	0	$-\frac{\sqrt{77}}{88}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{616}$	
	0	$-\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{77}}{88}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}}{616}$	0	
	0	$\frac{13\sqrt{1155}i}{3080}$	0	$-\frac{\sqrt{1155}}{385}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{5\sqrt{77}i}{616}$	0	$-\frac{5\sqrt{77}}{308}$	0	0	
	$-\frac{13\sqrt{1155}i}{3080}$	0	$-\frac{\sqrt{1155}}{385}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	$-\frac{5\sqrt{77}i}{616}$	0	$-\frac{5\sqrt{77}}{308}$	0	0	0	
	0	$\frac{\sqrt{1155}}{140}$	0	$-\frac{\sqrt{1155}i}{3080}$	$\frac{17\sqrt{770}}{6160}$	0	0	0	0	$-\frac{5\sqrt{77}}{308}$	0	$-\frac{3\sqrt{77}i}{616}$	$\frac{\sqrt{462}}{1232}$	0	
	$\frac{\sqrt{1155}}{140}$	0	$\frac{\sqrt{1155}i}{3080}$	0	0	$-\frac{17\sqrt{770}}{6160}$	0	0	$-\frac{5\sqrt{77}}{308}$	0	$\frac{3\sqrt{77}i}{616}$	0	0	$-\frac{\sqrt{462}}{1232}$	
	0	0	$-\frac{9\sqrt{770}}{880}$	0	0	$-\frac{\sqrt{1155}i}{1540}$	0	$\frac{\sqrt{1155}}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$\frac{3\sqrt{77}i}{308}$	
	0	0	0	$\frac{9\sqrt{770}}{880}$	$\frac{\sqrt{1155}i}{1540}$	0	$\frac{\sqrt{1155}}{616}$	0	0	0	0	$-\frac{\sqrt{462}}{1232}$	$-\frac{3\sqrt{77}i}{308}$	0	
$\frac{\sqrt{5}yz(6x^2-y^2-z^2)}{2}$															
933	symmetry														

continued ...

Table 10

No.	multipole	matrix															
$\mathbb{T}_{4,2}^{(1,0;a)}(E, 2)$	0	$\frac{3\sqrt{77}}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	0	$\frac{\sqrt{1155}}{3080}$	0	$\frac{\sqrt{1155}i}{385}$	$-\frac{9\sqrt{770}}{880}$	0				
	$\frac{3\sqrt{77}}{616}$	0	0	0	0	$-\frac{\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{1155}}{3080}$	0	$-\frac{\sqrt{1155}i}{385}$	0	0	$\frac{9\sqrt{770}}{880}$			
	0	0	0	$\frac{3\sqrt{77}}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{1155}i}{140}$	0	$-\frac{13\sqrt{1155}}{3080}$	0	0	0		
	0	0	$\frac{3\sqrt{77}}{616}$	0	0	0	0	$-\frac{\sqrt{462}}{1232}$	$\frac{\sqrt{1155}i}{140}$	0	$-\frac{13\sqrt{1155}}{3080}$	0	0	0			
	$\frac{\sqrt{462}}{1232}$	0	0	0	0	$-\frac{\sqrt{77}}{44}$	0	$\frac{\sqrt{77}i}{88}$	$\frac{17\sqrt{770}}{6160}$	0	0	0	0	$\frac{\sqrt{1155}}{1540}$			
	0	$-\frac{\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{77}}{44}$	0	$-\frac{\sqrt{77}i}{88}$	0	0	$-\frac{17\sqrt{770}}{6160}$	0	0	$\frac{\sqrt{1155}}{1540}$	0			
	0	0	$\frac{\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{77}i}{88}$	0	0	0	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}i}{616}$			
	0	0	0	$-\frac{\sqrt{462}}{1232}$	$-\frac{\sqrt{77}i}{88}$	0	0	0	0	0	$\frac{5\sqrt{770}}{1232}$	$-\frac{\sqrt{1155}i}{616}$	0				
	0	$\frac{\sqrt{1155}}{3080}$	0	$-\frac{\sqrt{1155}i}{140}$	$\frac{17\sqrt{770}}{6160}$	0	0	0	0	$-\frac{3\sqrt{77}}{616}$	0	$-\frac{5\sqrt{77}i}{308}$	$-\frac{\sqrt{462}}{1232}$	0			
	$\frac{\sqrt{1155}}{3080}$	0	$\frac{\sqrt{1155}i}{140}$	0	0	$-\frac{17\sqrt{770}}{6160}$	0	0	$-\frac{3\sqrt{77}}{616}$	0	$\frac{5\sqrt{77}i}{308}$	0	0	$\frac{\sqrt{462}}{1232}$			
	0	$\frac{\sqrt{1155}i}{385}$	0	$-\frac{13\sqrt{1155}}{3080}$	0	0	$-\frac{5\sqrt{770}}{1232}$	0	0	$-\frac{5\sqrt{77}i}{308}$	0	$\frac{5\sqrt{77}}{616}$	0	0			
	$-\frac{\sqrt{1155}i}{385}$	0	$-\frac{13\sqrt{1155}}{3080}$	0	0	0	0	$\frac{5\sqrt{770}}{1232}$	$\frac{5\sqrt{77}i}{308}$	0	$\frac{5\sqrt{77}}{616}$	0	0	0			
	$-\frac{9\sqrt{770}}{880}$	0	0	0	0	$\frac{\sqrt{1155}}{1540}$	0	$\frac{\sqrt{1155}i}{616}$	$-\frac{\sqrt{462}}{1232}$	0	0	0	0	$\frac{3\sqrt{77}}{308}$			
	0	$\frac{9\sqrt{770}}{880}$	0	0	$\frac{\sqrt{1155}}{1540}$	0	$-\frac{\sqrt{1155}i}{616}$	0	0	$\frac{\sqrt{462}}{1232}$	0	0	0	$\frac{3\sqrt{77}}{308}$	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 $-\frac{5\sqrt{33}i}{264}$ 0 $-\frac{\sqrt{33}}{44}$ 0 0 $\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{55}i}{88}$
	0	0 0 0 0 $\frac{5\sqrt{33}i}{264}$ 0 $-\frac{\sqrt{33}}{44}$ 0 0 0 0 $-\frac{\sqrt{330}}{132}$ $-\frac{\sqrt{55}i}{88}$ 0
	0	0 0 0 0 0 $-\frac{5\sqrt{33}}{264}$ 0 $\frac{\sqrt{33}i}{44}$ $\frac{\sqrt{330}}{132}$ 0 0 0 0 $-\frac{\sqrt{55}i}{88}$
	0	0 0 0 0 $-\frac{5\sqrt{33}}{264}$ 0 $-\frac{\sqrt{33}i}{44}$ 0 0 $-\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{55}}{88}$ 0
	0	$-\frac{5\sqrt{33}i}{264}$ 0 $-\frac{5\sqrt{33}}{264}$ 0 0 $\frac{\sqrt{22}}{22}$ 0 0 $\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{88}$ 0 0
	$\frac{5\sqrt{33}i}{264}$	0 $-\frac{5\sqrt{33}}{264}$ 0 0 0 0 $-\frac{\sqrt{22}}{22}$ $-\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{88}$ 0 0 0
	0	$-\frac{\sqrt{33}}{44}$ 0 $\frac{\sqrt{33}i}{44}$ $\frac{\sqrt{22}}{22}$ 0 0 0 0 $-\frac{\sqrt{55}}{44}$ 0 $-\frac{\sqrt{55}i}{44}$ 0 0
	$-\frac{\sqrt{33}}{44}$	0 $-\frac{\sqrt{33}i}{44}$ 0 0 0 $-\frac{\sqrt{22}}{22}$ 0 0 $-\frac{\sqrt{55}}{44}$ 0 $\frac{\sqrt{55}i}{44}$ 0 0 0
	0	0 0 $\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{44}$ 0 0 0 0 0 $\frac{5\sqrt{33}i}{264}$
	0	0 0 0 $-\frac{\sqrt{330}}{132}$ $-\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{44}$ 0 0 0 0 0 $-\frac{5\sqrt{33}i}{264}$ 0
	$\frac{\sqrt{330}}{132}$	0 0 0 0 0 $-\frac{\sqrt{55}}{88}$ 0 $-\frac{\sqrt{55}i}{44}$ 0 0 0 0 0 0 $\frac{5\sqrt{33}}{264}$
	0	$-\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{55}}{88}$ 0 $\frac{\sqrt{55}i}{44}$ 0 0 0 0 0 0 $\frac{5\sqrt{33}}{264}$ 0
	0	$\frac{\sqrt{55}i}{88}$ 0 $-\frac{\sqrt{55}}{88}$ 0 0 0 0 0 $\frac{5\sqrt{33}i}{264}$ 0 $\frac{5\sqrt{33}}{264}$ 0 0 0
	$-\frac{\sqrt{55}i}{88}$	0 $-\frac{\sqrt{55}}{88}$ 0 0 0 0 0 $-\frac{5\sqrt{33}i}{264}$ 0 $\frac{5\sqrt{33}}{264}$ 0 0 0
935	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
$\mathbb{T}_6^{(1,0;a)}(A, 2)$	0	0 0 0 0 0 $\frac{3\sqrt{231}i}{616}$ 0 $\frac{\sqrt{231}}{924}$ 0 0 $-\frac{\sqrt{231}i}{924}$ 0 0 $-\frac{\sqrt{385}i}{616}$
	0	0 0 0 0 $-\frac{3\sqrt{231}i}{616}$ 0 $\frac{\sqrt{231}}{924}$ 0 0 0 0 $\frac{\sqrt{231}i}{924}$ $\frac{\sqrt{385}i}{616}$ 0
	0	0 0 0 0 0 $\frac{3\sqrt{231}}{616}$ 0 $-\frac{\sqrt{231}i}{924}$ $-\frac{\sqrt{231}i}{924}$ 0 0 0 0 $\frac{\sqrt{385}}{616}$
	0	0 0 0 0 $\frac{3\sqrt{231}}{616}$ 0 $\frac{\sqrt{231}i}{924}$ 0 0 $\frac{\sqrt{231}i}{924}$ 0 0 $\frac{\sqrt{385}}{616}$ 0
	0	$\frac{3\sqrt{231}i}{616}$ 0 $\frac{3\sqrt{231}}{616}$ 0 0 $-\frac{\sqrt{154}}{154}$ 0 0 $-\frac{5\sqrt{385}i}{616}$ 0 $\frac{5\sqrt{385}}{616}$ 0 0
	$-\frac{3\sqrt{231}i}{616}$	0 $\frac{3\sqrt{231}}{616}$ 0 0 0 0 $\frac{\sqrt{154}}{154}$ $\frac{5\sqrt{385}i}{616}$ 0 $\frac{5\sqrt{385}}{616}$ 0 0 0
	0	$\frac{\sqrt{231}}{924}$ 0 $-\frac{\sqrt{231}i}{924}$ $-\frac{\sqrt{154}}{154}$ 0 0 0 0 $-\frac{\sqrt{385}}{308}$ 0 $-\frac{\sqrt{385}i}{308}$ 0 0
	$\frac{\sqrt{231}}{924}$	0 $\frac{\sqrt{231}i}{924}$ 0 0 $\frac{\sqrt{154}}{154}$ 0 0 $-\frac{\sqrt{385}}{308}$ 0 $\frac{\sqrt{385}i}{308}$ 0 0 0
	0	0 $-\frac{\sqrt{231}i}{924}$ 0 0 $-\frac{5\sqrt{385}i}{616}$ 0 $-\frac{\sqrt{385}}{308}$ 0 0 0 0 0 $\frac{5\sqrt{231}i}{264}$
	0	0 0 0 $\frac{\sqrt{231}i}{924}$ $\frac{5\sqrt{385}i}{616}$ 0 $-\frac{\sqrt{385}}{308}$ 0 0 0 0 $-\frac{5\sqrt{231}i}{264}$ 0
	$-\frac{\sqrt{231}i}{924}$	0 0 0 0 0 $\frac{5\sqrt{385}}{616}$ 0 $-\frac{\sqrt{385}i}{308}$ 0 0 0 0 0 $\frac{5\sqrt{231}}{264}$
	0	$\frac{\sqrt{231}i}{924}$ 0 0 $\frac{5\sqrt{385}}{616}$ 0 $\frac{\sqrt{385}i}{308}$ 0 0 0 0 0 $\frac{5\sqrt{231}}{264}$ 0
	0	$-\frac{\sqrt{385}i}{616}$ 0 $\frac{\sqrt{385}}{616}$ 0 0 0 0 0 $\frac{5\sqrt{231}i}{264}$ 0 $\frac{5\sqrt{231}}{264}$ 0 0
	$\frac{\sqrt{385}i}{616}$	0 $\frac{\sqrt{385}}{616}$ 0 0 0 0 0 $-\frac{5\sqrt{231}i}{264}$ 0 $\frac{5\sqrt{231}}{264}$ 0 0 0
$\frac{3\sqrt{7}xy(x-y)(x+y)(x^2+y^2-10z^2)}{4}$		
936	symmetry	

continued ...

Table 10

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

937 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(B, 1)$	0	0 $-\frac{\sqrt{210}}{56}$ 0 0 $-\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{84}$ 0 0 $\frac{\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{21}i}{56}$
	0	0 0 $\frac{\sqrt{210}}{56}$ $\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{84}$ 0 0 0 0 $-\frac{\sqrt{14}}{168}$ $\frac{\sqrt{21}i}{56}$ 0
	$-\frac{\sqrt{210}}{56}$	0 0 0 0 0 $\frac{\sqrt{35}}{168}$ 0 $\frac{\sqrt{35}i}{84}$ $-\frac{\sqrt{14}}{168}$ 0 0 0 0 $-\frac{\sqrt{21}}{56}$
	0	$\frac{\sqrt{210}}{56}$ 0 0 0 $\frac{\sqrt{35}}{168}$ 0 $-\frac{\sqrt{35}i}{84}$ 0 0 $\frac{\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{21}}{56}$ 0
	0	$-\frac{\sqrt{35}i}{168}$ 0 $\frac{\sqrt{35}}{168}$ 0 0 0 0 0 $-\frac{\sqrt{21}i}{24}$ 0 $-\frac{\sqrt{21}}{24}$ 0 0
	$\frac{\sqrt{35}i}{168}$	0 $\frac{\sqrt{35}}{168}$ 0 0 0 0 0 $\frac{\sqrt{21}i}{24}$ 0 $-\frac{\sqrt{21}}{24}$ 0 0 0
	0	$\frac{\sqrt{35}}{84}$ 0 $\frac{\sqrt{35}i}{84}$ 0 0 0 0 0 $-\frac{\sqrt{21}}{84}$ 0 $\frac{\sqrt{21}i}{84}$ $\frac{\sqrt{14}}{42}$ 0
	$\frac{\sqrt{35}}{84}$	0 $-\frac{\sqrt{35}i}{84}$ 0 0 0 0 0 0 $-\frac{\sqrt{21}}{84}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $-\frac{\sqrt{14}}{42}$
	0	0 $-\frac{\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{21}i}{24}$ 0 $-\frac{\sqrt{21}}{84}$ 0 0 $\frac{\sqrt{210}}{168}$ 0 0 $\frac{5\sqrt{35}i}{168}$
	0	0 0 $\frac{\sqrt{14}}{168}$ $\frac{\sqrt{21}i}{24}$ 0 $-\frac{\sqrt{21}}{84}$ 0 0 0 0 $-\frac{\sqrt{210}}{168}$ $-\frac{5\sqrt{35}i}{168}$ 0
	$\frac{\sqrt{14}}{168}$	0 0 0 0 0 $-\frac{\sqrt{21}}{24}$ 0 $\frac{\sqrt{21}i}{84}$ $\frac{\sqrt{210}}{168}$ 0 0 0 0 $-\frac{5\sqrt{35}}{168}$
	0	$-\frac{\sqrt{14}}{168}$ 0 0 $-\frac{\sqrt{21}}{24}$ 0 $-\frac{\sqrt{21}i}{84}$ 0 0 $-\frac{\sqrt{210}}{168}$ 0 0 $-\frac{5\sqrt{35}}{168}$ 0
	0	$-\frac{\sqrt{21}i}{56}$ 0 $-\frac{\sqrt{21}}{56}$ 0 0 0 $-\frac{\sqrt{14}}{42}$ $-\frac{5\sqrt{35}i}{168}$ 0 $-\frac{5\sqrt{35}}{168}$ 0 0 0
$\frac{\sqrt{42}(x-y)(x+y)(x^4-9x^2y^2-5x^2z^2+y^4-5y^2z^2+5z^4)}{8}$		

938 symmetry

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_6^{(1,0;a)}(B, 2)$	0	0	$-\frac{\sqrt{462}}{56}$	0	0	$-\frac{19\sqrt{77}i}{1848}$	0	$\frac{\sqrt{77}}{132}$	0	0	$-\frac{\sqrt{770}}{1848}$	0	0	$\frac{\sqrt{1155}i}{616}$		
	0	0	0	$\frac{\sqrt{462}}{56}$	$\frac{19\sqrt{77}i}{1848}$	0	$\frac{\sqrt{77}}{132}$	0	0	0	0	$\frac{\sqrt{770}}{1848}$	$-\frac{\sqrt{1155}i}{616}$	0		
	$-\frac{\sqrt{462}}{56}$	0	0	0	0	$\frac{19\sqrt{77}}{1848}$	0	$\frac{\sqrt{77}i}{132}$	$\frac{\sqrt{770}}{1848}$	0	0	0	0	$\frac{\sqrt{1155}}{616}$		
	0	$\frac{\sqrt{462}}{56}$	0	0	$\frac{19\sqrt{77}}{1848}$	0	$-\frac{\sqrt{77}i}{132}$	0	0	$-\frac{\sqrt{770}}{1848}$	0	0	$\frac{\sqrt{1155}}{616}$	0		
	0	$-\frac{19\sqrt{77}i}{1848}$	0	$\frac{19\sqrt{77}}{1848}$	0	0	0	0	0	$\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{264}$	0	0	0	
	$\frac{19\sqrt{77}i}{1848}$	0	$\frac{19\sqrt{77}}{1848}$	0	0	0	0	0	$-\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{264}$	0	0	0		
	0	$\frac{\sqrt{77}}{132}$	0	$\frac{\sqrt{77}i}{132}$	0	0	0	0	0	$\frac{\sqrt{1155}}{924}$	0	$-\frac{\sqrt{1155}i}{924}$	$-\frac{\sqrt{770}}{462}$	0		
	$\frac{\sqrt{77}}{132}$	0	$-\frac{\sqrt{77}i}{132}$	0	0	0	0	0	$\frac{\sqrt{1155}}{924}$	0	$\frac{\sqrt{1155}i}{924}$	0	0	$\frac{\sqrt{770}}{462}$		
	0	0	$\frac{\sqrt{770}}{1848}$	0	0	$\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{924}$	0	0	$-\frac{5\sqrt{462}}{1848}$	0	0	$-\frac{25\sqrt{77}i}{1848}$		
	0	0	0	$-\frac{\sqrt{770}}{1848}$	$-\frac{\sqrt{1155}i}{264}$	0	$\frac{\sqrt{1155}}{924}$	0	0	0	0	$\frac{5\sqrt{462}}{1848}$	$\frac{25\sqrt{77}i}{1848}$	0		
	$-\frac{\sqrt{770}}{1848}$	0	0	0	0	$\frac{\sqrt{1155}}{264}$	0	$-\frac{\sqrt{1155}i}{924}$	$-\frac{5\sqrt{462}}{1848}$	0	0	0	0	$\frac{25\sqrt{77}}{1848}$		
	0	$\frac{\sqrt{770}}{1848}$	0	0	$\frac{\sqrt{1155}}{264}$	0	$\frac{\sqrt{1155}i}{924}$	0	0	$\frac{5\sqrt{462}}{1848}$	0	0	$\frac{25\sqrt{77}}{1848}$	0		
	0	$\frac{\sqrt{1155}i}{616}$	0	$\frac{\sqrt{1155}}{616}$	0	0	$-\frac{\sqrt{770}}{462}$	0	0	$-\frac{25\sqrt{77}i}{1848}$	0	$\frac{25\sqrt{77}}{1848}$	0	0	0	
	$-\frac{\sqrt{1155}i}{616}$	0	$\frac{\sqrt{1155}}{616}$	0	0	0	0	$\frac{\sqrt{770}}{462}$	$\frac{25\sqrt{77}i}{1848}$	0	$\frac{25\sqrt{77}}{1848}$	0	0	0		

939 symmetry

$$\frac{\sqrt{462}xy(x^2 - 3y^2)(3x^2 - y^2)}{16}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_6^{(1,0;a)}(B,3)$		$\begin{bmatrix} \frac{\sqrt{42}}{14} & 0 & 0 & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{42}}{14} & 0 & 0 & -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{42}}{14} & 0 & 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{42}}{14} & \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}}{28} & 0 & -\frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{7}}{28} & 0 & \frac{\sqrt{7}i}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{7}i}{28} & 0 & \frac{\sqrt{7}}{28} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

940 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
$\mathbb{T}_6^{(1,0;a)}(B, 4)$	0	0 0 0 0 0 $-\frac{\sqrt{385}}{924}$ 0 $\frac{\sqrt{385}i}{924}$ $-\frac{\sqrt{154}}{462}$ 0 0 0 0 $-\frac{\sqrt{231}}{154}$
	0	0 0 0 0 $-\frac{\sqrt{385}}{924}$ 0 $-\frac{\sqrt{385}i}{924}$ 0 0 $\frac{\sqrt{154}}{462}$ 0 0 $-\frac{\sqrt{231}}{154}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{385}i}{924}$ 0 $-\frac{\sqrt{385}}{924}$ 0 0 $-\frac{\sqrt{154}}{462}$ 0 0 $\frac{\sqrt{231}i}{154}$
	0	0 0 0 0 0 $\frac{\sqrt{385}i}{924}$ 0 $-\frac{\sqrt{385}}{924}$ 0 0 0 0 $\frac{\sqrt{154}}{462}$ $-\frac{\sqrt{231}i}{154}$ 0
	0	$-\frac{\sqrt{385}}{924}$ 0 $-\frac{\sqrt{385}i}{924}$ 0 0 0 0 0 $-\frac{\sqrt{231}}{231}$ 0 $\frac{\sqrt{231}i}{231}$ $\frac{2\sqrt{154}}{231}$ 0
	$-\frac{\sqrt{385}}{924}$	0 $\frac{\sqrt{385}i}{924}$ 0 0 0 0 0 $-\frac{\sqrt{231}}{231}$ 0 $-\frac{\sqrt{231}i}{231}$ 0 0 $-\frac{2\sqrt{154}}{231}$
	0	$\frac{\sqrt{385}i}{924}$ 0 $-\frac{\sqrt{385}}{924}$ 0 0 0 0 0 $\frac{\sqrt{231}i}{66}$ 0 $\frac{\sqrt{231}}{66}$ 0 0 0
	$-\frac{\sqrt{385}i}{924}$	0 $-\frac{\sqrt{385}}{924}$ 0 0 0 0 0 $-\frac{\sqrt{231}i}{66}$ 0 $\frac{\sqrt{231}}{66}$ 0 0 0
	$-\frac{\sqrt{154}}{462}$	0 0 0 0 $-\frac{\sqrt{231}}{231}$ 0 $\frac{\sqrt{231}i}{66}$ $\frac{\sqrt{2310}}{462}$ 0 0 0 0 $-\frac{5\sqrt{385}}{462}$
	0	$\frac{\sqrt{154}}{462}$ 0 0 $-\frac{\sqrt{231}}{231}$ 0 $-\frac{\sqrt{231}i}{66}$ 0 0 $-\frac{\sqrt{2310}}{462}$ 0 0 $-\frac{5\sqrt{385}}{462}$ 0
	0	0 $-\frac{\sqrt{154}}{462}$ 0 0 $\frac{\sqrt{231}i}{231}$ 0 $\frac{\sqrt{231}}{66}$ 0 0 $-\frac{\sqrt{2310}}{462}$ 0 0 $-\frac{5\sqrt{385}i}{462}$
	0	0 0 0 $\frac{\sqrt{154}}{462}$ $-\frac{\sqrt{231}i}{231}$ 0 $\frac{\sqrt{231}}{66}$ 0 0 0 0 $\frac{\sqrt{2310}}{462}$ $\frac{5\sqrt{385}i}{462}$ 0
	0	$-\frac{\sqrt{231}}{154}$ 0 $\frac{\sqrt{231}i}{154}$ $\frac{2\sqrt{154}}{231}$ 0 0 0 0 $-\frac{5\sqrt{385}}{462}$ 0 $-\frac{5\sqrt{385}i}{462}$ 0 0
	$-\frac{\sqrt{231}}{154}$	0 $-\frac{\sqrt{231}i}{154}$ 0 0 $-\frac{2\sqrt{154}}{231}$ 0 0 $-\frac{5\sqrt{385}}{462}$ 0 $\frac{5\sqrt{385}i}{462}$ 0 0 0
$\frac{3\sqrt{7}yz(y-z)(y+z)(10x^2-y^2-z^2)}{4}$		
941	symmetry	

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{T}_{6,1}^{(1,0;a)}(E, 1)$	0	$\frac{3\sqrt{77}}{308}$	0	$-\frac{\sqrt{77}i}{112}$	$-\frac{9\sqrt{462}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{308}$	0	$\frac{\sqrt{1155}i}{1232}$	$-\frac{3\sqrt{770}}{1232}$	0		
	$\frac{3\sqrt{77}}{308}$	0	$\frac{\sqrt{77}i}{112}$	0	0	$\frac{9\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{1155}}{308}$	0	$-\frac{\sqrt{1155}i}{1232}$	0	0	$\frac{3\sqrt{770}}{1232}$		
	0	$-\frac{\sqrt{77}i}{112}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	$\frac{\sqrt{462}}{132}$	0	0	$-\frac{\sqrt{1155}i}{528}$	0	$-\frac{\sqrt{1155}}{264}$	0	0		
	$\frac{\sqrt{77}i}{112}$	0	$-\frac{5\sqrt{77}}{616}$	0	0	0	0	$-\frac{\sqrt{462}}{132}$	$\frac{\sqrt{1155}i}{528}$	0	$-\frac{\sqrt{1155}}{264}$	0	0	0		
	$-\frac{9\sqrt{462}}{1232}$	0	0	0	0	$\frac{5\sqrt{77}}{308}$	0	$-\frac{\sqrt{77}i}{308}$	$-\frac{5\sqrt{770}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{924}$		
	0	$\frac{9\sqrt{462}}{1232}$	0	0	$\frac{5\sqrt{77}}{308}$	0	$\frac{\sqrt{77}i}{308}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}}{924}$	0		
	0	0	$\frac{\sqrt{462}}{132}$	0	0	$-\frac{\sqrt{77}i}{308}$	0	$-\frac{2\sqrt{77}}{77}$	0	0	$\frac{\sqrt{770}}{308}$	0	0	$\frac{5\sqrt{1155}i}{924}$		
	0	0	0	$-\frac{\sqrt{462}}{132}$	$\frac{\sqrt{77}i}{308}$	0	$-\frac{2\sqrt{77}}{77}$	0	0	0	0	$-\frac{\sqrt{770}}{308}$	$-\frac{5\sqrt{1155}i}{924}$	0		
	0	$\frac{\sqrt{1155}}{308}$	0	$-\frac{\sqrt{1155}i}{528}$	$-\frac{5\sqrt{770}}{1232}$	0	0	0	0	$\frac{5\sqrt{77}}{308}$	0	$\frac{25\sqrt{77}i}{1232}$	$\frac{5\sqrt{462}}{3696}$	0		
	$\frac{\sqrt{1155}}{308}$	0	$\frac{\sqrt{1155}i}{528}$	0	0	$\frac{5\sqrt{770}}{1232}$	0	0	$\frac{5\sqrt{77}}{308}$	0	$-\frac{25\sqrt{77}i}{1232}$	0	0	$-\frac{5\sqrt{462}}{3696}$		
	0	$\frac{\sqrt{1155}i}{1232}$	0	$-\frac{\sqrt{1155}}{264}$	0	0	$\frac{\sqrt{770}}{308}$	0	0	$\frac{25\sqrt{77}i}{1232}$	0	$\frac{5\sqrt{77}}{616}$	0	0		
	$-\frac{\sqrt{1155}i}{1232}$	0	$-\frac{\sqrt{1155}}{264}$	0	0	0	0	$-\frac{\sqrt{770}}{308}$	$-\frac{25\sqrt{77}i}{1232}$	0	$\frac{5\sqrt{77}}{616}$	0	0	0		
	$-\frac{3\sqrt{770}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{924}$	0	$\frac{5\sqrt{1155}i}{924}$	$\frac{5\sqrt{462}}{3696}$	0	0	0	0	$-\frac{5\sqrt{77}}{308}$		
	0	$\frac{3\sqrt{770}}{1232}$	0	0	$\frac{\sqrt{1155}}{924}$	0	$-\frac{5\sqrt{1155}i}{924}$	0	0	$-\frac{5\sqrt{462}}{3696}$	0	0	$-\frac{5\sqrt{77}}{308}$	0		

942 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{T}_{6,2}^{(1,0;a)}(E, 1)$	0	$\frac{5\sqrt{77}i}{616} \quad 0 \quad \frac{\sqrt{77}}{112} \quad 0 \quad 0 \quad -\frac{\sqrt{462}}{132} \quad 0 \quad 0 \quad -\frac{\sqrt{1155}i}{264} \quad 0 \quad -\frac{\sqrt{1155}}{528} \quad 0 \quad 0$
	$-\frac{5\sqrt{77}i}{616}$	$0 \quad \frac{\sqrt{77}}{112} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{462}}{132} \quad \frac{\sqrt{1155}i}{264} \quad 0 \quad -\frac{\sqrt{1155}}{528} \quad 0 \quad 0 \quad 0$
	0	$\frac{\sqrt{77}}{112} \quad 0 \quad -\frac{3\sqrt{77}i}{308} \quad -\frac{9\sqrt{462}}{1232} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{1232} \quad 0 \quad \frac{\sqrt{1155}i}{308} \quad \frac{3\sqrt{770}}{1232} \quad 0$
	$\frac{\sqrt{77}}{112}$	$0 \quad \frac{3\sqrt{77}i}{308} \quad 0 \quad 0 \quad \frac{9\sqrt{462}}{1232} \quad 0 \quad 0 \quad \frac{\sqrt{1155}}{1232} \quad 0 \quad -\frac{\sqrt{1155}i}{308} \quad 0 \quad 0 \quad -\frac{3\sqrt{770}}{1232}$
	0	$0 \quad -\frac{9\sqrt{462}}{1232} \quad 0 \quad 0 \quad -\frac{5\sqrt{77}i}{308} \quad 0 \quad -\frac{\sqrt{77}}{308} \quad 0 \quad 0 \quad \frac{5\sqrt{770}}{1232} \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{924}$
	0	$0 \quad 0 \quad \frac{9\sqrt{462}}{1232} \quad \frac{5\sqrt{77}i}{308} \quad 0 \quad -\frac{\sqrt{77}}{308} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{770}}{1232} \quad -\frac{\sqrt{1155}i}{924} \quad 0$
	$-\frac{\sqrt{462}}{132}$	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{77}}{308} \quad 0 \quad \frac{2\sqrt{77}i}{77} \quad \frac{\sqrt{770}}{308} \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{1155}}{924}$
	0	$\frac{\sqrt{462}}{132} \quad 0 \quad 0 \quad -\frac{\sqrt{77}}{308} \quad 0 \quad -\frac{2\sqrt{77}i}{77} \quad 0 \quad 0 \quad -\frac{\sqrt{770}}{308} \quad 0 \quad 0 \quad -\frac{5\sqrt{1155}}{924} \quad 0$
	0	$-\frac{\sqrt{1155}i}{264} \quad 0 \quad \frac{\sqrt{1155}}{1232} \quad 0 \quad 0 \quad \frac{\sqrt{770}}{308} \quad 0 \quad 0 \quad -\frac{5\sqrt{77}i}{616} \quad 0 \quad -\frac{25\sqrt{77}}{1232} \quad 0 \quad 0$
	$\frac{\sqrt{1155}i}{264}$	$0 \quad \frac{\sqrt{1155}}{1232} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{770}}{308} \quad \frac{5\sqrt{77}i}{616} \quad 0 \quad -\frac{25\sqrt{77}}{1232} \quad 0 \quad 0 \quad 0$
	0	$0 \quad -\frac{\sqrt{1155}}{528} \quad 0 \quad \frac{\sqrt{1155}i}{308} \quad \frac{5\sqrt{770}}{1232} \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{25\sqrt{77}}{1232} \quad 0 \quad -\frac{5\sqrt{77}i}{308} \quad \frac{5\sqrt{462}}{3696} \quad 0$
	$-\frac{\sqrt{1155}}{528}$	$0 \quad 0 \quad -\frac{\sqrt{1155}i}{308} \quad 0 \quad 0 \quad -\frac{5\sqrt{770}}{1232} \quad 0 \quad 0 \quad -\frac{25\sqrt{77}}{1232} \quad 0 \quad \frac{5\sqrt{77}i}{308} \quad 0 \quad 0 \quad -\frac{5\sqrt{462}}{3696}$
	0	$0 \quad 0 \quad \frac{3\sqrt{770}}{1232} \quad 0 \quad 0 \quad \frac{\sqrt{1155}i}{924} \quad 0 \quad -\frac{5\sqrt{1155}}{924} \quad 0 \quad 0 \quad \frac{5\sqrt{462}}{3696} \quad 0 \quad 0 \quad \frac{5\sqrt{77}i}{308}$
	0	$0 \quad 0 \quad 0 \quad -\frac{3\sqrt{770}}{1232} \quad -\frac{\sqrt{1155}i}{924} \quad 0 \quad -\frac{5\sqrt{1155}}{924} \quad 0 \quad 0 \quad 0 \quad -\frac{5\sqrt{462}}{3696} \quad -\frac{5\sqrt{77}i}{308} \quad 0$

943 symmetry

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{T}_{6,1}^{(1,0;a)}(E, 2)$	0	$\frac{\sqrt{42}i}{224}$	0	$\frac{\sqrt{42}}{448}$	0	0	$-\frac{\sqrt{7}}{112}$	0	0	$-\frac{3\sqrt{70}i}{224}$	0	$-\frac{\sqrt{70}}{448}$	0	0	0
	$-\frac{\sqrt{42}i}{224}$	0	$\frac{\sqrt{42}}{448}$	0	0	0	0	$\frac{\sqrt{7}}{112}$	$\frac{3\sqrt{70}i}{224}$	0	$-\frac{\sqrt{70}}{448}$	0	0	0	0
	0	$\frac{\sqrt{42}}{448}$	0	0	$-\frac{3\sqrt{7}}{224}$	0	0	0	0	$-\frac{3\sqrt{70}}{448}$	0	0	$\frac{\sqrt{105}}{224}$	0	0
	$\frac{\sqrt{42}}{448}$	0	0	0	0	$\frac{3\sqrt{7}}{224}$	0	0	$-\frac{3\sqrt{70}}{448}$	0	0	0	0	$-\frac{\sqrt{105}}{224}$	0
	0	0	$-\frac{3\sqrt{7}}{224}$	0	0	$-\frac{3\sqrt{42}i}{112}$	0	$-\frac{\sqrt{42}}{112}$	0	0	$\frac{\sqrt{105}}{224}$	0	0	$\frac{3\sqrt{70}i}{112}$	0
	0	0	0	$\frac{3\sqrt{7}}{224}$	$\frac{3\sqrt{42}i}{112}$	0	$-\frac{\sqrt{42}}{112}$	0	0	0	0	$-\frac{\sqrt{105}}{224}$	$-\frac{3\sqrt{70}i}{112}$	0	0
	$-\frac{\sqrt{7}}{112}$	0	0	0	0	$-\frac{\sqrt{42}}{112}$	0	0	$\frac{\sqrt{105}}{112}$	0	0	0	0	$\frac{\sqrt{70}}{112}$	0
	0	$\frac{\sqrt{7}}{112}$	0	0	$-\frac{\sqrt{42}}{112}$	0	0	0	0	$-\frac{\sqrt{105}}{112}$	0	0	$\frac{\sqrt{70}}{112}$	0	0
	0	$-\frac{3\sqrt{70}i}{224}$	0	$-\frac{3\sqrt{70}}{448}$	0	0	$\frac{\sqrt{105}}{112}$	0	0	$\frac{15\sqrt{42}i}{224}$	0	$\frac{5\sqrt{42}}{448}$	0	0	0
	$\frac{3\sqrt{70}i}{224}$	0	$-\frac{3\sqrt{70}}{448}$	0	0	0	0	$-\frac{\sqrt{105}}{112}$	$-\frac{15\sqrt{42}i}{224}$	0	$\frac{5\sqrt{42}}{448}$	0	0	0	0
	0	$-\frac{\sqrt{70}}{448}$	0	0	$\frac{\sqrt{105}}{224}$	0	0	0	0	$\frac{5\sqrt{42}}{448}$	0	0	$-\frac{5\sqrt{7}}{224}$	0	0
	$-\frac{\sqrt{70}}{448}$	0	0	0	0	$-\frac{\sqrt{105}}{224}$	0	0	$\frac{5\sqrt{42}}{448}$	0	0	0	0	$\frac{5\sqrt{7}}{224}$	0
	0	0	$\frac{\sqrt{105}}{224}$	0	0	$\frac{3\sqrt{70}i}{112}$	0	$\frac{\sqrt{70}}{112}$	0	0	$-\frac{5\sqrt{7}}{224}$	0	0	$-\frac{5\sqrt{42}i}{112}$	0
	0	0	0	$-\frac{\sqrt{105}}{224}$	$-\frac{3\sqrt{70}i}{112}$	0	$\frac{\sqrt{70}}{112}$	0	0	0	0	$\frac{5\sqrt{7}}{224}$	$\frac{5\sqrt{42}i}{112}$	0	0
$\frac{\sqrt{462yz}(y^2 - 3z^2)(3y^2 - z^2)}{16}$															

944 symmetry

continued ...

Table 10

No.	multipole	matrix															
$\mathbb{T}_{6,2}^{(1,0;a)}(E, 2)$	0	0	0	$\frac{\sqrt{42}i}{448}$	$\frac{3\sqrt{7}}{224}$	0	0	0	0	0	$\frac{3\sqrt{70}i}{448}$	$\frac{\sqrt{105}}{224}$	0				
	0	0	$-\frac{\sqrt{42}i}{448}$	0	0	$-\frac{3\sqrt{7}}{224}$	0	0	0	0	$-\frac{3\sqrt{70}i}{448}$	0	0	$-\frac{\sqrt{105}}{224}$			
	0	$\frac{\sqrt{42}i}{448}$	0	$\frac{\sqrt{42}}{224}$	0	0	$-\frac{\sqrt{7}}{112}$	0	0	$\frac{\sqrt{70}i}{448}$	0	$\frac{3\sqrt{70}}{224}$	0	0			
	$-\frac{\sqrt{42}i}{448}$	0	$\frac{\sqrt{42}}{224}$	0	0	0	0	$\frac{\sqrt{7}}{112}$	$-\frac{\sqrt{70}i}{448}$	0	$\frac{3\sqrt{70}}{224}$	0	0	0			
	$\frac{3\sqrt{7}}{224}$	0	0	0	0	$-\frac{3\sqrt{42}}{112}$	0	$\frac{\sqrt{42}i}{112}$	$\frac{\sqrt{105}}{224}$	0	0	0	0	$-\frac{3\sqrt{70}}{112}$			
	0	$-\frac{3\sqrt{7}}{224}$	0	0	$-\frac{3\sqrt{42}}{112}$	0	$-\frac{\sqrt{42}i}{112}$	0	0	$-\frac{\sqrt{105}}{224}$	0	0	$-\frac{3\sqrt{70}}{112}$	0			
	0	0	$-\frac{\sqrt{7}}{112}$	0	0	$\frac{\sqrt{42}i}{112}$	0	0	0	0	$-\frac{\sqrt{105}}{112}$	0	0	$\frac{\sqrt{70}i}{112}$			
	0	0	0	$\frac{\sqrt{7}}{112}$	$-\frac{\sqrt{42}i}{112}$	0	0	0	0	0	0	$\frac{\sqrt{105}}{112}$	$-\frac{\sqrt{70}i}{112}$	0			
	0	0	0	$\frac{\sqrt{70}i}{448}$	$\frac{\sqrt{105}}{224}$	0	0	0	0	0	0	$\frac{5\sqrt{42}i}{448}$	$\frac{5\sqrt{7}}{224}$	0			
	0	0	$-\frac{\sqrt{70}i}{448}$	0	0	$-\frac{\sqrt{105}}{224}$	0	0	0	0	$-\frac{5\sqrt{42}i}{448}$	0	0	$-\frac{5\sqrt{7}}{224}$			
	0	$\frac{3\sqrt{70}i}{448}$	0	$\frac{3\sqrt{70}}{224}$	0	0	$-\frac{\sqrt{105}}{112}$	0	0	$\frac{5\sqrt{42}i}{448}$	0	$\frac{15\sqrt{42}}{224}$	0	0			
	$-\frac{3\sqrt{70}i}{448}$	0	$\frac{3\sqrt{70}}{224}$	0	0	0	0	$\frac{\sqrt{105}}{112}$	$-\frac{5\sqrt{42}i}{448}$	0	$\frac{15\sqrt{42}}{224}$	0	0	0			
	$\frac{\sqrt{105}}{224}$	0	0	0	0	$-\frac{3\sqrt{70}}{112}$	0	$\frac{\sqrt{70}i}{112}$	$\frac{5\sqrt{7}}{224}$	0	0	0	0	$-\frac{5\sqrt{42}}{112}$			
	0	$-\frac{\sqrt{105}}{224}$	0	0	$-\frac{3\sqrt{70}}{112}$	0	$-\frac{\sqrt{70}i}{112}$	0	0	$-\frac{5\sqrt{7}}{224}$	0	0	$-\frac{5\sqrt{42}}{112}$	0			
945	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														
$\mathbb{T}_{6,1}^{(1,0;a)}(E, 3)$	0	$\frac{17\sqrt{2310}i}{7392}$	0	$\frac{\sqrt{2310}}{448}$	0	0	$-\frac{41\sqrt{385}}{3696}$	0	0	$\frac{\sqrt{154}i}{7392}$	0	$\frac{17\sqrt{154}}{1344}$	0	0	0	
	$-\frac{17\sqrt{2310}i}{7392}$	0	$\frac{\sqrt{2310}}{448}$	0	0	0	0	$\frac{41\sqrt{385}}{3696}$	$-\frac{\sqrt{154}i}{7392}$	0	$\frac{17\sqrt{154}}{1344}$	0	0	0	0	
	0	$\frac{\sqrt{2310}}{448}$	0	$-\frac{\sqrt{2310}i}{462}$	$-\frac{83\sqrt{385}}{7392}$	0	0	0	0	$\frac{113\sqrt{154}}{14784}$	0	$\frac{\sqrt{154}i}{462}$	$-\frac{9\sqrt{231}}{2464}$	0	0	
	$\frac{\sqrt{2310}}{448}$	0	$\frac{\sqrt{2310}i}{462}$	0	0	$\frac{83\sqrt{385}}{7392}$	0	0	$\frac{113\sqrt{154}}{14784}$	0	$-\frac{\sqrt{154}i}{462}$	0	0	$\frac{9\sqrt{231}}{2464}$	0	
	0	0	$-\frac{83\sqrt{385}}{7392}$	0	0	$-\frac{\sqrt{2310}i}{1232}$	0	$\frac{5\sqrt{2310}}{1232}$	0	0	$-\frac{43\sqrt{231}}{7392}$	0	0	$-\frac{17\sqrt{154}i}{3696}$	0	
	0	0	0	$\frac{83\sqrt{385}}{7392}$	$\frac{\sqrt{2310}i}{1232}$	0	$\frac{5\sqrt{2310}}{1232}$	0	0	0	$\frac{43\sqrt{231}}{7392}$	$\frac{17\sqrt{154}i}{3696}$	0	0	0	
	$-\frac{41\sqrt{385}}{3696}$	0	0	0	0	$\frac{5\sqrt{2310}}{1232}$	0	0	$-\frac{19\sqrt{231}}{3696}$	0	0	0	0	$\frac{37\sqrt{154}}{3696}$	0	
	0	$\frac{41\sqrt{385}}{3696}$	0	0	$\frac{5\sqrt{2310}}{1232}$	0	0	0	0	$\frac{19\sqrt{231}}{3696}$	0	0	$\frac{37\sqrt{154}}{3696}$	0	0	
	0	$\frac{\sqrt{154}i}{7392}$	0	$\frac{113\sqrt{154}}{14784}$	0	0	$-\frac{19\sqrt{231}}{3696}$	0	0	$-\frac{\sqrt{2310}i}{7392}$	0	$\frac{37\sqrt{2310}}{14784}$	0	0	0	
	$-\frac{\sqrt{154}i}{7392}$	0	$\frac{113\sqrt{154}}{14784}$	0	0	0	0	$\frac{19\sqrt{231}}{3696}$	$\frac{\sqrt{2310}i}{7392}$	0	$\frac{37\sqrt{2310}}{14784}$	0	0	0	0	
	0	$\frac{17\sqrt{154}}{1344}$	0	$\frac{\sqrt{154}i}{462}$	$-\frac{43\sqrt{231}}{7392}$	0	0	0	$\frac{37\sqrt{2310}}{14784}$	0	$\frac{\sqrt{2310}i}{462}$	$-\frac{5\sqrt{385}}{7392}$	0	0	0	
	$\frac{17\sqrt{154}}{1344}$	0	$-\frac{\sqrt{154}i}{462}$	0	0	$\frac{43\sqrt{231}}{7392}$	0	0	$\frac{37\sqrt{2310}}{14784}$	0	$-\frac{\sqrt{2310}i}{462}$	0	0	$\frac{5\sqrt{385}}{7392}$	0	
	0	0	$-\frac{9\sqrt{231}}{2464}$	0	0	$-\frac{17\sqrt{154}i}{3696}$	0	$\frac{37\sqrt{154}}{3696}$	0	0	$-\frac{5\sqrt{385}}{7392}$	0	0	$-\frac{5\sqrt{2310}i}{3696}$	0	
	0	0	0	$\frac{9\sqrt{231}}{2464}$	$\frac{17\sqrt{154}i}{3696}$	0	$\frac{37\sqrt{154}}{3696}$	0	0	0	0	$\frac{5\sqrt{385}}{7392}$	$\frac{5\sqrt{2310}i}{3696}$	0	0	
946	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													
$\mathbb{T}_{6,2}^{(1,0;a)}(E, 3)$	0	$-\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{448}$	$\frac{83\sqrt{385}}{7392}$	0	0	0	0	$-\frac{\sqrt{154}}{462}$	0	$-\frac{113\sqrt{154}i}{14784}$	$-\frac{9\sqrt{231}}{2464}$	0	
	$-\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{448}$	0	0	$-\frac{83\sqrt{385}}{7392}$	0	0	$-\frac{\sqrt{154}}{462}$	0	$\frac{113\sqrt{154}i}{14784}$	0	0	$\frac{9\sqrt{231}}{2464}$	
	0	$\frac{\sqrt{2310}i}{448}$	0	$\frac{17\sqrt{2310}}{7392}$	0	0	$-\frac{41\sqrt{385}}{3696}$	0	0	$-\frac{17\sqrt{154}i}{1344}$	0	$-\frac{\sqrt{154}}{7392}$	0	0	
	$-\frac{\sqrt{2310}i}{448}$	0	$\frac{17\sqrt{2310}}{7392}$	0	0	0	0	$\frac{41\sqrt{385}}{3696}$	$\frac{17\sqrt{154}i}{1344}$	0	$-\frac{\sqrt{154}}{7392}$	0	0	0	
	$\frac{83\sqrt{385}}{7392}$	0	0	0	0	$-\frac{\sqrt{2310}}{1232}$	0	$-\frac{5\sqrt{2310}i}{1232}$	$-\frac{43\sqrt{231}}{7392}$	0	0	0	0	$\frac{17\sqrt{154}}{3696}$	
	0	$-\frac{83\sqrt{385}}{7392}$	0	0	$-\frac{\sqrt{2310}}{1232}$	0	$\frac{5\sqrt{2310}i}{1232}$	0	0	$\frac{43\sqrt{231}}{7392}$	0	0	$\frac{17\sqrt{154}}{3696}$	0	
	0	0	$-\frac{41\sqrt{385}}{3696}$	0	0	$-\frac{5\sqrt{2310}i}{1232}$	0	0	0	0	$\frac{19\sqrt{231}}{3696}$	0	0	$\frac{37\sqrt{154}i}{3696}$	
	0	0	0	$\frac{41\sqrt{385}}{3696}$	$\frac{5\sqrt{2310}i}{1232}$	0	0	0	0	0	$-\frac{19\sqrt{231}}{3696}$	$-\frac{37\sqrt{154}i}{3696}$	0		
	0	$-\frac{\sqrt{154}}{462}$	0	$-\frac{17\sqrt{154}i}{1344}$	$-\frac{43\sqrt{231}}{7392}$	0	0	0	0	$\frac{\sqrt{2310}}{462}$	0	$\frac{37\sqrt{2310}i}{14784}$	$\frac{5\sqrt{385}}{7392}$	0	
	$-\frac{\sqrt{154}}{462}$	0	$\frac{17\sqrt{154}i}{1344}$	0	0	$\frac{43\sqrt{231}}{7392}$	0	0	$\frac{\sqrt{2310}}{462}$	0	$-\frac{37\sqrt{2310}i}{14784}$	0	0	$-\frac{5\sqrt{385}}{7392}$	
	0	$-\frac{113\sqrt{154}i}{14784}$	0	$-\frac{\sqrt{154}}{7392}$	0	0	$\frac{19\sqrt{231}}{3696}$	0	0	$\frac{37\sqrt{2310}i}{14784}$	0	$-\frac{\sqrt{2310}}{7392}$	0	0	
	$\frac{113\sqrt{154}i}{14784}$	0	$-\frac{\sqrt{154}}{7392}$	0	0	0	0	$-\frac{19\sqrt{231}}{3696}$	$-\frac{37\sqrt{2310}i}{14784}$	0	$-\frac{\sqrt{2310}}{7392}$	0	0	0	
	$-\frac{9\sqrt{231}}{2464}$	0	0	0	0	$\frac{17\sqrt{154}}{3696}$	0	$\frac{37\sqrt{154}i}{3696}$	$\frac{5\sqrt{385}}{7392}$	0	0	0	0	$-\frac{5\sqrt{2310}}{3696}$	
	0	$\frac{9\sqrt{231}}{2464}$	0	0	$\frac{17\sqrt{154}}{3696}$	0	$-\frac{37\sqrt{154}i}{3696}$	0	0	$-\frac{5\sqrt{385}}{7392}$	0	0	0	$-\frac{5\sqrt{2310}}{3696}$	0

947 symmetry

z

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_1^{(a)}(A)$	0	$0 \ 0 \ -\frac{3\sqrt{14}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ -\frac{3\sqrt{14}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	$\frac{3\sqrt{14}i}{28}$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ \frac{3\sqrt{14}i}{28} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{14}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{14}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{14}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{14}i}{14} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{14}i}{28} \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{14}i}{28} \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{14}i}{28} \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{14}i}{28} \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
<i>x</i>		
948	symmetry	

continued ...

Table 10

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

949 symmetry

y

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_{1,2}^{(a)}(E)$	0	0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 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 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{21}i}{28}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0
	0	0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{21}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{35}i}{28}$ 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{14}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{21}i}{14}$ 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{35}i}{28}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{14}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{21}i}{14}$ 0 0 0 0 0 0
950	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(A)$	0	$\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{3}i}{6}$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0
951 symmetry		$\sqrt{15}xyz$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_3^{(a)}(B, 1)$	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 $\frac{\sqrt{3}i}{6}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{3}i}{6}$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	$-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 $-\frac{\sqrt{3}i}{6}$ 0 0 0 0 0 0 0 0 0	
952	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_{3,1}^{(a)}(E, 1)$	0	0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0
	0	0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$
	0	0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0
	$-\frac{\sqrt{2}i}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0
	0 $-\frac{\sqrt{2}i}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$
	0 0 $-\frac{\sqrt{30}i}{24}$	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0
	0 0 $-\frac{\sqrt{30}i}{24}$	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0

954 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_{3,2}^{(a)}(E, 1)$	0	0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$
	0	0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0
	$-\frac{\sqrt{2}i}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0
	0	0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0
	0	0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0
	0	0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{30}i}{24}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0
$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$		

955 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_{3,1}^{(a)}(E, 2)$	0	0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0
	$\frac{\sqrt{30}i}{24}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0
	0	$\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0
	0	0 0 0 $\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0
	0	0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{30}i}{24}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{2}i}{8}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{2}i}{8}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{30}i}{24}$ 0 0 0 0 0 0

956 symmetry

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

continued ...

Table 10

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

957 symmetry

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

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
958	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	$0 \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ -\frac{\sqrt{42}i}{84} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	$\frac{\sqrt{42}i}{84}$	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ \frac{\sqrt{42}i}{84} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{42}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{\sqrt{42}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{\sqrt{42}i}{21} \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{5\sqrt{42}i}{84} \ 0 \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ -\frac{5\sqrt{42}i}{84} \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{5\sqrt{42}i}{84} \ 0 \ 0$
	0	$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \frac{5\sqrt{42}i}{84} \ 0 \ 0$
959	symmetry	$\frac{3\sqrt{35}z(x^2-2xy-y^2)(x^2+2xy-y^2)}{8}$

continued ...

Table 10

No.	multipole	matrix
		$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$
$\mathbb{M}_5^{(a)}(A, 3)$		
960	symmetry	$\frac{\sqrt{105}xyz(x^2+y^2-2z^2)}{2}$

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(a)}(B, 2)$	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0	
	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{6}$ 0	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{6}i}{6}$ 0	
	0 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 $-\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0 0	
	$\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 $\frac{\sqrt{6}i}{12}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 $\frac{\sqrt{6}i}{6}$ 0 0 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{6}i}{6}$ 0 0 0 0 0 0 0 0	
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
$\mathbb{M}_{5,1}^{(a)}(E, 1)$	0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0	
	0 0 0 0 $-\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{48}$ 0	
	0 0 0 0 0 $-\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{48}$	
	0 0 $\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{336}$ 0 0 0	
	0 0 0 $\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{336}$ 0 0 0	
	$\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{42}$ 0 0 0 0 0	
	0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 $\frac{\sqrt{105}i}{42}$ 0 0 0 0 0	
	0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 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 $\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{7}i}{112}$ 0	
	0 0 0 0 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0 0 $-\frac{5\sqrt{7}i}{112}$	
	0 0 $-\frac{\sqrt{105}i}{48}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{7}i}{112}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{105}i}{48}$ 0 0 0 0 0 0 0 $\frac{5\sqrt{7}i}{112}$ 0 0	
963	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
$\mathbb{M}_{5,2}^{(a)}(E, 1)$	0	0 0 0 0 $\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{48}$ 0
	0	0 0 0 0 0 $\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 $\frac{\sqrt{105}i}{48}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0
	$-\frac{13\sqrt{7}i}{112}$	0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0 0
	0	$-\frac{13\sqrt{7}i}{112}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0
	0	0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{7}i}{14}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{105}i}{42}$ 0 0 0 0 0 0
	0	0 0 0 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0 0 0 $\frac{5\sqrt{7}i}{112}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{105}i}{336}$ 0 0 0 0 0 0 0 0 $\frac{5\sqrt{7}i}{112}$
	0	0 0 0 0 0 0 $\frac{\sqrt{105}i}{42}$ 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{105}i}{48}$	0 0 0 0 0 0 0 0 $-\frac{5\sqrt{7}i}{112}$ 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{105}i}{48}$ 0 0 0 0 0 0 0 0 $-\frac{5\sqrt{7}i}{112}$ 0 0 0 0 0 0
$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$		

964 symmetry

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_{5,1}^{(a)}(E, 2)$	0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} \\ 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{3}i}{16} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}i}{16} \\ 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{3\sqrt{3}i}{16} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{5}i}{16} & 0 & 0 \end{bmatrix}$
	965 symmetry	$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_{5,1}^{(a)}(E, 3)$	0	0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 $-\frac{i}{8}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 $-\frac{i}{8}$
	0	0 0 0 0 0 0 $-\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0
	$-\frac{\sqrt{15}i}{24}$	0 0 0 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0 0
	0	$-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0
	0	0 0 $\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0
	0	0 0 0 $\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0
	0	0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0
	0	0 0 0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$
	0	0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{i}{4}$ 0 0 0 0 0 0 0
	$\frac{i}{8}$	0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0
	0	$\frac{i}{8}$ 0 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0
967	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_{5,2}^{(a)}(E, 3)$	0 0 0 0 0 0 $\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0	
	0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0	
	0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{i}{8}$ 0	
	0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 $\frac{i}{8}$	
	0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0	
	0 0 0 $-\frac{\sqrt{15}i}{24}$ 0 0 0 0 0 0 0 $-\frac{i}{8}$ 0 0 0	
	$-\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0 0 0	
	0 $-\frac{\sqrt{15}i}{12}$ 0 0 0 0 0 0 0 $\frac{i}{4}$ 0 0 0 0	
	0 0 0 0 0 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 $\frac{i}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$ 0	
	0 0 0 0 0 $\frac{i}{8}$ 0 0 0 0 0 0 0 $-\frac{\sqrt{15}i}{24}$	
	0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0	
	0 0 0 $-\frac{i}{8}$ 0 0 0 0 0 0 0 $\frac{\sqrt{15}i}{24}$ 0 0 0	

968 symmetry

z

continued ...

Table 10

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

continued ...

Table 10

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

970 symmetry

y

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_{1,2}^{(1,-1;a)}(E)$	0	$-\frac{\sqrt{14}i}{14}$
	$\frac{\sqrt{14}i}{14}$	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 $\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 $\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{14}$ 0 0 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{14}i}{14}$ 0 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{14}$ 0
	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{14}i}{14}$
971	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$

continued ...

Table 10

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

972 symmetry

 $\sqrt{15}xyz$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,-1;a)}(B,1)$	0 0 0 0 0 $-\frac{5\sqrt{7}i}{84}$ 0 $-\frac{5\sqrt{7}}{84}$ 0 0 $\frac{\sqrt{70}}{84}$ 0 0 0														
	0 0 0 0 $\frac{5\sqrt{7}i}{84}$ 0 $-\frac{5\sqrt{7}}{84}$ 0 0 0 0 $-\frac{\sqrt{70}}{84}$ 0 0 0														
	0 0 0 0 0 $\frac{5\sqrt{7}}{84}$ 0 $-\frac{5\sqrt{7}i}{84}$ $-\frac{\sqrt{70}}{84}$ 0 0 0 0 0														
	0 0 0 0 $\frac{5\sqrt{7}}{84}$ 0 $\frac{5\sqrt{7}i}{84}$ 0 0 $\frac{\sqrt{70}}{84}$ 0 0 0 0														
	0 $-\frac{5\sqrt{7}i}{84}$ 0 $\frac{5\sqrt{7}}{84}$ 0 0 0 0 0 $-\frac{\sqrt{105}i}{84}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0														
	$\frac{5\sqrt{7}i}{84}$ 0 $\frac{5\sqrt{7}}{84}$ 0 0 0 0 0 $\frac{\sqrt{105}i}{84}$ 0 $-\frac{\sqrt{105}}{84}$ 0 0 0														
	0 $-\frac{5\sqrt{7}}{84}$ 0 $-\frac{5\sqrt{7}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 $-\frac{\sqrt{105}i}{84}$ $-\frac{\sqrt{70}}{42}$ 0														
	$-\frac{5\sqrt{7}}{84}$ 0 $\frac{5\sqrt{7}i}{84}$ 0 0 0 0 0 $\frac{\sqrt{105}}{84}$ 0 $\frac{\sqrt{105}i}{84}$ 0 0 $\frac{\sqrt{70}}{42}$														
	0 0 $-\frac{\sqrt{70}}{84}$ 0 0 $-\frac{\sqrt{105}i}{84}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 $\frac{\sqrt{42}}{42}$ 0 0 $-\frac{\sqrt{42}}{42}$														
	0 0 0 $\frac{\sqrt{70}}{84}$ $\frac{\sqrt{105}i}{84}$ 0 $\frac{\sqrt{105}}{84}$ 0 0 0 0 $-\frac{\sqrt{42}}{42}$ $\frac{\sqrt{7}i}{42}$ 0														
	$\frac{\sqrt{70}}{84}$ 0 0 0 0 $-\frac{\sqrt{105}}{84}$ 0 $\frac{\sqrt{105}i}{84}$ 0 0 $-\frac{\sqrt{42}}{42}$ 0 0 $\frac{\sqrt{7}}{42}$ 0														
	0 0 0 0 0 0 $-\frac{\sqrt{70}}{42}$ 0 0 $-\frac{\sqrt{7}i}{42}$ 0 $\frac{\sqrt{7}}{42}$ 0 0 0														
	0 0 0 0 0 0 0 $\frac{\sqrt{70}}{42}$ $\frac{\sqrt{7}i}{42}$ 0 $\frac{\sqrt{7}}{42}$ 0 0 0														
973	symmetry	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$													

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,-1;a)}(B, 2)$	0	0	0	0	0	$\frac{5\sqrt{7}}{84}$	0	$-\frac{5\sqrt{7}i}{84}$	$-\frac{\sqrt{70}}{84}$	0	0	0	0	0	0
	0	0	0	0	$\frac{5\sqrt{7}}{84}$	0	$\frac{5\sqrt{7}i}{84}$	0	0	$\frac{\sqrt{70}}{84}$	0	0	0	0	0
	0	0	0	0	0	$\frac{5\sqrt{7}i}{84}$	0	$\frac{5\sqrt{7}}{84}$	0	0	0	$-\frac{\sqrt{70}}{84}$	0	0	0
	0	0	0	0	$-\frac{5\sqrt{7}i}{84}$	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	$\frac{\sqrt{70}}{84}$	0	0	0
	0	$\frac{5\sqrt{7}}{84}$	0	$\frac{5\sqrt{7}i}{84}$	0	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	$-\frac{\sqrt{105}i}{84}$	$-\frac{\sqrt{70}}{42}$	0	0
	$\frac{5\sqrt{7}}{84}$	0	$-\frac{5\sqrt{7}i}{84}$	0	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	0	0	$\frac{\sqrt{70}}{42}$	
	0	$-\frac{5\sqrt{7}i}{84}$	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	0	$\frac{\sqrt{105}i}{84}$	0	$\frac{\sqrt{105}}{84}$	0	0	0
	$\frac{5\sqrt{7}i}{84}$	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	0	$-\frac{\sqrt{105}i}{84}$	0	$\frac{\sqrt{105}}{84}$	0	0	0	0
	$-\frac{\sqrt{70}}{84}$	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	$\frac{\sqrt{105}i}{84}$	$\frac{\sqrt{42}}{42}$	0	0	0	0	$\frac{\sqrt{7}}{42}$	
	0	$\frac{\sqrt{70}}{84}$	0	0	$\frac{\sqrt{105}}{84}$	0	$-\frac{\sqrt{105}i}{84}$	0	0	$-\frac{\sqrt{42}}{42}$	0	0	$\frac{\sqrt{7}}{42}$	0	0
	0	0	$-\frac{\sqrt{70}}{84}$	0	0	$-\frac{\sqrt{105}i}{84}$	0	$\frac{\sqrt{105}}{84}$	0	0	$-\frac{\sqrt{42}}{42}$	0	0	$\frac{\sqrt{7}i}{42}$	
	0	0	0	$\frac{\sqrt{70}}{84}$	$\frac{\sqrt{105}i}{84}$	0	$\frac{\sqrt{105}}{84}$	0	0	0	0	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{7}i}{42}$	0	
	0	0	0	0	$-\frac{\sqrt{70}}{42}$	0	0	0	$\frac{\sqrt{7}}{42}$	0	$\frac{\sqrt{7}i}{42}$	0	0	0	
	0	0	0	0	0	$\frac{\sqrt{70}}{42}$	0	0	$\frac{\sqrt{7}}{42}$	0	$-\frac{\sqrt{7}i}{42}$	0	0	0	

974 symmetry

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

continued ...

Table 10

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

continued ...

Table 10

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

976 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_{3,1}^{(1,-1;a)}(E, 2)$	0	$\frac{5\sqrt{42}i}{168}$	0	0	0	0	$-\frac{5\sqrt{7}}{84}$	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	$\frac{5\sqrt{7}}{84}$	$\frac{\sqrt{70}i}{168}$	0	$-\frac{\sqrt{70}}{84}$	0	0	0	0
	0	0	0	$\frac{5\sqrt{42}i}{168}$	$\frac{5\sqrt{7}}{84}$	0	0	0	0	$\frac{\sqrt{70}}{84}$	0	$-\frac{\sqrt{70}i}{168}$	0	0	0
	0	0	$-\frac{5\sqrt{42}i}{168}$	0	0	$-\frac{5\sqrt{7}}{84}$	0	0	$\frac{\sqrt{70}}{84}$	0	$\frac{\sqrt{70}i}{168}$	0	0	0	0
	0	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	0	$-\frac{\sqrt{105}}{84}$	0	0	0	$-\frac{\sqrt{70}i}{84}$
	0	0	0	$-\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	$\frac{\sqrt{105}}{84}$	$\frac{\sqrt{70}i}{84}$	0	0	0
	$-\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	0	0	0	$\frac{\sqrt{70}}{42}$	0
	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	0	$-\frac{\sqrt{105}}{84}$	0	0	$\frac{\sqrt{70}}{42}$	0	0
	0	$-\frac{\sqrt{70}i}{168}$	0	$\frac{\sqrt{70}}{84}$	0	0	$\frac{\sqrt{105}}{84}$	0	0	$-\frac{\sqrt{42}i}{168}$	0	$-\frac{\sqrt{42}}{42}$	0	0	0
	$\frac{\sqrt{70}i}{168}$	0	$\frac{\sqrt{70}}{84}$	0	0	0	0	$-\frac{\sqrt{105}}{84}$	$\frac{\sqrt{42}i}{168}$	0	$-\frac{\sqrt{42}}{42}$	0	0	0	0
	0	$-\frac{\sqrt{70}}{84}$	0	$-\frac{\sqrt{70}i}{168}$	$-\frac{\sqrt{105}}{84}$	0	0	0	0	$-\frac{\sqrt{42}}{42}$	0	$-\frac{5\sqrt{42}i}{168}$	$\frac{\sqrt{7}}{42}$	0	0
	$-\frac{\sqrt{70}}{84}$	0	$\frac{\sqrt{70}i}{168}$	0	0	$\frac{\sqrt{105}}{84}$	0	0	$-\frac{\sqrt{42}}{42}$	0	$\frac{5\sqrt{42}i}{168}$	0	0	0	$-\frac{\sqrt{7}}{42}$
	0	0	0	0	0	$-\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{42}$	0	0	0	$\frac{\sqrt{7}}{42}$	0	0	$-\frac{\sqrt{42}i}{42}$
	0	0	0	0	$\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{42}$	0	0	0	0	$-\frac{\sqrt{7}}{42}$	$\frac{\sqrt{42}i}{42}$	0	0
977	symmetry	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_{3,2}^{(1,-1;a)}(E, 2)$	0	$\frac{5\sqrt{42}}{168}$	0	0	$-\frac{5\sqrt{7}}{84}$	0	0	0	0	$\frac{\sqrt{70}}{168}$	0	$-\frac{\sqrt{70}i}{84}$	0	0	0	
	$\frac{5\sqrt{42}}{168}$	0	0	0	0	$\frac{5\sqrt{7}}{84}$	0	0	$\frac{\sqrt{70}}{168}$	0	$\frac{\sqrt{70}i}{84}$	0	0	0	0	
	0	0	0	$\frac{5\sqrt{42}}{168}$	0	0	$-\frac{5\sqrt{7}}{84}$	0	0	$\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{168}$	0	$\frac{\sqrt{70}}{168}$	0	0
	0	0	$\frac{5\sqrt{42}}{168}$	0	0	0	0	$\frac{5\sqrt{7}}{84}$	$-\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{168}$	0	0	0	0	
	$-\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	0	$-\frac{\sqrt{105}}{84}$	0	0	0	0	$\frac{\sqrt{70}}{84}$	0	
	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	$\frac{\sqrt{105}}{84}$	0	0	0	$\frac{\sqrt{70}}{84}$	0	0	
	0	0	$-\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	$-\frac{\sqrt{105}}{84}$	0	0	$\frac{\sqrt{70}i}{42}$	0	0	
	0	0	0	$\frac{5\sqrt{7}}{84}$	0	0	0	0	0	0	$\frac{\sqrt{105}}{84}$	$-\frac{\sqrt{70}i}{42}$	0	0	0	
	0	$\frac{\sqrt{70}}{168}$	0	$\frac{\sqrt{70}i}{84}$	$-\frac{\sqrt{105}}{84}$	0	0	0	0	$-\frac{5\sqrt{42}}{168}$	0	$-\frac{\sqrt{42}i}{42}$	$-\frac{\sqrt{7}}{42}$	0	0	
	$\frac{\sqrt{70}}{168}$	0	$-\frac{\sqrt{70}i}{84}$	0	0	$\frac{\sqrt{105}}{84}$	0	0	$-\frac{5\sqrt{42}}{168}$	0	$\frac{\sqrt{42}i}{42}$	0	0	$\frac{\sqrt{7}}{42}$	0	
	0	$-\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{168}$	0	0	$-\frac{\sqrt{105}}{84}$	0	0	$-\frac{\sqrt{42}i}{42}$	0	$-\frac{\sqrt{42}}{168}$	0	$\frac{\sqrt{42}}{168}$	0	0
	$\frac{\sqrt{70}i}{84}$	0	$\frac{\sqrt{70}}{168}$	0	0	0	$\frac{\sqrt{105}}{84}$	$\frac{\sqrt{42}i}{42}$	0	$-\frac{\sqrt{42}}{168}$	0	0	0	0	0	0
	0	0	0	0	0	$\frac{\sqrt{70}}{84}$	0	$\frac{\sqrt{70}i}{42}$	$-\frac{\sqrt{7}}{42}$	0	0	0	0	$-\frac{\sqrt{42}}{42}$	0	0
	0	0	0	0	$\frac{\sqrt{70}}{84}$	0	$-\frac{\sqrt{70}i}{42}$	0	0	$\frac{\sqrt{7}}{42}$	0	0	0	$-\frac{\sqrt{42}}{42}$	0	0

978 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(A, 1)$	0	0 0 0 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{110}$ 0 0 $\frac{3\sqrt{110}i}{110}$
	0	0 0 0 0 0 0 0 0 0 0 $\frac{\sqrt{165}}{110}$ $-\frac{3\sqrt{110}i}{110}$ 0
	0	0 0 0 0 0 0 0 0 $-\frac{\sqrt{165}}{110}$ 0 0 0 0 $-\frac{3\sqrt{110}}{110}$
	0	0 0 0 0 0 0 0 0 0 $\frac{\sqrt{165}}{110}$ 0 0 0 $-\frac{3\sqrt{110}}{110}$
	0	0 0 0 0 0 0 $\frac{\sqrt{11}}{22}$ 0 0 $-\frac{\sqrt{110}i}{110}$ 0 $\frac{\sqrt{110}}{110}$ 0 0
	0	0 0 0 0 0 0 0 $-\frac{\sqrt{11}}{22}$ $\frac{\sqrt{110}i}{110}$ 0 $\frac{\sqrt{110}}{110}$ 0 0 0
	0	0 0 0 0 $\frac{\sqrt{11}}{22}$ 0 0 0 0 $\frac{\sqrt{110}}{110}$ 0 $\frac{\sqrt{110}i}{110}$ 0 0
	0	0 0 0 0 0 $-\frac{\sqrt{11}}{22}$ 0 0 $\frac{\sqrt{110}}{110}$ 0 $-\frac{\sqrt{110}i}{110}$ 0 0 0
	0	0 0 $-\frac{\sqrt{165}}{110}$ 0 0 $-\frac{\sqrt{110}i}{110}$ 0 $\frac{\sqrt{110}}{110}$ 0 0 0 0 0
	0	0 0 0 $\frac{\sqrt{165}}{110}$ $\frac{\sqrt{110}i}{110}$ 0 $\frac{\sqrt{110}}{110}$ 0 0 0 0 0 0
	$-\frac{\sqrt{165}}{110}$	0 0 0 0 0 $\frac{\sqrt{110}}{110}$ 0 $\frac{\sqrt{110}i}{110}$ 0 0 0 0 0
	0	$\frac{\sqrt{165}}{110}$ 0 0 $\frac{\sqrt{110}}{110}$ 0 $-\frac{\sqrt{110}i}{110}$ 0 0 0 0 0 0
	0	$\frac{3\sqrt{110}i}{110}$ 0 $-\frac{3\sqrt{110}}{110}$ 0 0 0 0 0 0 0 0 0
	$-\frac{3\sqrt{110}i}{110}$	0 $-\frac{3\sqrt{110}}{110}$ 0 0 0 0 0 0 0 0 0 0
$\frac{z(15x^4 + 30x^2y^2 - 40x^2z^2 + 15y^4 - 40y^2z^2 + 8z^4)}{8}$		
979	symmetry	

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,-1;a)}(A, 2)$	$\frac{\sqrt{385}}{154}$	0	0	0	0	$\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{462}$	0	0	0	0	0	0	0
	0	$-\frac{\sqrt{385}}{154}$	0	0	$\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{462}$	0	0	0	0	0	0	0	0
	0	0	$\frac{\sqrt{385}}{154}$	0	0	$-\frac{\sqrt{2310}i}{462}$	0	$\frac{\sqrt{2310}}{462}$	0	0	0	0	0	0	0
	0	0	0	$-\frac{\sqrt{385}}{154}$	$\frac{\sqrt{2310}i}{462}$	0	$\frac{\sqrt{2310}}{462}$	0	0	0	0	0	0	0	0
	0	$\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{462}$	$-\frac{\sqrt{385}}{66}$	0	0	0	0	$-\frac{2\sqrt{154}}{231}$	0	$-\frac{2\sqrt{154}i}{231}$	0	0	0
		$\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{462}$	0	0	$\frac{\sqrt{385}}{66}$	0	0	$-\frac{2\sqrt{154}}{231}$	0	$\frac{2\sqrt{154}i}{231}$	0	0	0
	0	$\frac{\sqrt{2310}i}{462}$	0	$\frac{\sqrt{2310}}{462}$	0	0	$-\frac{\sqrt{385}}{66}$	0	0	$\frac{2\sqrt{154}i}{231}$	0	$-\frac{2\sqrt{154}}{231}$	0	0	0
	$-\frac{\sqrt{2310}i}{462}$	0	$\frac{\sqrt{2310}}{462}$	0	0	0	0	$\frac{\sqrt{385}}{66}$	$-\frac{2\sqrt{154}i}{231}$	0	$-\frac{2\sqrt{154}}{231}$	0	0	0	0
	0	0	0	0	0	$-\frac{2\sqrt{154}}{231}$	0	$\frac{2\sqrt{154}i}{231}$	$\frac{\sqrt{385}}{462}$	0	0	0	0	$-\frac{\sqrt{2310}}{462}$	
	0	0	0	0	$-\frac{2\sqrt{154}}{231}$	0	$-\frac{2\sqrt{154}i}{231}$	0	0	$-\frac{\sqrt{385}}{462}$	0	0	$-\frac{\sqrt{2310}}{462}$	0	
	0	0	0	0	0	$-\frac{2\sqrt{154}i}{231}$	0	$-\frac{2\sqrt{154}}{231}$	0	0	0	$\frac{\sqrt{385}}{462}$	0	0	$\frac{\sqrt{2310}i}{462}$
	0	0	0	0	$\frac{2\sqrt{154}i}{231}$	0	$-\frac{2\sqrt{154}}{231}$	0	0	0	0	$-\frac{\sqrt{385}}{462}$	$-\frac{\sqrt{2310}i}{462}$	0	
	0	0	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{462}$	0	$\frac{\sqrt{2310}i}{462}$	$\frac{\sqrt{385}}{77}$	0		
	0	0	0	0	0	0	0	0	$-\frac{\sqrt{2310}}{462}$	0	$-\frac{\sqrt{2310}i}{462}$	0	0	$-\frac{\sqrt{385}}{77}$	

980 symmetry

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

continued ...

Table 10

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

continued ...

Table 10

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

982 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,-1;a)}(B, 2)$	0 0 0 0 0 $-\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ $\frac{3\sqrt{55}}{110}$ 0 0 0 0 $\frac{\sqrt{330}}{220}$	
	0 0 0 0 $-\frac{\sqrt{22}}{44}$ 0 $-\frac{\sqrt{22}i}{44}$ 0 0 $-\frac{3\sqrt{55}}{110}$ 0 0 $\frac{\sqrt{330}}{220}$ 0	
	0 0 0 0 0 $-\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 0 $-\frac{3\sqrt{55}}{110}$ 0 0 $-\frac{\sqrt{330}i}{220}$	
	0 0 0 0 $\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 0 $-\frac{3\sqrt{55}}{110}$ $\frac{\sqrt{330}i}{220}$ 0	
	0 $-\frac{\sqrt{22}}{44}$ 0 $-\frac{\sqrt{22}i}{44}$ 0 0 0 0 0 $\frac{\sqrt{330}}{220}$ 0 $-\frac{\sqrt{330}i}{220}$ $-\frac{\sqrt{55}}{110}$ 0	
	$-\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ 0 0 0 0 0 $\frac{\sqrt{330}}{220}$ 0 $\frac{\sqrt{330}i}{220}$ 0 0 $\frac{\sqrt{55}}{110}$	
	0 $\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 0 0 $\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 $\frac{\sqrt{330}}{132}$	
	$-\frac{\sqrt{22}i}{44}$ 0 $-\frac{\sqrt{22}}{44}$ 0 0 0 0 0 $-\frac{\sqrt{330}i}{132}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0	
	$\frac{3\sqrt{55}}{110}$ 0 0 0 0 $\frac{\sqrt{330}}{220}$ 0 $\frac{\sqrt{330}i}{132}$ $\frac{\sqrt{33}}{33}$ 0 0 0 0 $\frac{\sqrt{22}}{44}$	
	0 $-\frac{3\sqrt{55}}{110}$ 0 0 $\frac{\sqrt{330}}{220}$ 0 $-\frac{\sqrt{330}i}{132}$ 0 0 $-\frac{\sqrt{33}}{33}$ 0 0 $\frac{\sqrt{22}}{44}$ 0	
	0 0 $\frac{3\sqrt{55}}{110}$ 0 0 $-\frac{\sqrt{330}i}{220}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 $-\frac{\sqrt{33}}{33}$ 0 0 $\frac{\sqrt{22}i}{44}$	
	0 0 0 $-\frac{3\sqrt{55}}{110}$ $\frac{\sqrt{330}i}{220}$ 0 $\frac{\sqrt{330}}{132}$ 0 0 0 0 $\frac{\sqrt{33}}{33}$ $-\frac{\sqrt{22}i}{44}$ 0	
	0 $\frac{\sqrt{330}}{220}$ 0 $-\frac{\sqrt{330}i}{220}$ $-\frac{\sqrt{55}}{110}$ 0 0 0 0 $\frac{\sqrt{22}}{44}$ 0 $\frac{\sqrt{22}i}{44}$ 0 0	
$\frac{x(8x^4 - 40x^2y^2 - 40x^2z^2 + 15y^4 + 30y^2z^2 + 15z^4)}{8}$		
983	symmetry	

continued ...

Table 10

No.	multipole	matrix															
$\mathbb{M}_{5,1}^{(1,-1;a)}(E, 1)$	0	$\frac{3\sqrt{385}}{1232}$	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	0	0	$-\frac{65\sqrt{231}}{3696}$	0	$-\frac{\sqrt{231}i}{231}$	$\frac{\sqrt{154}}{88}$	0			
	$\frac{3\sqrt{385}}{1232}$	0	0	0	0	$\frac{\sqrt{2310}}{616}$	0	0	$-\frac{65\sqrt{231}}{3696}$	0	$\frac{\sqrt{231}i}{231}$	0	0	$-\frac{\sqrt{154}}{88}$			
	0	0	0	$\frac{3\sqrt{385}}{1232}$	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	$-\frac{5\sqrt{231}i}{462}$	0	$\frac{5\sqrt{231}}{3696}$	0	0	0		
	0	0	$\frac{3\sqrt{385}}{1232}$	0	0	0	0	$\frac{\sqrt{2310}}{616}$	$\frac{5\sqrt{231}i}{462}$	0	$\frac{5\sqrt{231}}{3696}$	0	0	0	0		
	$-\frac{\sqrt{2310}}{616}$	0	0	0	0	$\frac{\sqrt{385}}{264}$	0	$\frac{\sqrt{385}i}{132}$	$\frac{5\sqrt{154}}{1848}$	0	0	0	0	$\frac{5\sqrt{231}}{1848}$			
	0	$\frac{\sqrt{2310}}{616}$	0	0	$\frac{\sqrt{385}}{264}$	0	$-\frac{\sqrt{385}i}{132}$	0	0	$-\frac{5\sqrt{154}}{1848}$	0	0	$\frac{5\sqrt{231}}{1848}$	0			
	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	$\frac{\sqrt{385}i}{132}$	0	$-\frac{\sqrt{385}}{66}$	0	0	$\frac{19\sqrt{154}}{1848}$	0	0	$\frac{\sqrt{231}i}{924}$			
	0	0	0	$\frac{\sqrt{2310}}{616}$	$-\frac{\sqrt{385}i}{132}$	0	$-\frac{\sqrt{385}}{66}$	0	0	0	0	$-\frac{19\sqrt{154}}{1848}$	$-\frac{\sqrt{231}i}{924}$	0			
	0	$-\frac{65\sqrt{231}}{3696}$	0	$-\frac{5\sqrt{231}i}{462}$	$\frac{5\sqrt{154}}{1848}$	0	0	0	0	$-\frac{17\sqrt{385}}{3696}$	0	$-\frac{\sqrt{385}i}{462}$	$\frac{\sqrt{2310}}{616}$	0			
	$-\frac{65\sqrt{231}}{3696}$	0	$\frac{5\sqrt{231}i}{462}$	0	0	$-\frac{5\sqrt{154}}{1848}$	0	0	$-\frac{17\sqrt{385}}{3696}$	0	$\frac{\sqrt{385}i}{462}$	0	0	$-\frac{\sqrt{2310}}{616}$			
	0	$-\frac{\sqrt{231}i}{231}$	0	$\frac{5\sqrt{231}}{3696}$	0	0	$\frac{19\sqrt{154}}{1848}$	0	0	$-\frac{\sqrt{385}i}{462}$	0	$\frac{23\sqrt{385}}{3696}$	0	0	0		
	$\frac{\sqrt{231}i}{231}$	0	$\frac{5\sqrt{231}}{3696}$	0	0	0	0	$-\frac{19\sqrt{154}}{1848}$	$\frac{\sqrt{385}i}{462}$	0	$\frac{23\sqrt{385}}{3696}$	0	0	0	0		
	$\frac{\sqrt{154}}{88}$	0	0	0	0	$\frac{5\sqrt{231}}{1848}$	0	$\frac{\sqrt{231}i}{924}$	$\frac{\sqrt{2310}}{616}$	0	0	0	0	$\frac{3\sqrt{385}}{616}$	0		
	0	$-\frac{\sqrt{154}}{88}$	0	0	$\frac{5\sqrt{231}}{1848}$	0	$-\frac{\sqrt{231}i}{924}$	0	0	$-\frac{\sqrt{2310}}{616}$	0	0	$\frac{3\sqrt{385}}{616}$	0			

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

984 symmetry

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_{5,1}^{(1,-1;a)}(E, 2)$	0	$\frac{3\sqrt{11}}{176}$	0	0	$-\frac{\sqrt{66}}{88}$	0	0	0	0	$\frac{\sqrt{165}}{176}$	0	$-\frac{\sqrt{165}i}{55}$	$-\frac{9\sqrt{110}}{440}$	0	
	$\frac{3\sqrt{11}}{176}$	0	0	0	0	$\frac{\sqrt{66}}{88}$	0	0	$\frac{\sqrt{165}}{176}$	0	$\frac{\sqrt{165}i}{55}$	0	0	$\frac{9\sqrt{110}}{440}$	
	0	0	0	$\frac{3\sqrt{11}}{176}$	0	0	$-\frac{\sqrt{66}}{88}$	0	0	$\frac{\sqrt{165}i}{110}$	0	$\frac{7\sqrt{165}}{880}$	0	0	
	0	0	$\frac{3\sqrt{11}}{176}$	0	0	0	0	$\frac{\sqrt{66}}{88}$	$-\frac{\sqrt{165}i}{110}$	0	$\frac{7\sqrt{165}}{880}$	0	0	0	
	$-\frac{\sqrt{66}}{88}$	0	0	0	0	$-\frac{3\sqrt{11}}{88}$	0	$\frac{\sqrt{11}i}{44}$	$\frac{7\sqrt{110}}{440}$	0	0	0	0	$-\frac{\sqrt{165}}{440}$	
	0	$\frac{\sqrt{66}}{88}$	0	0	$-\frac{3\sqrt{11}}{88}$	0	$-\frac{\sqrt{11}i}{44}$	0	0	$-\frac{7\sqrt{110}}{440}$	0	0	$-\frac{\sqrt{165}}{440}$	0	
	0	0	$-\frac{\sqrt{66}}{88}$	0	0	$\frac{\sqrt{11}i}{44}$	0	$-\frac{\sqrt{11}}{22}$	0	0	$\frac{\sqrt{110}}{440}$	0	0	$-\frac{\sqrt{165}i}{220}$	
	0	0	0	$\frac{\sqrt{66}}{88}$	$-\frac{\sqrt{11}i}{44}$	0	$-\frac{\sqrt{11}}{22}$	0	0	0	0	$-\frac{\sqrt{110}}{440}$	$\frac{\sqrt{165}i}{220}$	0	
	0	$\frac{\sqrt{165}}{176}$	0	$\frac{\sqrt{165}i}{110}$	$\frac{7\sqrt{110}}{440}$	0	0	0	0	$\frac{5\sqrt{11}}{176}$	0	$\frac{\sqrt{11}i}{22}$	$\frac{\sqrt{66}}{88}$	0	
	$\frac{\sqrt{165}}{176}$	0	$-\frac{\sqrt{165}i}{110}$	0	0	$-\frac{7\sqrt{110}}{440}$	0	0	$\frac{5\sqrt{11}}{176}$	0	$-\frac{\sqrt{11}i}{22}$	0	0	$-\frac{\sqrt{66}}{88}$	
	0	$-\frac{\sqrt{165}i}{55}$	0	$\frac{7\sqrt{165}}{880}$	0	0	$\frac{\sqrt{110}}{440}$	0	0	$\frac{\sqrt{11}i}{22}$	0	$-\frac{3\sqrt{11}}{176}$	0	0	
	$\frac{\sqrt{165}i}{55}$	0	$\frac{7\sqrt{165}}{880}$	0	0	0	0	$-\frac{\sqrt{110}}{440}$	$-\frac{\sqrt{11}i}{22}$	0	$-\frac{3\sqrt{11}}{176}$	0	0	0	
	$-\frac{9\sqrt{110}}{440}$	0	0	0	0	$-\frac{\sqrt{165}}{440}$	0	$-\frac{\sqrt{165}i}{220}$	$\frac{\sqrt{66}}{88}$	0	0	0	0	$\frac{3\sqrt{11}}{88}$	
	0	$\frac{9\sqrt{110}}{440}$	0	0	$-\frac{\sqrt{165}}{440}$	0	$\frac{\sqrt{165}i}{220}$	0	0	$-\frac{\sqrt{66}}{88}$	0	0	$\frac{3\sqrt{11}}{88}$	0	

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

986 symmetry

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_{5,2}^{(1,-1;a)}(E, 2)$	0	$-\frac{3\sqrt{11}i}{176}$	0	0	0	0	$\frac{\sqrt{66}}{88}$	0	0	$\frac{7\sqrt{165}i}{880}$	0	$\frac{\sqrt{165}}{110}$	0	0	0
	$\frac{3\sqrt{11}i}{176}$	0	0	0	0	0	0	$-\frac{\sqrt{66}}{88}$	$-\frac{7\sqrt{165}i}{880}$	0	$\frac{\sqrt{165}}{110}$	0	0	0	0
	0	0	0	$-\frac{3\sqrt{11}i}{176}$	$-\frac{\sqrt{66}}{88}$	0	0	0	0	$-\frac{\sqrt{165}}{55}$	0	$\frac{\sqrt{165}i}{176}$	$\frac{9\sqrt{110}}{440}$	0	0
	0	0	$\frac{3\sqrt{11}i}{176}$	0	0	$\frac{\sqrt{66}}{88}$	0	0	$-\frac{\sqrt{165}}{55}$	0	$-\frac{\sqrt{165}i}{176}$	0	0	$-\frac{9\sqrt{110}}{440}$	0
	0	0	$-\frac{\sqrt{66}}{88}$	0	0	$\frac{3\sqrt{11}i}{88}$	0	$\frac{\sqrt{11}}{44}$	0	0	$-\frac{7\sqrt{110}}{440}$	0	0	$-\frac{\sqrt{165}i}{440}$	0
	0	0	0	$\frac{\sqrt{66}}{88}$	$-\frac{3\sqrt{11}i}{88}$	0	$\frac{\sqrt{11}}{44}$	0	0	0	$\frac{7\sqrt{110}}{440}$	$\frac{\sqrt{165}i}{440}$	0	0	0
	$\frac{\sqrt{66}}{88}$	0	0	0	0	$\frac{\sqrt{11}}{44}$	0	$\frac{\sqrt{11}i}{22}$	$\frac{\sqrt{110}}{440}$	0	0	0	0	$\frac{\sqrt{165}}{220}$	0
	0	$-\frac{\sqrt{66}}{88}$	0	0	$\frac{\sqrt{11}}{44}$	0	$-\frac{\sqrt{11}i}{22}$	0	0	$-\frac{\sqrt{110}}{440}$	0	0	$\frac{\sqrt{165}}{220}$	0	0
	0	$\frac{7\sqrt{165}i}{880}$	0	$-\frac{\sqrt{165}}{55}$	0	0	$\frac{\sqrt{110}}{440}$	0	0	$\frac{3\sqrt{11}i}{176}$	0	$-\frac{\sqrt{11}}{22}$	0	0	0
	$-\frac{7\sqrt{165}i}{880}$	0	$-\frac{\sqrt{165}}{55}$	0	0	0	0	$-\frac{\sqrt{110}}{440}$	$-\frac{3\sqrt{11}i}{176}$	0	$-\frac{\sqrt{11}}{22}$	0	0	0	0
	0	$\frac{\sqrt{165}}{110}$	0	$\frac{\sqrt{165}i}{176}$	$-\frac{7\sqrt{110}}{440}$	0	0	0	0	$-\frac{\sqrt{11}}{22}$	0	$-\frac{5\sqrt{11}i}{176}$	$\frac{\sqrt{66}}{88}$	0	0
	$\frac{\sqrt{165}}{110}$	0	$-\frac{\sqrt{165}i}{176}$	0	0	$\frac{7\sqrt{110}}{440}$	0	0	$-\frac{\sqrt{11}}{22}$	0	$\frac{5\sqrt{11}i}{176}$	0	0	$-\frac{\sqrt{66}}{88}$	0
	0	0	$\frac{9\sqrt{110}}{440}$	0	0	$-\frac{\sqrt{165}i}{440}$	0	$\frac{\sqrt{165}}{220}$	0	0	$\frac{\sqrt{66}}{88}$	0	0	$-\frac{3\sqrt{11}i}{88}$	0
	0	0	0	$-\frac{9\sqrt{110}}{440}$	$\frac{\sqrt{165}i}{440}$	0	$\frac{\sqrt{165}}{220}$	0	0	0	0	$-\frac{\sqrt{66}}{88}$	$\frac{3\sqrt{11}i}{88}$	0	0
987	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$													

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_{5,1}^{(1,-1;a)}(E, 3)$	0	$\frac{\sqrt{33}i}{88}$	0	0	0	0	$-\frac{\sqrt{22}}{44}$	0	0	$\frac{13\sqrt{55}i}{440}$	0	$-\frac{\sqrt{55}}{55}$	0	0	0
	$-\frac{\sqrt{33}i}{88}$	0	0	0	0	0	0	$\frac{\sqrt{22}}{44}$	$-\frac{13\sqrt{55}i}{440}$	0	$-\frac{\sqrt{55}}{55}$	0	0	0	0
	0	0	0	$\frac{\sqrt{33}i}{88}$	$\frac{\sqrt{22}}{44}$	0	0	0	0	$-\frac{\sqrt{55}}{55}$	0	$-\frac{\sqrt{55}i}{440}$	$\frac{\sqrt{33}0}{220}$	0	0
	0	0	$-\frac{\sqrt{33}i}{88}$	0	0	$-\frac{\sqrt{22}}{44}$	0	0	$-\frac{\sqrt{55}}{55}$	0	$\frac{\sqrt{55}i}{440}$	0	0	$-\frac{\sqrt{33}0}{220}$	0
	0	0	$\frac{\sqrt{22}}{44}$	0	0	$-\frac{7\sqrt{33}i}{132}$	0	$\frac{\sqrt{33}}{33}$	0	0	$\frac{\sqrt{33}0}{220}$	0	0	$-\frac{\sqrt{55}i}{220}$	0
	0	0	0	$-\frac{\sqrt{22}}{44}$	$\frac{7\sqrt{33}i}{132}$	0	$\frac{\sqrt{33}}{33}$	0	0	0	0	$-\frac{\sqrt{33}0}{220}$	$\frac{\sqrt{55}i}{220}$	0	0
	$-\frac{\sqrt{22}}{44}$	0	0	0	0	$\frac{\sqrt{33}}{33}$	0	0	$-\frac{\sqrt{33}0}{132}$	0	0	0	0	0	0
	0	$\frac{\sqrt{22}}{44}$	0	0	$\frac{\sqrt{33}}{33}$	0	0	0	0	$\frac{\sqrt{33}0}{132}$	0	0	0	0	0
	0	$\frac{13\sqrt{55}i}{440}$	0	$-\frac{\sqrt{55}}{55}$	0	0	$-\frac{\sqrt{33}0}{132}$	0	0	$\frac{5\sqrt{33}i}{264}$	0	0	0	0	0
	$-\frac{13\sqrt{55}i}{440}$	0	$-\frac{\sqrt{55}}{55}$	0	0	0	0	$\frac{\sqrt{33}0}{132}$	$-\frac{5\sqrt{33}i}{264}$	0	0	0	0	0	0
	0	$-\frac{\sqrt{55}}{55}$	0	$-\frac{\sqrt{55}i}{440}$	$\frac{\sqrt{33}0}{220}$	0	0	0	0	0	0	$-\frac{\sqrt{33}i}{88}$	$-\frac{\sqrt{22}}{44}$	0	0
	$-\frac{\sqrt{55}}{55}$	0	$\frac{\sqrt{55}i}{440}$	0	0	$-\frac{\sqrt{33}0}{220}$	0	0	0	0	$\frac{\sqrt{33}i}{88}$	0	0	$\frac{\sqrt{22}}{44}$	0
	0	0	$\frac{\sqrt{33}0}{220}$	0	0	$-\frac{\sqrt{55}i}{220}$	0	0	0	0	$-\frac{\sqrt{22}}{44}$	0	0	$\frac{\sqrt{33}i}{44}$	0
	0	0	0	$-\frac{\sqrt{33}0}{220}$	$\frac{\sqrt{55}i}{220}$	0	0	0	0	0	$\frac{\sqrt{22}}{44}$	$-\frac{\sqrt{33}i}{44}$	0	0	0
988	symmetry	$\frac{\sqrt{105}x(y-z)(y+z)(2x^2-y^2-z^2)}{4}$													

continued ...

Table 10

No.	multipole	matrix												
$\mathbb{M}_{5,2}^{(1,-1;a)}(E, 3)$	0	$\frac{\sqrt{33}}{88}$	0	0	$-\frac{\sqrt{22}}{44}$	0	0	0	$\frac{\sqrt{55}}{440}$	0	$\frac{\sqrt{55}i}{55}$	$\frac{\sqrt{330}}{220}$	0	
	$\frac{\sqrt{33}}{88}$	0	0	0	0	$\frac{\sqrt{22}}{44}$	0	0	$\frac{\sqrt{55}}{440}$	0	$-\frac{\sqrt{55}i}{55}$	0	0	$-\frac{\sqrt{330}}{220}$
	0	0	0	$\frac{\sqrt{33}}{88}$	0	0	$-\frac{\sqrt{22}}{44}$	0	0	$\frac{\sqrt{55}i}{55}$	0	$-\frac{13\sqrt{55}}{440}$	0	0
	0	0	$\frac{\sqrt{33}}{88}$	0	0	0	0	$\frac{\sqrt{22}}{44}$	$-\frac{\sqrt{55}i}{55}$	0	$-\frac{13\sqrt{55}}{440}$	0	0	0
	$-\frac{\sqrt{22}}{44}$	0	0	0	0	$-\frac{7\sqrt{33}}{132}$	0	$-\frac{\sqrt{33}i}{33}$	$\frac{\sqrt{330}}{220}$	0	0	0	0	$\frac{\sqrt{55}}{220}$
	0	$\frac{\sqrt{22}}{44}$	0	0	$-\frac{7\sqrt{33}}{132}$	0	$\frac{\sqrt{33}i}{33}$	0	0	$-\frac{\sqrt{330}}{220}$	0	0	$\frac{\sqrt{55}}{220}$	0
	0	0	$-\frac{\sqrt{22}}{44}$	0	0	$-\frac{\sqrt{33}i}{33}$	0	0	0	$\frac{\sqrt{330}}{132}$	0	0	0	0
	0	0	0	$\frac{\sqrt{22}}{44}$	$\frac{\sqrt{33}i}{33}$	0	0	0	0	0	$-\frac{\sqrt{330}}{132}$	0	0	0
	0	$\frac{\sqrt{55}}{440}$	0	$\frac{\sqrt{55}i}{55}$	$\frac{\sqrt{330}}{220}$	0	0	0	0	$-\frac{\sqrt{33}}{88}$	0	0	$\frac{\sqrt{22}}{44}$	0
	$\frac{\sqrt{55}}{440}$	0	$-\frac{\sqrt{55}i}{55}$	0	0	$-\frac{\sqrt{330}}{220}$	0	0	$-\frac{\sqrt{33}}{88}$	0	0	0	0	$-\frac{\sqrt{22}}{44}$
	0	$\frac{\sqrt{55}i}{55}$	0	$-\frac{13\sqrt{55}}{440}$	0	0	$\frac{\sqrt{330}}{132}$	0	0	0	0	$\frac{5\sqrt{33}}{264}$	0	0
	$-\frac{\sqrt{55}i}{55}$	0	$-\frac{13\sqrt{55}}{440}$	0	0	0	0	$-\frac{\sqrt{330}}{132}$	0	0	$\frac{5\sqrt{33}}{264}$	0	0	0
	$\frac{\sqrt{330}}{220}$	0	0	0	$\frac{\sqrt{55}}{220}$	0	0	$\frac{\sqrt{22}}{44}$	0	0	0	0	$\frac{\sqrt{33}}{44}$	
	0	$-\frac{\sqrt{330}}{220}$	0	0	$\frac{\sqrt{55}}{220}$	0	0	0	$-\frac{\sqrt{22}}{44}$	0	0	$\frac{\sqrt{33}}{44}$	0	

989 symmetry

$$-\frac{\sqrt{231}xyz(x-y)(x+y)(3x^2+3y^2-10z^2)}{4}$$

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_7^{(1,-1;a)}(A, 1)$	0	0 0 0 0 0 $-\frac{\sqrt{273}i}{364}$ 0 $-\frac{\sqrt{273}}{364}$ 0 0 $\frac{\sqrt{2730}}{364}$ 0 0 $-\frac{\sqrt{455}i}{182}$
	0	0 0 0 0 $\frac{\sqrt{273}i}{364}$ 0 $-\frac{\sqrt{273}}{364}$ 0 0 0 0 $-\frac{\sqrt{2730}}{364}$ $\frac{\sqrt{455}i}{182}$ 0
	0	0 0 0 0 0 $-\frac{\sqrt{273}}{364}$ 0 $\frac{\sqrt{273}i}{364}$ $\frac{\sqrt{2730}}{364}$ 0 0 0 0 $\frac{\sqrt{455}}{182}$
	0	0 0 0 0 $-\frac{\sqrt{273}}{364}$ 0 $-\frac{\sqrt{273}i}{364}$ 0 0 $-\frac{\sqrt{2730}}{364}$ 0 0 $\frac{\sqrt{455}}{182}$ 0
	0	$-\frac{\sqrt{273}i}{364}$ 0 $-\frac{\sqrt{273}}{364}$ 0 0 $\frac{3\sqrt{182}}{182}$ 0 0 $-\frac{3\sqrt{455}i}{364}$ 0 $\frac{3\sqrt{455}}{364}$ 0 0
	$\frac{\sqrt{273}i}{364}$	0 $-\frac{\sqrt{273}}{364}$ 0 0 0 0 $-\frac{3\sqrt{182}}{182}$ $\frac{3\sqrt{455}i}{364}$ 0 $\frac{3\sqrt{455}}{364}$ 0 0 0
	0	$-\frac{\sqrt{273}}{364}$ 0 $\frac{\sqrt{273}i}{364}$ $\frac{3\sqrt{182}}{182}$ 0 0 0 0 $\frac{3\sqrt{455}}{364}$ 0 $\frac{3\sqrt{455}i}{364}$ 0 0
	$-\frac{\sqrt{273}}{364}$	0 $-\frac{\sqrt{273}i}{364}$ 0 0 $-\frac{3\sqrt{182}}{182}$ 0 0 $\frac{3\sqrt{455}}{364}$ 0 $-\frac{3\sqrt{455}i}{364}$ 0 0 0
	0	0 $\frac{\sqrt{2730}}{364}$ 0 0 $-\frac{3\sqrt{455}i}{364}$ 0 $\frac{3\sqrt{455}}{364}$ 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{\sqrt{2730}}{364}$ $\frac{3\sqrt{455}i}{364}$ 0 $\frac{3\sqrt{455}}{364}$ 0 0 0 0 0 0 0
	$\frac{\sqrt{2730}}{364}$	0 0 0 0 0 $\frac{3\sqrt{455}}{364}$ 0 $\frac{3\sqrt{455}i}{364}$ 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{2730}}{364}$ 0 0 $\frac{3\sqrt{455}}{364}$ 0 $-\frac{3\sqrt{455}i}{364}$ 0 0 0 0 0 0 0 0
	0	$-\frac{\sqrt{455}i}{182}$ 0 $\frac{\sqrt{455}}{182}$ 0 0 0 0 0 0 0 0 0 0 0
	$\frac{\sqrt{455}i}{182}$	0 $\frac{\sqrt{455}}{182}$ 0 0 0 0 0 0 0 0 0 0 0 0

990 symmetry

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_7^{(1,-1;a)}(A, 2)$	$-\frac{\sqrt{858}}{1716}$	0	0	0	0	$-\frac{\sqrt{143}}{572}$	0	$-\frac{\sqrt{143}i}{572}$	0	0	0	0	0	0	0
	0	$\frac{\sqrt{858}}{1716}$	0	0	$-\frac{\sqrt{143}}{572}$	0	$\frac{\sqrt{143}i}{572}$	0	0	0	0	0	0	0	0
	0	0	$-\frac{\sqrt{858}}{1716}$	0	0	$\frac{\sqrt{143}i}{572}$	0	$-\frac{\sqrt{143}}{572}$	0	0	0	0	0	0	0
	0	0	0	$\frac{\sqrt{858}}{1716}$	$-\frac{\sqrt{143}i}{572}$	0	$-\frac{\sqrt{143}}{572}$	0	0	0	0	0	0	0	0
	0	$-\frac{\sqrt{143}}{572}$	0	$\frac{\sqrt{143}i}{572}$	$\frac{\sqrt{858}}{286}$	0	0	0	0	$\frac{\sqrt{2145}}{572}$	0	$\frac{\sqrt{2145}i}{572}$	0	0	0
	$-\frac{\sqrt{143}}{572}$	0	$-\frac{\sqrt{143}i}{572}$	0	0	$-\frac{\sqrt{858}}{286}$	0	0	$\frac{\sqrt{2145}}{572}$	0	$-\frac{\sqrt{2145}i}{572}$	0	0	0	0
	0	$-\frac{\sqrt{143}i}{572}$	0	$-\frac{\sqrt{143}}{572}$	0	0	$\frac{\sqrt{858}}{286}$	0	0	$-\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0
	$\frac{\sqrt{143}i}{572}$	0	$-\frac{\sqrt{143}}{572}$	0	0	0	0	$-\frac{\sqrt{858}}{286}$	$\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0	0
	0	0	0	0	0	$\frac{\sqrt{2145}}{572}$	0	$\frac{\sqrt{2145}i}{572}$	0	0	$-\frac{5\sqrt{858}}{572}$	0	0	$-\frac{5\sqrt{143}}{286}$	0
	0	0	0	0	0	$\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0	$-\frac{5\sqrt{858}}{572}$	0	0	$\frac{5\sqrt{143}i}{286}$
	0	0	0	0	$-\frac{\sqrt{2145}i}{572}$	0	$\frac{\sqrt{2145}}{572}$	0	0	0	0	$\frac{5\sqrt{858}}{572}$	$-\frac{5\sqrt{143}i}{286}$	0	0
	0	0	0	0	0	0	0	0	$-\frac{5\sqrt{143}}{286}$	0	$\frac{5\sqrt{143}i}{286}$	$\frac{5\sqrt{858}}{429}$	0	0	$-\frac{5\sqrt{858}}{429}$
	0	0	0	0	0	0	0	0	$-\frac{5\sqrt{143}}{286}$	0	$-\frac{5\sqrt{143}i}{286}$	0	0	$-\frac{5\sqrt{858}}{429}$	

991 symmetry

$$-\frac{\sqrt{231z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)(3x^2 + 3y^2 - 10z^2)}}{16}$$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_7^{(1,-1;a)}(A, 3)$	0	0	0	0	0	$-\frac{\sqrt{273}}{364}$	0	$\frac{\sqrt{273}i}{364}$	$\frac{\sqrt{273}0}{364}$	0	0	0	0	$\frac{\sqrt{455}}{182}$	
	0	0	0	0	$-\frac{\sqrt{273}}{364}$	0	$-\frac{\sqrt{273}i}{364}$	0	0	$-\frac{\sqrt{273}0}{364}$	0	0	$\frac{\sqrt{455}}{182}$	0	
	0	0	0	0	0	$\frac{\sqrt{273}i}{364}$	0	$\frac{\sqrt{273}}{364}$	0	0	$-\frac{\sqrt{273}0}{364}$	0	0	$\frac{\sqrt{455}i}{182}$	
	0	0	0	0	$-\frac{\sqrt{273}i}{364}$	0	$\frac{\sqrt{273}}{364}$	0	0	0	0	$\frac{\sqrt{273}0}{364}$	$-\frac{\sqrt{455}i}{182}$	0	
	0	$-\frac{\sqrt{273}}{364}$	0	$\frac{\sqrt{273}i}{364}$	$\frac{3\sqrt{182}}{182}$	0	0	0	0	$\frac{3\sqrt{455}}{364}$	0	$\frac{3\sqrt{455}i}{364}$	0	0	
	$-\frac{\sqrt{273}}{364}$	0	$-\frac{\sqrt{273}i}{364}$	0	0	$-\frac{3\sqrt{182}}{182}$	0	0	$\frac{3\sqrt{455}}{364}$	0	$-\frac{3\sqrt{455}i}{364}$	0	0	0	
	0	$\frac{\sqrt{273}i}{364}$	0	$\frac{\sqrt{273}}{364}$	0	0	$-\frac{3\sqrt{182}}{182}$	0	0	$\frac{3\sqrt{455}i}{364}$	0	$-\frac{3\sqrt{455}}{364}$	0	0	
	$-\frac{\sqrt{273}i}{364}$	0	$\frac{\sqrt{273}}{364}$	0	0	0	0	$\frac{3\sqrt{182}}{182}$	$-\frac{3\sqrt{455}i}{364}$	0	$-\frac{3\sqrt{455}}{364}$	0	0	0	
	$\frac{\sqrt{273}0}{364}$	0	0	0	0	$\frac{3\sqrt{455}}{364}$	0	$\frac{3\sqrt{455}i}{364}$	0	0	0	0	0	0	
	0	$-\frac{\sqrt{273}0}{364}$	0	0	$\frac{3\sqrt{455}}{364}$	0	$-\frac{3\sqrt{455}i}{364}$	0	0	0	0	0	0	0	
	0	0	$-\frac{\sqrt{273}0}{364}$	0	0	$\frac{3\sqrt{455}i}{364}$	0	$-\frac{3\sqrt{455}}{364}$	0	0	0	0	0	0	
	0	0	0	$\frac{\sqrt{273}0}{364}$	$-\frac{3\sqrt{455}i}{364}$	0	$-\frac{3\sqrt{455}}{364}$	0	0	0	0	0	0	0	
	0	$\frac{\sqrt{455}}{182}$	0	$\frac{\sqrt{455}i}{182}$	0	0	0	0	0	0	0	0	0	0	
	$\frac{\sqrt{455}}{182}$	0	$-\frac{\sqrt{455}i}{182}$	0	0	0	0	0	0	0	0	0	0	0	

$$\frac{\sqrt{91}xyz(3x^4 - 5x^2y^2 - 5x^2z^2 + 3y^4 - 5y^2z^2 + 3z^4)}{2}$$

992 symmetry

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_7^{(1,-1;a)}(B,1)$	0	0	$\frac{\sqrt{462}}{168}$	0	0	$-\frac{3\sqrt{77}i}{154}$	0	$\frac{5\sqrt{77}}{308}$	0	0	$\frac{\sqrt{770}}{616}$	0	0	$-\frac{\sqrt{1155}i}{924}$		
	0	0	0	$-\frac{\sqrt{462}}{168}$	$\frac{3\sqrt{77}i}{154}$	0	$\frac{5\sqrt{77}}{308}$	0	0	0	$-\frac{\sqrt{770}}{616}$	$\frac{\sqrt{1155}i}{924}$	0			
	$\frac{\sqrt{462}}{168}$	0	0	0	0	$\frac{3\sqrt{77}}{154}$	0	$\frac{5\sqrt{77}i}{308}$	$-\frac{\sqrt{770}}{616}$	0	0	0	0	$-\frac{\sqrt{1155}}{924}$		
	0	$-\frac{\sqrt{462}}{168}$	0	0	$\frac{3\sqrt{77}}{154}$	0	$-\frac{5\sqrt{77}i}{308}$	0	0	$\frac{\sqrt{770}}{616}$	0	0	$-\frac{\sqrt{1155}}{924}$	0		
	0	$-\frac{3\sqrt{77}i}{154}$	0	$\frac{3\sqrt{77}}{154}$	0	0	0	0	0	0	0	0	0	0	0	0
	$\frac{3\sqrt{77}i}{154}$	0	$\frac{3\sqrt{77}}{154}$	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	$\frac{5\sqrt{77}}{308}$	0	$\frac{5\sqrt{77}i}{308}$	0	0	0	0	0	$-\frac{\sqrt{1155}}{308}$	0	$\frac{\sqrt{1155}i}{308}$	$\frac{\sqrt{770}}{154}$	0		
	$\frac{5\sqrt{77}}{308}$	0	$-\frac{5\sqrt{77}i}{308}$	0	0	0	0	0	$-\frac{\sqrt{1155}}{308}$	0	$-\frac{\sqrt{1155}i}{308}$	0	0	$-\frac{\sqrt{770}}{154}$		
	0	0	$-\frac{\sqrt{770}}{616}$	0	0	0	0	$-\frac{\sqrt{1155}}{308}$	0	0	$\frac{5\sqrt{462}}{616}$	0	0	$-\frac{5\sqrt{77}i}{308}$		
	0	0	0	$\frac{\sqrt{770}}{616}$	0	0	$-\frac{\sqrt{1155}}{308}$	0	0	0	0	$-\frac{5\sqrt{462}}{616}$	$\frac{5\sqrt{77}i}{308}$	0		
	$\frac{\sqrt{770}}{616}$	0	0	0	0	0	0	$\frac{\sqrt{1155}i}{308}$	$\frac{5\sqrt{462}}{616}$	0	0	0	0	$\frac{5\sqrt{77}}{308}$		
	0	$-\frac{\sqrt{770}}{616}$	0	0	0	0	$-\frac{\sqrt{1155}i}{308}$	0	0	$-\frac{5\sqrt{462}}{616}$	0	0	$\frac{5\sqrt{77}}{308}$	0		
	0	$-\frac{\sqrt{1155}i}{924}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	$\frac{\sqrt{770}}{154}$	0	0	$-\frac{5\sqrt{77}i}{308}$	0	$\frac{5\sqrt{77}}{308}$	0	0	0	0
	$\frac{\sqrt{1155}i}{924}$	0	$-\frac{\sqrt{1155}}{924}$	0	0	0	0	$-\frac{\sqrt{770}}{154}$	$\frac{5\sqrt{77}i}{308}$	0	$\frac{5\sqrt{77}}{308}$	0	0	0	0	0
993	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													
$\mathbb{M}_7^{(1,-1;a)}(B, 2)$	0	0	$-\frac{\sqrt{546}}{168}$	0	0	$\frac{3\sqrt{91}i}{182}$	0	$-\frac{\sqrt{91}}{52}$	0	0	$\frac{\sqrt{910}}{728}$	0	0	$-\frac{\sqrt{1365}i}{1092}$	
	0	0	0	$\frac{\sqrt{546}}{168}$	$-\frac{3\sqrt{91}i}{182}$	0	$-\frac{\sqrt{91}}{52}$	0	0	0	$-\frac{\sqrt{910}}{728}$	$\frac{\sqrt{1365}i}{1092}$	0	0	
	$-\frac{\sqrt{546}}{168}$	0	0	0	0	$-\frac{3\sqrt{91}}{182}$	0	$-\frac{\sqrt{91}i}{52}$	$-\frac{\sqrt{910}}{728}$	0	0	0	0	$-\frac{\sqrt{1365}}{1092}$	
	0	$\frac{\sqrt{546}}{168}$	0	0	$-\frac{3\sqrt{91}}{182}$	0	$\frac{\sqrt{91}i}{52}$	0	0	$\frac{\sqrt{910}}{728}$	0	0	$-\frac{\sqrt{1365}}{1092}$	0	
	0	$\frac{3\sqrt{91}i}{182}$	0	$-\frac{3\sqrt{91}}{182}$	0	0	0	0	0	0	0	0	0	0	
	$-\frac{3\sqrt{91}i}{182}$	0	$-\frac{3\sqrt{91}}{182}$	0	0	0	0	0	0	0	0	0	0	0	
	0	$-\frac{\sqrt{91}}{52}$	0	$-\frac{\sqrt{91}i}{52}$	0	0	0	0	0	$-\frac{\sqrt{1365}}{364}$	0	$\frac{\sqrt{1365}i}{364}$	$\frac{\sqrt{910}}{182}$	0	
	$-\frac{\sqrt{91}}{52}$	0	$\frac{\sqrt{91}i}{52}$	0	0	0	0	0	$-\frac{\sqrt{1365}}{364}$	0	$-\frac{\sqrt{1365}i}{364}$	0	0	$-\frac{\sqrt{910}}{182}$	
	0	0	$-\frac{\sqrt{910}}{728}$	0	0	0	0	$-\frac{\sqrt{1365}}{364}$	0	0	$\frac{5\sqrt{546}}{728}$	0	0	$-\frac{5\sqrt{91}i}{364}$	
	0	0	0	$\frac{\sqrt{910}}{728}$	0	0	$-\frac{\sqrt{1365}}{364}$	0	0	0	$-\frac{5\sqrt{546}}{728}$	$\frac{5\sqrt{91}i}{364}$	0	0	
	$\frac{\sqrt{910}}{728}$	0	0	0	0	0	0	$\frac{\sqrt{1365}i}{364}$	$\frac{5\sqrt{546}}{728}$	0	0	0	0	$\frac{5\sqrt{91}}{364}$	
	0	$-\frac{\sqrt{910}}{728}$	0	0	0	0	$-\frac{\sqrt{1365}i}{364}$	0	0	$-\frac{5\sqrt{546}}{728}$	0	0	$\frac{5\sqrt{91}}{364}$	0	
	0	$-\frac{\sqrt{1365}i}{1092}$	0	$-\frac{\sqrt{1365}}{1092}$	0	0	$\frac{\sqrt{910}}{182}$	0	0	$-\frac{5\sqrt{91}i}{364}$	0	$\frac{5\sqrt{91}}{364}$	0	0	
	$\frac{\sqrt{1365}i}{1092}$	0	$-\frac{\sqrt{1365}}{1092}$	0	0	0	0	$-\frac{\sqrt{910}}{182}$	$\frac{5\sqrt{91}i}{364}$	0	$\frac{5\sqrt{91}}{364}$	0	0	0	

994 symmetry

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

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_7^{(1,-1;a)}(B, 4)$	0	0 0 0 0 0 $\frac{\sqrt{6006}}{4004}$ 0 $-\frac{\sqrt{6006}i}{4004}$ $-\frac{\sqrt{15015}}{2002}$ 0 0 0 0 $-\frac{\sqrt{10010}}{2002}$
	0	0 0 0 0 $\frac{\sqrt{6006}}{4004}$ 0 $\frac{\sqrt{6006}i}{4004}$ 0 0 $\frac{\sqrt{15015}}{2002}$ 0 0 $-\frac{\sqrt{10010}}{2002}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{6006}i}{4004}$ 0 $\frac{\sqrt{6006}}{4004}$ 0 0 $-\frac{\sqrt{15015}}{2002}$ 0 0 $\frac{\sqrt{10010}i}{2002}$
	0	0 0 0 0 $-\frac{\sqrt{6006}i}{4004}$ 0 $\frac{\sqrt{6006}}{4004}$ 0 0 0 0 $\frac{\sqrt{15015}}{2002}$ $-\frac{\sqrt{10010}i}{2002}$ 0
	0	$\frac{\sqrt{6006}}{4004}$ 0 0 $\frac{\sqrt{6006}i}{4004}$ 0 0 0 0 $-\frac{3\sqrt{10010}}{2002}$ 0 $\frac{3\sqrt{10010}i}{2002}$ $\frac{2\sqrt{15015}}{1001}$ 0
	$\frac{\sqrt{6006}}{4004}$	0 $-\frac{\sqrt{6006}i}{4004}$ 0 $\frac{\sqrt{6006}}{4004}$ 0 0 0 0 $-\frac{3\sqrt{10010}}{2002}$ 0 $-\frac{3\sqrt{10010}i}{2002}$ 0 0 $-\frac{2\sqrt{15015}}{1001}$
	0	$-\frac{\sqrt{6006}i}{4004}$ 0 0 $\frac{\sqrt{6006}}{4004}$ 0 0 0 0 0 0 0 0 0 0
	$\frac{\sqrt{6006}i}{4004}$	0 $\frac{\sqrt{6006}}{4004}$ 0 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{15015}}{2002}$	0 0 0 0 $-\frac{3\sqrt{10010}}{2002}$ 0 0 $\frac{15\sqrt{1001}}{2002}$ 0 0 0 0 0 $\frac{5\sqrt{6006}}{2002}$
	0	$\frac{\sqrt{15015}}{2002}$ 0 0 $-\frac{3\sqrt{10010}}{2002}$ 0 0 0 0 $-\frac{15\sqrt{1001}}{2002}$ 0 0 $\frac{5\sqrt{6006}}{2002}$ 0
	0	0 $-\frac{\sqrt{15015}}{2002}$ 0 0 $\frac{3\sqrt{10010}i}{2002}$ 0 0 0 0 0 $-\frac{15\sqrt{1001}}{2002}$ 0 0 $\frac{5\sqrt{6006}i}{2002}$
	0	0 0 0 $\frac{\sqrt{15015}}{2002}$ $-\frac{3\sqrt{10010}i}{2002}$ 0 0 0 0 0 0 $\frac{15\sqrt{1001}}{2002}$ $-\frac{5\sqrt{6006}i}{2002}$ 0
	0	$-\frac{\sqrt{10010}}{2002}$ 0 $\frac{\sqrt{10010}i}{2002}$ $\frac{2\sqrt{15015}}{1001}$ 0 0 0 0 $\frac{5\sqrt{6006}}{2002}$ 0 $\frac{5\sqrt{6006}i}{2002}$ 0 0
	$-\frac{\sqrt{10010}}{2002}$	0 $-\frac{\sqrt{10010}i}{2002}$ 0 0 $-\frac{2\sqrt{15015}}{1001}$ 0 0 0 $\frac{5\sqrt{6006}}{2002}$ 0 $-\frac{5\sqrt{6006}i}{2002}$ 0 0 0

996 symmetry

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

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_{7,1}^{(1,-1;a)}(E, 1)$	0	$\frac{59\sqrt{858}}{6864}$	0	$\frac{3\sqrt{858}i}{416}$	$-\frac{19\sqrt{143}}{2288}$	0	0	0	0	$-\frac{7\sqrt{1430}}{2288}$	0	$-\frac{5\sqrt{1430}i}{4576}$	$\frac{3\sqrt{2145}}{2288}$	0		
	$\frac{59\sqrt{858}}{6864}$	0	$-\frac{3\sqrt{858}i}{416}$	0	0	$\frac{19\sqrt{143}}{2288}$	0	0	$-\frac{7\sqrt{1430}}{2288}$	0	$\frac{5\sqrt{1430}i}{4576}$	0	0	$-\frac{3\sqrt{2145}}{2288}$		
	0	$\frac{3\sqrt{858}i}{416}$	0	$-\frac{113\sqrt{858}}{13728}$	0	0	$\frac{7\sqrt{143}}{1144}$	0	0	$-\frac{7\sqrt{1430}i}{4576}$	0	$\frac{7\sqrt{1430}}{4576}$	0	0	0	
	$-\frac{3\sqrt{858}i}{416}$	0	$-\frac{113\sqrt{858}}{13728}$	0	0	0	0	$-\frac{7\sqrt{143}}{1144}$	$\frac{7\sqrt{1430}i}{4576}$	0	$\frac{7\sqrt{1430}}{4576}$	0	0	0	0	
	$-\frac{19\sqrt{143}}{2288}$	0	0	0	0	$-\frac{\sqrt{858}}{176}$	0	$-\frac{3\sqrt{858}i}{1144}$	$\frac{7\sqrt{2145}}{2288}$	0	0	0	0	$\frac{7\sqrt{1430}}{2288}$		
	0	$\frac{19\sqrt{143}}{2288}$	0	0	$-\frac{\sqrt{858}}{176}$	0	$\frac{3\sqrt{858}i}{1144}$	0	0	$-\frac{7\sqrt{2145}}{2288}$	0	0	$\frac{7\sqrt{1430}}{2288}$	0		
	0	0	$\frac{7\sqrt{143}}{1144}$	0	0	$-\frac{3\sqrt{858}i}{1144}$	0	$\frac{\sqrt{858}}{286}$	0	0	$-\frac{\sqrt{2145}}{1144}$	0	0	$\frac{\sqrt{1430}i}{1144}$		
	0	0	0	$-\frac{7\sqrt{143}}{1144}$	$\frac{3\sqrt{858}i}{1144}$	0	$\frac{\sqrt{858}}{286}$	0	0	0	0	$\frac{\sqrt{2145}}{1144}$	$-\frac{\sqrt{1430}i}{1144}$	0		
	0	$-\frac{7\sqrt{1430}}{2288}$	0	$-\frac{7\sqrt{1430}i}{4576}$	$\frac{7\sqrt{2145}}{2288}$	0	0	0	0	$\frac{15\sqrt{858}}{2288}$	0	$\frac{5\sqrt{858}i}{4576}$	$-\frac{25\sqrt{143}}{2288}$	0		
	$-\frac{7\sqrt{1430}}{2288}$	0	$\frac{7\sqrt{1430}i}{4576}$	0	0	$-\frac{7\sqrt{2145}}{2288}$	0	0	$\frac{15\sqrt{858}}{2288}$	0	$-\frac{5\sqrt{858}i}{4576}$	0	0	$\frac{25\sqrt{143}}{2288}$		
	0	$-\frac{5\sqrt{1430}i}{4576}$	0	$\frac{7\sqrt{1430}}{4576}$	0	0	$-\frac{\sqrt{2145}}{1144}$	0	0	$\frac{5\sqrt{858}i}{4576}$	0	$-\frac{5\sqrt{858}}{4576}$	0	0	0	
	$\frac{5\sqrt{1430}i}{4576}$	0	$\frac{7\sqrt{1430}}{4576}$	0	0	0	0	$\frac{\sqrt{2145}}{1144}$	$-\frac{5\sqrt{858}i}{4576}$	0	$-\frac{5\sqrt{858}}{4576}$	0	0	0	0	
	$\frac{3\sqrt{2145}}{2288}$	0	0	0	0	$\frac{7\sqrt{1430}}{2288}$	0	$\frac{\sqrt{1430}i}{1144}$	$-\frac{25\sqrt{143}}{2288}$	0	0	0	0	$-\frac{25\sqrt{858}}{6864}$		
	0	$-\frac{3\sqrt{2145}}{2288}$	0	0	$\frac{7\sqrt{1430}}{2288}$	0	$-\frac{\sqrt{1430}i}{1144}$	0	0	$\frac{25\sqrt{143}}{2288}$	0	0	$-\frac{25\sqrt{858}}{6864}$	0		
997	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														
$\mathbb{M}_{7,2}^{(1,-1;a)}(E, 1)$	0	$\frac{113\sqrt{858}i}{13728}$	0	$-\frac{3\sqrt{858}}{416}$	0	0	$-\frac{7\sqrt{143}}{1144}$	0	0	$\frac{7\sqrt{1430}i}{4576}$	0	$-\frac{7\sqrt{1430}}{4576}$	0	0	0	0
	$-\frac{113\sqrt{858}i}{13728}$	0	$-\frac{3\sqrt{858}}{416}$	0	0	0	0	$\frac{7\sqrt{143}}{1144}$	$-\frac{7\sqrt{1430}i}{4576}$	0	$-\frac{7\sqrt{1430}}{4576}$	0	0	0	0	
	0	$-\frac{3\sqrt{858}}{416}$	0	$-\frac{59\sqrt{858}i}{6864}$	$-\frac{19\sqrt{143}}{2288}$	0	0	0	0	$-\frac{5\sqrt{1430}}{4576}$	0	$-\frac{7\sqrt{1430}i}{2288}$	$-\frac{3\sqrt{2145}}{2288}$	0	0	
	$-\frac{3\sqrt{858}}{416}$	0	$\frac{59\sqrt{858}i}{6864}$	0	0	$\frac{19\sqrt{143}}{2288}$	0	0	$-\frac{5\sqrt{1430}}{4576}$	0	$\frac{7\sqrt{1430}i}{2288}$	0	0	$\frac{3\sqrt{2145}}{2288}$	0	
	0	0	$-\frac{19\sqrt{143}}{2288}$	0	0	$\frac{\sqrt{858}i}{176}$	0	$-\frac{3\sqrt{858}}{1144}$	0	0	$-\frac{7\sqrt{2145}}{2288}$	0	0	$\frac{7\sqrt{1430}i}{2288}$	0	
	0	0	0	$\frac{19\sqrt{143}}{2288}$	$-\frac{\sqrt{858}i}{176}$	0	$-\frac{3\sqrt{858}}{1144}$	0	0	0	0	$\frac{7\sqrt{2145}}{2288}$	$-\frac{7\sqrt{1430}i}{2288}$	0	0	
	$-\frac{7\sqrt{143}}{1144}$	0	0	0	0	$-\frac{3\sqrt{858}}{1144}$	0	$-\frac{\sqrt{858}i}{286}$	$-\frac{\sqrt{2145}}{1144}$	0	0	0	0	$-\frac{\sqrt{1430}}{1144}$	0	
	0	$\frac{7\sqrt{143}}{1144}$	0	0	$-\frac{3\sqrt{858}}{1144}$	0	$\frac{\sqrt{858}i}{286}$	0	0	$\frac{\sqrt{2145}}{1144}$	0	0	$-\frac{\sqrt{1430}}{1144}$	0	0	
	0	$\frac{7\sqrt{1430}i}{4576}$	0	$-\frac{5\sqrt{1430}}{4576}$	0	0	$-\frac{\sqrt{2145}}{1144}$	0	0	$\frac{5\sqrt{858}i}{4576}$	0	$-\frac{5\sqrt{858}}{4576}$	0	0	0	
	$-\frac{7\sqrt{1430}i}{4576}$	0	$-\frac{5\sqrt{1430}}{4576}$	0	0	0	0	$\frac{\sqrt{2145}}{1144}$	$-\frac{5\sqrt{858}i}{4576}$	0	$-\frac{5\sqrt{858}}{4576}$	0	0	0	0	
	0	$-\frac{7\sqrt{1430}}{4576}$	0	$-\frac{7\sqrt{1430}i}{2288}$	$-\frac{7\sqrt{2145}}{2288}$	0	0	0	0	$-\frac{5\sqrt{858}}{4576}$	0	$-\frac{15\sqrt{858}i}{2288}$	$-\frac{25\sqrt{143}}{2288}$	0	0	
	$-\frac{7\sqrt{1430}}{4576}$	0	$\frac{7\sqrt{1430}i}{2288}$	0	0	$\frac{7\sqrt{2145}}{2288}$	0	0	0	$-\frac{5\sqrt{858}}{4576}$	0	$\frac{15\sqrt{858}i}{2288}$	0	0	$\frac{25\sqrt{143}}{2288}$	
	0	0	$-\frac{3\sqrt{2145}}{2288}$	0	0	$\frac{7\sqrt{1430}i}{2288}$	0	$-\frac{\sqrt{1430}}{1144}$	0	0	$-\frac{25\sqrt{143}}{2288}$	0	0	$\frac{25\sqrt{858}i}{6864}$	0	
	0	0	0	$\frac{3\sqrt{2145}}{2288}$	$-\frac{7\sqrt{1430}i}{2288}$	0	$-\frac{\sqrt{1430}}{1144}$	0	0	0	0	$\frac{25\sqrt{143}}{2288}$	$-\frac{25\sqrt{858}i}{6864}$	0	0	

998 symmetry

$$\frac{\sqrt{231x(10x^2-3y^2-3z^2)(y^2-2yz-z^2)(y^2+2yz-z^2)}}{16}$$

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_{7,1}^{(1,-1;a)}(E, 2)$	0	$\frac{9\sqrt{182}}{1456}$	0	$\frac{29\sqrt{182}i}{2912}$	$\frac{11\sqrt{273}}{1456}$	0	0	0	0	$\frac{3\sqrt{2730}}{1456}$	0	$\frac{5\sqrt{2730}i}{2912}$	$-\frac{\sqrt{455}}{1456}$	0		
	$\frac{9\sqrt{182}}{1456}$	0	$-\frac{29\sqrt{182}i}{2912}$	0	0	$-\frac{11\sqrt{273}}{1456}$	0	0	$\frac{3\sqrt{2730}}{1456}$	0	$-\frac{5\sqrt{2730}i}{2912}$	0	0	$\frac{\sqrt{455}}{1456}$		
	0	$\frac{29\sqrt{182}i}{2912}$	0	$-\frac{15\sqrt{182}}{2912}$	0	0	$-\frac{\sqrt{273}}{104}$	0	0	$\frac{\sqrt{2730}i}{416}$	0	$-\frac{\sqrt{2730}}{416}$	0	0	0	
	$-\frac{29\sqrt{182}i}{2912}$	0	$-\frac{15\sqrt{182}}{2912}$	0	0	0	0	$\frac{\sqrt{273}}{104}$	$-\frac{\sqrt{2730}i}{416}$	0	$-\frac{\sqrt{2730}}{416}$	0	0	0	0	
	$\frac{11\sqrt{273}}{1456}$	0	0	0	0	$\frac{15\sqrt{182}}{1456}$	0	$\frac{9\sqrt{182}i}{728}$	$\frac{3\sqrt{455}}{1456}$	0	0	0	0	$\frac{\sqrt{2730}}{1456}$		
	0	$-\frac{11\sqrt{273}}{1456}$	0	0	$\frac{15\sqrt{182}}{1456}$	0	$-\frac{9\sqrt{182}i}{728}$	0	0	$-\frac{3\sqrt{455}}{1456}$	0	0	$\frac{\sqrt{2730}}{1456}$	0		
	0	0	$-\frac{\sqrt{273}}{104}$	0	0	$\frac{9\sqrt{182}i}{728}$	0	$-\frac{3\sqrt{182}}{182}$	0	0	$\frac{3\sqrt{455}}{728}$	0	0	$-\frac{\sqrt{2730}i}{728}$		
	0	0	0	$\frac{\sqrt{273}}{104}$	$-\frac{9\sqrt{182}i}{728}$	0	$-\frac{3\sqrt{182}}{182}$	0	0	0	0	$-\frac{3\sqrt{455}}{728}$	$\frac{\sqrt{2730}i}{728}$	0		
	0	$\frac{3\sqrt{2730}}{1456}$	0	$\frac{\sqrt{2730}i}{416}$	$\frac{3\sqrt{455}}{1456}$	0	0	0	$\frac{15\sqrt{182}}{1456}$	0	$-\frac{15\sqrt{182}i}{2912}$	$-\frac{15\sqrt{273}}{1456}$	0			
	$\frac{3\sqrt{2730}}{1456}$	0	$-\frac{\sqrt{2730}i}{416}$	0	0	$-\frac{3\sqrt{455}}{1456}$	0	0	$\frac{15\sqrt{182}}{1456}$	0	$\frac{15\sqrt{182}i}{2912}$	0	0	$\frac{15\sqrt{273}}{1456}$		
	0	$\frac{5\sqrt{2730}i}{2912}$	0	$-\frac{\sqrt{2730}}{416}$	0	0	$\frac{3\sqrt{455}}{728}$	0	0	$-\frac{15\sqrt{182}i}{2912}$	0	$\frac{15\sqrt{182}}{2912}$	0	0	0	
	$-\frac{5\sqrt{2730}i}{2912}$	0	$-\frac{\sqrt{2730}}{416}$	0	0	0	0	$-\frac{3\sqrt{455}}{728}$	$\frac{15\sqrt{182}i}{2912}$	0	$\frac{15\sqrt{182}}{2912}$	0	0	0		
	$-\frac{\sqrt{455}}{1456}$	0	0	0	$\frac{\sqrt{2730}}{1456}$	0	$-\frac{\sqrt{2730}i}{728}$	$-\frac{15\sqrt{273}}{1456}$	0	0	0	0	0	$-\frac{15\sqrt{182}}{1456}$		
	0	$\frac{\sqrt{455}}{1456}$	0	0	$\frac{\sqrt{2730}}{1456}$	0	$\frac{\sqrt{2730}i}{728}$	0	0	$\frac{15\sqrt{273}}{1456}$	0	0	0	$-\frac{15\sqrt{182}}{1456}$		

999 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														
$\mathbb{M}_{7,2}^{(1,-1;a)}(E, 2)$	0	$\frac{15\sqrt{182}i}{2912}$	0	$-\frac{29\sqrt{182}}{2912}$	0	0	$\frac{\sqrt{273}}{104}$	0	0	$-\frac{\sqrt{2730}i}{416}$	0	$\frac{\sqrt{2730}}{416}$	0	0	0	0
	$-\frac{15\sqrt{182}i}{2912}$	0	$-\frac{29\sqrt{182}}{2912}$	0	0	0	0	$-\frac{\sqrt{273}}{104}$	$\frac{\sqrt{2730}i}{416}$	0	$\frac{\sqrt{2730}}{416}$	0	0	0	0	0
	0	$-\frac{29\sqrt{182}}{2912}$	0	$-\frac{9\sqrt{182}i}{1456}$	$\frac{11\sqrt{273}}{1456}$	0	0	0	0	$\frac{5\sqrt{2730}}{2912}$	0	$\frac{3\sqrt{2730}i}{1456}$	$\frac{\sqrt{455}}{1456}$	0	0	0
	$-\frac{29\sqrt{182}}{2912}$	0	$\frac{9\sqrt{182}i}{1456}$	0	0	$-\frac{11\sqrt{273}}{1456}$	0	0	$\frac{5\sqrt{2730}}{2912}$	0	$-\frac{3\sqrt{2730}i}{1456}$	0	0	0	$-\frac{\sqrt{455}}{1456}$	0
	0	0	$\frac{11\sqrt{273}}{1456}$	0	0	$-\frac{15\sqrt{182}i}{1456}$	0	$\frac{9\sqrt{182}}{728}$	0	0	$-\frac{3\sqrt{455}}{1456}$	0	0	0	$\frac{\sqrt{2730}i}{1456}$	0
	0	0	0	$-\frac{11\sqrt{273}}{1456}$	$\frac{15\sqrt{182}i}{1456}$	0	$\frac{9\sqrt{182}}{728}$	0	0	0	$\frac{3\sqrt{455}}{1456}$	$-\frac{\sqrt{2730}i}{1456}$	0	0	0	0
	$\frac{\sqrt{273}}{104}$	0	0	0	0	$\frac{9\sqrt{182}}{728}$	0	$\frac{3\sqrt{182}i}{182}$	$\frac{3\sqrt{455}}{728}$	0	0	0	0	0	$\frac{\sqrt{2730}}{728}$	0
	0	$-\frac{\sqrt{273}}{104}$	0	0	$\frac{9\sqrt{182}}{728}$	0	$-\frac{3\sqrt{182}i}{182}$	0	0	$-\frac{3\sqrt{455}}{728}$	0	0	$\frac{\sqrt{2730}}{728}$	0	0	0
	0	$-\frac{\sqrt{2730}i}{416}$	0	$\frac{5\sqrt{2730}}{2912}$	0	0	$\frac{3\sqrt{455}}{728}$	0	0	$-\frac{15\sqrt{182}i}{2912}$	0	$\frac{15\sqrt{182}}{2912}$	0	0	0	0
	$\frac{\sqrt{2730}i}{416}$	0	$\frac{5\sqrt{2730}}{2912}$	0	0	0	0	$-\frac{3\sqrt{455}}{728}$	$\frac{15\sqrt{182}i}{2912}$	0	$\frac{15\sqrt{182}}{2912}$	0	0	0	0	0
	0	$\frac{\sqrt{2730}}{416}$	0	$\frac{3\sqrt{2730}i}{1456}$	$-\frac{3\sqrt{455}}{1456}$	0	0	0	0	$\frac{15\sqrt{182}}{2912}$	0	$-\frac{15\sqrt{182}i}{1456}$	$-\frac{15\sqrt{273}}{1456}$	0	0	0
	$\frac{\sqrt{2730}}{416}$	0	$-\frac{3\sqrt{2730}i}{1456}$	0	0	$\frac{3\sqrt{455}}{1456}$	0	0	$\frac{15\sqrt{182}}{2912}$	0	$\frac{15\sqrt{182}i}{1456}$	0	0	0	$\frac{15\sqrt{273}}{1456}$	0
	0	0	$\frac{\sqrt{455}}{1456}$	0	0	$\frac{\sqrt{2730}i}{1456}$	0	$\frac{\sqrt{2730}}{728}$	0	0	$-\frac{15\sqrt{273}}{1456}$	0	0	0	$\frac{15\sqrt{182}i}{1456}$	0
	0	0	0	$-\frac{\sqrt{455}}{1456}$	$-\frac{\sqrt{2730}i}{1456}$	0	$\frac{\sqrt{2730}}{728}$	0	0	0	0	$\frac{15\sqrt{273}}{1456}$	$-\frac{\sqrt{182}i}{1456}$	0	0	0
1000	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
$\mathbb{M}_{7,1}^{(1,-1;a)}(E, 3)$	0	$\frac{\sqrt{7}i}{224}$ 0 $-\frac{3\sqrt{7}}{224}$ 0 0 $\frac{\sqrt{42}}{112}$ 0 0 $-\frac{\sqrt{105}i}{224}$ 0 $\frac{\sqrt{105}}{224}$ 0 0
	$-\frac{\sqrt{7}i}{224}$	0 $-\frac{3\sqrt{7}}{224}$ 0 0 0 0 $-\frac{\sqrt{42}}{112}$ $\frac{\sqrt{105}i}{224}$ 0 $\frac{\sqrt{105}}{224}$ 0 0 0
	0	$-\frac{3\sqrt{7}}{224}$ 0 0 0 $\frac{3\sqrt{42}}{224}$ 0 0 0 0 $\frac{3\sqrt{105}}{224}$ 0 0 $-\frac{3\sqrt{70}}{224}$ 0
	$-\frac{3\sqrt{7}}{224}$	0 0 0 0 0 $-\frac{3\sqrt{42}}{224}$ 0 0 $\frac{3\sqrt{105}}{224}$ 0 0 0 0 $\frac{3\sqrt{70}}{224}$
	0	0 0 $\frac{3\sqrt{42}}{224}$ 0 0 $-\frac{3\sqrt{7}i}{112}$ 0 $\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{3\sqrt{70}}{224}$ 0 0 $\frac{\sqrt{105}i}{112}$
	0	0 0 0 $-\frac{3\sqrt{42}}{224}$ $\frac{3\sqrt{7}i}{112}$ 0 $\frac{3\sqrt{7}}{56}$ 0 0 0 0 $\frac{3\sqrt{70}}{224}$ $-\frac{\sqrt{105}i}{112}$ 0
	$\frac{\sqrt{42}}{112}$	0 0 0 0 0 $\frac{3\sqrt{7}}{56}$ 0 0 $-\frac{3\sqrt{70}}{112}$ 0 0 0 0 $-\frac{\sqrt{105}}{56}$
	0	$-\frac{\sqrt{42}}{112}$ 0 0 $\frac{3\sqrt{7}}{56}$ 0 0 0 0 $\frac{3\sqrt{70}}{112}$ 0 0 $-\frac{\sqrt{105}}{56}$ 0
	0	$-\frac{\sqrt{105}i}{224}$ 0 $\frac{3\sqrt{105}}{224}$ 0 0 $-\frac{3\sqrt{70}}{112}$ 0 0 $\frac{15\sqrt{7}i}{224}$ 0 $-\frac{15\sqrt{7}}{224}$ 0 0
	$\frac{\sqrt{105}i}{224}$	0 $\frac{3\sqrt{105}}{224}$ 0 0 0 0 $\frac{3\sqrt{70}}{112}$ $-\frac{15\sqrt{7}i}{224}$ 0 $-\frac{15\sqrt{7}}{224}$ 0 0 0
	0	$\frac{\sqrt{105}}{224}$ 0 0 $-\frac{3\sqrt{70}}{224}$ 0 0 0 0 $-\frac{15\sqrt{7}}{224}$ 0 0 $\frac{5\sqrt{42}}{224}$ 0
	$\frac{\sqrt{105}}{224}$	0 0 0 0 $\frac{3\sqrt{70}}{224}$ 0 0 0 $-\frac{15\sqrt{7}}{224}$ 0 0 0 $-\frac{5\sqrt{42}}{224}$
	0	0 0 $-\frac{3\sqrt{70}}{224}$ 0 0 $\frac{\sqrt{105}i}{112}$ 0 $-\frac{\sqrt{105}}{56}$ 0 0 $\frac{5\sqrt{42}}{224}$ 0 0 $-\frac{5\sqrt{7}i}{112}$
	0	0 0 0 $\frac{3\sqrt{70}}{224}$ $-\frac{\sqrt{105}i}{112}$ 0 $-\frac{\sqrt{105}}{56}$ 0 0 0 0 $-\frac{5\sqrt{42}}{224}$ $\frac{5\sqrt{7}i}{112}$ 0
1001	symmetry	$\frac{\sqrt{6006}x(y-z)(y+z)(y^2-4yz+z^2)(y^2+4yz+z^2)}{32}$

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_{7,2}^{(1,-1;a)}(E, 3)$	0	0	0	$-\frac{3\sqrt{7}i}{224}$	$-\frac{3\sqrt{42}}{224}$	0	0	0	0	0	0	$-\frac{3\sqrt{105}i}{224}$	$-\frac{3\sqrt{70}}{224}$	0		
	0	0	$\frac{3\sqrt{7}i}{224}$	0	0	$\frac{3\sqrt{42}}{224}$	0	0	0	0	$\frac{3\sqrt{105}i}{224}$	0	0	$\frac{3\sqrt{70}}{224}$		
	0	$-\frac{3\sqrt{7}i}{224}$	0	$\frac{\sqrt{7}}{224}$	0	0	$\frac{\sqrt{42}}{112}$	0	0	$-\frac{\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	0	
	$\frac{3\sqrt{7}i}{224}$	0	$\frac{\sqrt{7}}{224}$	0	0	0	0	$-\frac{\sqrt{42}}{112}$	$\frac{\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	0	0	
	$-\frac{3\sqrt{42}}{224}$	0	0	0	0	$-\frac{3\sqrt{7}}{112}$	0	$-\frac{3\sqrt{7}i}{56}$	$-\frac{3\sqrt{70}}{224}$	0	0	0	0	$-\frac{\sqrt{105}}{112}$		
	0	$\frac{3\sqrt{42}}{224}$	0	0	$-\frac{3\sqrt{7}}{112}$	0	$\frac{3\sqrt{7}i}{56}$	0	0	$\frac{3\sqrt{70}}{224}$	0	0	$-\frac{\sqrt{105}}{112}$	0		
	0	0	$\frac{\sqrt{42}}{112}$	0	0	$-\frac{3\sqrt{7}i}{56}$	0	0	0	$\frac{3\sqrt{70}}{112}$	0	0	$-\frac{\sqrt{105}i}{56}$			
	0	0	0	$-\frac{\sqrt{42}}{112}$	$\frac{3\sqrt{7}i}{56}$	0	0	0	0	0	$-\frac{3\sqrt{70}}{112}$	$\frac{\sqrt{105}i}{56}$	0			
	0	0	0	$-\frac{\sqrt{105}i}{224}$	$-\frac{3\sqrt{70}}{224}$	0	0	0	0	0	$-\frac{15\sqrt{7}i}{224}$	$-\frac{5\sqrt{42}}{224}$	0			
	0	0	$\frac{\sqrt{105}i}{224}$	0	0	$\frac{3\sqrt{70}}{224}$	0	0	0	0	$\frac{15\sqrt{7}i}{224}$	0	0	$\frac{5\sqrt{42}}{224}$		
	0	$-\frac{3\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	$\frac{3\sqrt{70}}{112}$	0	0	$-\frac{15\sqrt{7}i}{224}$	0	$\frac{15\sqrt{7}}{224}$	0	0	0	
	$\frac{3\sqrt{105}i}{224}$	0	$\frac{\sqrt{105}}{224}$	0	0	0	0	$-\frac{3\sqrt{70}}{112}$	$\frac{15\sqrt{7}i}{224}$	0	$\frac{15\sqrt{7}}{224}$	0	0	0		
	$-\frac{3\sqrt{70}}{224}$	0	0	0	$-\frac{\sqrt{105}}{112}$	0	$-\frac{\sqrt{105}i}{56}$	$-\frac{5\sqrt{42}}{224}$	0	0	0	0	$-\frac{5\sqrt{7}}{112}$			
	0	$\frac{3\sqrt{70}}{224}$	0	0	$-\frac{\sqrt{105}}{112}$	0	$\frac{\sqrt{105}i}{56}$	0	0	$\frac{5\sqrt{42}}{224}$	0	0	$-\frac{5\sqrt{7}}{112}$	0		
1002	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														
$\mathbb{M}_{7,1}^{(1,-1;a)}(E, 4)$	0	$\frac{255\sqrt{1001}i}{32032}$	0	$-\frac{23\sqrt{1001}}{2912}$	0	0	$-\frac{\sqrt{6006}}{16016}$	0	0	$\frac{\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	0	
	$-\frac{255\sqrt{1001}i}{32032}$	0	$-\frac{23\sqrt{1001}}{2912}$	0	0	0	0	$\frac{\sqrt{6006}}{16016}$	$-\frac{\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	0	0	
	0	$-\frac{23\sqrt{1001}}{2912}$	0	$-\frac{15\sqrt{1001}i}{2002}$	$\frac{\sqrt{6006}}{2464}$	0	0	0	0	$-\frac{3\sqrt{15015}}{32032}$	0	$\frac{\sqrt{15015}i}{2002}$	$\frac{19\sqrt{10010}}{32032}$	0	0	
	$-\frac{23\sqrt{1001}}{2912}$	0	$\frac{15\sqrt{1001}i}{2002}$	0	0	$-\frac{\sqrt{6006}}{2464}$	0	0	$-\frac{3\sqrt{15015}}{32032}$	0	$-\frac{\sqrt{15015}i}{2002}$	0	0	$-\frac{19\sqrt{10010}}{32032}$	0	
	0	0	$\frac{\sqrt{6006}}{2464}$	0	0	$-\frac{45\sqrt{1001}i}{16016}$	0	$-\frac{3\sqrt{1001}}{8008}$	0	0	$\frac{51\sqrt{10010}}{32032}$	0	0	$-\frac{17\sqrt{15015}i}{16016}$	0	
	0	0	0	$-\frac{\sqrt{6006}}{2464}$	$\frac{45\sqrt{1001}i}{16016}$	0	$-\frac{3\sqrt{1001}}{8008}$	0	0	0	0	$-\frac{51\sqrt{10010}}{32032}$	$\frac{17\sqrt{15015}i}{16016}$	0	0	
	$-\frac{\sqrt{6006}}{16016}$	0	0	0	0	$-\frac{3\sqrt{1001}}{8008}$	0	0	$\frac{3\sqrt{10010}}{16016}$	0	0	0	0	$\frac{\sqrt{15015}}{8008}$	0	
	0	$\frac{\sqrt{6006}}{16016}$	0	0	$-\frac{3\sqrt{1001}}{8008}$	0	0	0	0	$-\frac{3\sqrt{10010}}{16016}$	0	0	$\frac{\sqrt{15015}}{8008}$	0	0	
	0	$\frac{\sqrt{15015}i}{32032}$	0	$-\frac{3\sqrt{15015}}{32032}$	0	0	$\frac{3\sqrt{10010}}{16016}$	0	0	$-\frac{15\sqrt{1001}i}{32032}$	0	$\frac{15\sqrt{1001}}{32032}$	0	0	0	
	$-\frac{\sqrt{15015}i}{32032}$	0	$-\frac{3\sqrt{15015}}{32032}$	0	0	0	0	$-\frac{3\sqrt{10010}}{16016}$	$\frac{15\sqrt{1001}i}{32032}$	0	$\frac{15\sqrt{1001}}{32032}$	0	0	0	0	
	0	$-\frac{\sqrt{15015}}{32032}$	0	$\frac{\sqrt{15015}i}{2002}$	$\frac{51\sqrt{10010}}{32032}$	0	0	0	0	$\frac{15\sqrt{1001}}{32032}$	0	$\frac{15\sqrt{1001}i}{2002}$	$\frac{75\sqrt{6006}}{32032}$	0	0	
	$-\frac{\sqrt{15015}}{32032}$	0	$-\frac{\sqrt{15015}i}{2002}$	0	0	$-\frac{51\sqrt{10010}}{32032}$	0	0	$\frac{15\sqrt{1001}}{32032}$	0	$-\frac{15\sqrt{1001}i}{2002}$	0	0	$-\frac{75\sqrt{6006}}{32032}$	0	
	0	0	$\frac{19\sqrt{10010}}{32032}$	0	0	$-\frac{17\sqrt{15015}i}{16016}$	0	$\frac{\sqrt{15015}}{8008}$	0	0	$\frac{75\sqrt{6006}}{32032}$	0	0	$-\frac{75\sqrt{1001}i}{16016}$	0	
	0	0	0	$-\frac{19\sqrt{10010}}{32032}$	$\frac{17\sqrt{15015}i}{16016}$	0	$\frac{\sqrt{15015}}{8008}$	0	0	0	0	$-\frac{75\sqrt{6006}}{32032}$	$\frac{75\sqrt{1001}i}{16016}$	0	0	
1003	symmetry	$\frac{\sqrt{42x(y-z)(y+z)(48x^4-80x^2y^2-80x^2z^2+15y^4+30y^2z^2+15z^4)}}{32}$														

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_{7,2}^{(1,-1;a)}(E, 4)$	0	$-\frac{15\sqrt{1001}}{2002}$	0	$-\frac{23\sqrt{1001}i}{2912}$	$-\frac{\sqrt{6006}}{2464}$	0	0	0	0	$-\frac{\sqrt{15015}}{2002}$	0	$\frac{3\sqrt{15015}i}{32032}$	$\frac{19\sqrt{10010}}{32032}$	0		
	$-\frac{15\sqrt{1001}}{2002}$	0	$\frac{23\sqrt{1001}i}{2912}$	0	0	$\frac{\sqrt{6006}}{2464}$	0	0	$-\frac{\sqrt{15015}}{2002}$	0	$-\frac{3\sqrt{15015}i}{32032}$	0	0	$-\frac{19\sqrt{10010}}{32032}$		
	0	$-\frac{23\sqrt{1001}i}{2912}$	0	$\frac{255\sqrt{1001}}{32032}$	0	0	$-\frac{\sqrt{6006}}{16016}$	0	0	$\frac{\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	0	
	$\frac{23\sqrt{1001}i}{2912}$	0	$\frac{255\sqrt{1001}}{32032}$	0	0	0	0	$\frac{\sqrt{6006}}{16016}$	$-\frac{\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	0	0	
	$-\frac{\sqrt{6006}}{2464}$	0	0	0	0	$-\frac{45\sqrt{1001}}{16016}$	0	$\frac{3\sqrt{1001}i}{8008}$	$\frac{51\sqrt{10010}}{32032}$	0	0	0	0	0	$\frac{17\sqrt{15015}}{16016}$	
	0	$\frac{\sqrt{6006}}{2464}$	0	0	$-\frac{45\sqrt{1001}}{16016}$	0	$-\frac{3\sqrt{1001}i}{8008}$	0	0	$-\frac{51\sqrt{10010}}{32032}$	0	0	$\frac{17\sqrt{15015}}{16016}$	0		
	0	0	$-\frac{\sqrt{6006}}{16016}$	0	0	$\frac{3\sqrt{1001}i}{8008}$	0	0	0	0	$-\frac{3\sqrt{10010}}{16016}$	0	0	$\frac{\sqrt{15015}i}{8008}$		
	0	0	0	$\frac{\sqrt{6006}}{16016}$	$-\frac{3\sqrt{1001}i}{8008}$	0	0	0	0	0	0	$\frac{3\sqrt{10010}}{16016}$	$-\frac{\sqrt{15015}i}{8008}$	0		
	0	$-\frac{\sqrt{15015}}{2002}$	0	$\frac{\sqrt{15015}i}{32032}$	$\frac{51\sqrt{10010}}{32032}$	0	0	0	0	$\frac{15\sqrt{1001}}{2002}$	0	$\frac{15\sqrt{1001}i}{32032}$	$-\frac{75\sqrt{6006}}{32032}$	0		
	$-\frac{\sqrt{15015}}{2002}$	0	$-\frac{\sqrt{15015}i}{32032}$	0	0	$-\frac{51\sqrt{10010}}{32032}$	0	0	$\frac{15\sqrt{1001}}{2002}$	0	$-\frac{15\sqrt{1001}i}{32032}$	0	0	$\frac{75\sqrt{6006}}{32032}$		
	0	$\frac{3\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	$-\frac{3\sqrt{10010}}{16016}$	0	0	$\frac{15\sqrt{1001}i}{32032}$	0	$-\frac{15\sqrt{1001}}{32032}$	0	0		
	$-\frac{3\sqrt{15015}i}{32032}$	0	$-\frac{\sqrt{15015}}{32032}$	0	0	0	0	$\frac{3\sqrt{10010}}{16016}$	$-\frac{15\sqrt{1001}i}{32032}$	0	$-\frac{15\sqrt{1001}}{32032}$	0	0	0		
	$\frac{19\sqrt{10010}}{32032}$	0	0	0	0	$\frac{17\sqrt{15015}}{16016}$	0	$\frac{\sqrt{15015}i}{8008}$	$-\frac{75\sqrt{6006}}{32032}$	0	0	0	0	0	$-\frac{75\sqrt{1001}}{16016}$	
	0	$-\frac{19\sqrt{10010}}{32032}$	0	0	$\frac{17\sqrt{15015}}{16016}$	0	$-\frac{\sqrt{15015}i}{8008}$	0	0	$\frac{75\sqrt{6006}}{32032}$	0	0	0	$-\frac{75\sqrt{1001}}{16016}$	0	

1004 symmetry

z

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_1^{(1,1;a)}(A)$	$-\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad 0$															
	$0 \quad \frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad 0$															
	$0 \quad 0 \quad -\frac{\sqrt{105}}{42} \quad 0 \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0$															
	$0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{42} \quad \frac{\sqrt{70}i}{56} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0$															
	$0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad -\frac{\sqrt{70}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$															
	$\frac{\sqrt{70}}{56} \quad 0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0$															
	$0 \quad \frac{\sqrt{70}i}{56} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0$															
	$-\frac{\sqrt{70}i}{56} \quad 0 \quad \frac{\sqrt{70}}{56} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0$															
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{140} \quad 0$															
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{70}}{140} \quad 0$															
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad \frac{\sqrt{105}}{70} \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{140} \quad 0$															
	$0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{42}i}{56} \quad 0 \quad \frac{\sqrt{42}}{56} \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad -\frac{\sqrt{105}}{70} \quad \frac{\sqrt{70}i}{140} \quad 0 \quad 0$															
	$0 \quad 0 \quad \frac{\sqrt{70}}{140} \quad 0 \quad -\frac{\sqrt{70}i}{140} \quad \frac{2\sqrt{105}}{105} \quad 0 \quad 0 \quad 0$															
	$0 \quad 0 \quad \frac{\sqrt{70}}{140} \quad 0 \quad \frac{\sqrt{70}i}{140} \quad 0 \quad 0 \quad 0 \quad -\frac{2\sqrt{105}}{105} \quad 0$															
1005	symmetry	x														

continued ...

Table 10

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

1006 symmetry

y

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_{1,2}^{(1,1;a)}(E)$	0	$-\frac{\sqrt{105}i}{84}$	0	0	0	0	$-\frac{\sqrt{70}}{56}$	0	0	$-\frac{\sqrt{7}i}{28}$	0	$\frac{\sqrt{7}}{28}$	0	0	0
	$\frac{\sqrt{105}i}{84}$	0	0	0	0	0	0	$\frac{\sqrt{70}}{56}$	$\frac{\sqrt{7}i}{28}$	0	$\frac{\sqrt{7}}{28}$	0	0	0	0
	0	0	0	$-\frac{\sqrt{105}i}{84}$	$\frac{\sqrt{70}}{56}$	0	0	0	0	$-\frac{\sqrt{7}}{28}$	0	$-\frac{\sqrt{7}i}{28}$	0	0	0
	0	0	$\frac{\sqrt{105}i}{84}$	0	0	$-\frac{\sqrt{70}}{56}$	0	0	$-\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	0	0
	0	0	$\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	0	$-\frac{\sqrt{42}}{56}$	0	0	$-\frac{\sqrt{7}i}{14}$	
	0	0	0	$-\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	$\frac{\sqrt{42}}{56}$	$\frac{\sqrt{7}i}{14}$	0		
	$-\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	0	$\frac{\sqrt{42}}{56}$	0	0	0	0	$-\frac{\sqrt{7}}{14}$	
	0	$\frac{\sqrt{70}}{56}$	0	0	0	0	0	0	0	$-\frac{\sqrt{42}}{56}$	0	0	$-\frac{\sqrt{7}}{14}$	0	
	0	$-\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	$\frac{\sqrt{42}}{56}$	0	0	$\frac{3\sqrt{105}i}{140}$	0	$\frac{\sqrt{105}}{70}$	0	0	0
	$\frac{\sqrt{7}i}{28}$	0	$-\frac{\sqrt{7}}{28}$	0	0	0	0	$-\frac{\sqrt{42}}{56}$	$-\frac{3\sqrt{105}i}{140}$	0	$\frac{\sqrt{105}}{70}$	0	0	0	
	0	$\frac{\sqrt{7}}{28}$	0	$-\frac{\sqrt{7}i}{28}$	$-\frac{\sqrt{42}}{56}$	0	0	0	0	$\frac{\sqrt{105}}{70}$	0	$-\frac{\sqrt{105}i}{140}$	$\frac{\sqrt{70}}{140}$	0	
	$\frac{\sqrt{7}}{28}$	0	$\frac{\sqrt{7}i}{28}$	0	0	$\frac{\sqrt{42}}{56}$	0	0	$\frac{\sqrt{105}}{70}$	0	$\frac{\sqrt{105}i}{140}$	0	0	$-\frac{\sqrt{70}}{140}$	
	0	0	0	0	0	$-\frac{\sqrt{7}i}{14}$	0	$-\frac{\sqrt{7}}{14}$	0	0	$\frac{\sqrt{70}}{140}$	0	0	$\frac{\sqrt{105}i}{105}$	
	0	0	0	0	$\frac{\sqrt{7}i}{14}$	0	$-\frac{\sqrt{7}}{14}$	0	0	0	$-\frac{\sqrt{70}}{140}$	$-\frac{\sqrt{105}i}{105}$	0		
1007	symmetry	$-\frac{z(3x^2+3y^2-2z^2)}{2}$													

continued ...

Table 10

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

1008 symmetry

 $\sqrt{15}xyz$

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_3^{(1,1;a)}(B, 1)$	0	0	0	0	0	$-\frac{\sqrt{770}i}{616}$	0	$-\frac{\sqrt{770}}{616}$	0	0	$-\frac{3\sqrt{77}}{154}$	0	0	$-\frac{\sqrt{462}i}{88}$	
	0	0	0	0	$\frac{\sqrt{770}i}{616}$	0	$-\frac{\sqrt{770}}{616}$	0	0	0	$\frac{3\sqrt{77}}{154}$	$\frac{\sqrt{462}i}{88}$	0	0	
	0	0	0	0	0	$\frac{\sqrt{770}}{616}$	0	$-\frac{\sqrt{770}i}{616}$	$\frac{3\sqrt{77}}{154}$	0	0	0	0	$-\frac{\sqrt{462}}{88}$	
	0	0	0	0	$\frac{\sqrt{770}}{616}$	0	$\frac{\sqrt{770}i}{616}$	0	0	$-\frac{3\sqrt{77}}{154}$	0	0	$-\frac{\sqrt{462}}{88}$	0	
	0	$-\frac{\sqrt{770}i}{616}$	0	$\frac{\sqrt{770}}{616}$	0	0	0	0	$\frac{\sqrt{462}i}{168}$	0	$\frac{\sqrt{462}}{168}$	0	0	0	
	$\frac{\sqrt{770}i}{616}$	0	$\frac{\sqrt{770}}{616}$	0	0	0	0	0	$-\frac{\sqrt{462}i}{168}$	0	$\frac{\sqrt{462}}{168}$	0	0	0	
	0	$-\frac{\sqrt{770}}{616}$	0	$-\frac{\sqrt{770}i}{616}$	0	0	0	0	0	$\frac{\sqrt{462}}{616}$	0	$-\frac{\sqrt{462}i}{616}$	$-\frac{\sqrt{77}}{154}$	0	
	$-\frac{\sqrt{770}}{616}$	0	$\frac{\sqrt{770}i}{616}$	0	0	0	0	0	$\frac{\sqrt{462}}{616}$	0	$\frac{\sqrt{462}i}{616}$	0	0	$\frac{\sqrt{77}}{154}$	
	0	0	$\frac{3\sqrt{77}}{154}$	0	0	$\frac{\sqrt{462}i}{168}$	0	$\frac{\sqrt{462}}{616}$	0	0	$\frac{\sqrt{1155}}{231}$	0	0	$\frac{\sqrt{770}i}{616}$	
	0	0	0	$-\frac{3\sqrt{77}}{154}$	$-\frac{\sqrt{462}i}{168}$	0	$\frac{\sqrt{462}}{616}$	0	0	0	$-\frac{\sqrt{1155}}{231}$	$-\frac{\sqrt{770}i}{616}$	0	0	
	$-\frac{3\sqrt{77}}{154}$	0	0	0	0	$\frac{\sqrt{462}}{168}$	0	$-\frac{\sqrt{462}i}{616}$	$\frac{\sqrt{1155}}{231}$	0	0	0	0	$-\frac{\sqrt{770}}{616}$	
	0	$\frac{3\sqrt{77}}{154}$	0	0	$\frac{\sqrt{462}}{168}$	0	$\frac{\sqrt{462}i}{616}$	0	0	$-\frac{\sqrt{1155}}{231}$	0	0	$-\frac{\sqrt{770}}{616}$	0	
	0	$-\frac{\sqrt{462}i}{88}$	0	$-\frac{\sqrt{462}}{88}$	0	0	$-\frac{\sqrt{77}}{154}$	0	0	$\frac{\sqrt{770}i}{616}$	0	$-\frac{\sqrt{770}}{616}$	0	0	
	$\frac{\sqrt{462}i}{88}$	0	$-\frac{\sqrt{462}}{88}$	0	0	0	0	$\frac{\sqrt{77}}{154}$	$-\frac{\sqrt{770}i}{616}$	0	$-\frac{\sqrt{770}}{616}$	0	0	0	
1009	symmetry	$\frac{\sqrt{15z(x-y)(x+y)}}{2}$													

continued ...

Table 10

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

1010 symmetry

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

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_{3,2}^{(1,1;a)}(E, 1)$	0	$-\frac{3\sqrt{77}i}{616}$	0	0	0	0	$-\frac{5\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{1155}i}{1848}$	0	$\frac{5\sqrt{1155}}{924}$	0	0	
	$\frac{3\sqrt{77}i}{616}$	0	0	0	0	0	0	$\frac{5\sqrt{462}}{1232}$	$-\frac{\sqrt{1155}i}{1848}$	0	$\frac{5\sqrt{1155}}{924}$	0	0	0	
	0	0	0	$-\frac{3\sqrt{77}i}{616}$	$\frac{5\sqrt{462}}{1232}$	0	0	0	0	$\frac{\sqrt{1155}}{462}$	0	$-\frac{13\sqrt{1155}i}{1848}$	$\frac{\sqrt{770}}{176}$	0	
	0	0	$\frac{3\sqrt{77}i}{616}$	0	0	$-\frac{5\sqrt{462}}{1232}$	0	0	$\frac{\sqrt{1155}}{462}$	0	$\frac{13\sqrt{1155}i}{1848}$	0	0	$-\frac{\sqrt{770}}{176}$	
	0	0	$\frac{5\sqrt{462}}{1232}$	0	0	$-\frac{\sqrt{77}i}{132}$	0	$-\frac{5\sqrt{77}}{264}$	0	0	$\frac{5\sqrt{770}}{3696}$	0	0	$\frac{\sqrt{1155}i}{924}$	
	0	0	0	$-\frac{5\sqrt{462}}{1232}$	$\frac{\sqrt{77}i}{132}$	0	$-\frac{5\sqrt{77}}{264}$	0	0	0	0	$-\frac{5\sqrt{770}}{3696}$	$-\frac{\sqrt{1155}i}{924}$	0	
	$-\frac{5\sqrt{462}}{1232}$	0	0	0	0	$-\frac{5\sqrt{77}}{264}$	0	$\frac{\sqrt{77}i}{33}$	$-\frac{19\sqrt{770}}{3696}$	0	0	0	0	$\frac{\sqrt{1155}}{1848}$	
	0	$\frac{5\sqrt{462}}{1232}$	0	0	$-\frac{5\sqrt{77}}{264}$	0	$-\frac{\sqrt{77}i}{33}$	0	0	$\frac{19\sqrt{770}}{3696}$	0	0	$\frac{\sqrt{1155}}{1848}$	0	
	0	$\frac{\sqrt{1155}i}{1848}$	0	$\frac{\sqrt{1155}}{462}$	0	0	$-\frac{19\sqrt{770}}{3696}$	0	0	$-\frac{23\sqrt{77}i}{1848}$	0	$-\frac{5\sqrt{77}}{924}$	0	0	
	$-\frac{\sqrt{1155}i}{1848}$	0	$\frac{\sqrt{1155}}{462}$	0	0	0	0	$\frac{19\sqrt{770}}{3696}$	$\frac{23\sqrt{77}i}{1848}$	0	$-\frac{5\sqrt{77}}{924}$	0	0	0	
	0	$\frac{5\sqrt{1155}}{924}$	0	$-\frac{13\sqrt{1155}i}{1848}$	$\frac{5\sqrt{770}}{3696}$	0	0	0	0	$-\frac{5\sqrt{77}}{924}$	0	$\frac{17\sqrt{77}i}{1848}$	$-\frac{5\sqrt{462}}{1232}$	0	
	$\frac{5\sqrt{1155}}{924}$	0	$\frac{13\sqrt{1155}i}{1848}$	0	0	$-\frac{5\sqrt{770}}{3696}$	0	0	$-\frac{5\sqrt{77}}{924}$	0	$-\frac{17\sqrt{77}i}{1848}$	0	0	$\frac{5\sqrt{462}}{1232}$	
	0	0	$\frac{\sqrt{770}}{176}$	0	0	$\frac{\sqrt{1155}i}{924}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	$-\frac{5\sqrt{462}}{1232}$	0	0	$-\frac{3\sqrt{77}i}{308}$	
	0	0	0	$-\frac{\sqrt{770}}{176}$	$-\frac{\sqrt{1155}i}{924}$	0	$\frac{\sqrt{1155}}{1848}$	0	0	0	0	$\frac{5\sqrt{462}}{1232}$	$\frac{3\sqrt{77}i}{308}$	0	
$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$															
1012	symmetry														

continued ...

Table 10

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

1013 symmetry

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

continued ...

Table 10

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

1014 symmetry

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

continued ...

Table 10

No.	multipole	matrix
$\mathbb{M}_5^{(1,1;a)}(A, 1)$	0	0 0 0 0 0 $\frac{\sqrt{4290}i}{312}$ 0 $\frac{\sqrt{4290}}{312}$ 0 0 $\frac{5\sqrt{429}}{858}$ 0 0 $\frac{\sqrt{286}i}{572}$
	0	0 0 0 0 $-\frac{\sqrt{4290}i}{312}$ 0 $\frac{\sqrt{4290}}{312}$ 0 0 0 0 $-\frac{5\sqrt{429}}{858}$ $-\frac{\sqrt{286}i}{572}$ 0
	0	0 0 0 0 0 $\frac{\sqrt{4290}}{312}$ 0 $-\frac{\sqrt{4290}i}{312}$ $\frac{5\sqrt{429}}{858}$ 0 0 0 0 $-\frac{\sqrt{286}}{572}$
	0	0 0 0 0 $\frac{\sqrt{4290}}{312}$ 0 $\frac{\sqrt{4290}i}{312}$ 0 0 $-\frac{5\sqrt{429}}{858}$ 0 0 $-\frac{\sqrt{286}}{572}$ 0
	0	$\frac{\sqrt{4290}i}{312}$ 0 $\frac{\sqrt{4290}}{312}$ 0 0 $\frac{\sqrt{715}}{143}$ 0 0 $\frac{3\sqrt{286}i}{1144}$ 0 $-\frac{3\sqrt{286}}{1144}$ 0 0 0
	$-\frac{\sqrt{4290}i}{312}$	0 $\frac{\sqrt{4290}}{312}$ 0 0 0 0 $-\frac{\sqrt{715}}{143}$ $-\frac{3\sqrt{286}i}{1144}$ 0 $-\frac{3\sqrt{286}}{1144}$ 0 0 0
	0	$\frac{\sqrt{4290}}{312}$ 0 $-\frac{\sqrt{4290}i}{312}$ $\frac{\sqrt{715}}{143}$ 0 0 0 0 $-\frac{3\sqrt{286}}{1144}$ 0 $-\frac{3\sqrt{286}i}{1144}$ 0 0
	$\frac{\sqrt{4290}}{312}$	0 $\frac{\sqrt{4290}i}{312}$ 0 0 $-\frac{\sqrt{715}}{143}$ 0 0 $-\frac{3\sqrt{286}}{1144}$ 0 $\frac{3\sqrt{286}i}{1144}$ 0 0 0
	0	0 $\frac{5\sqrt{429}}{858}$ 0 0 $\frac{3\sqrt{286}i}{1144}$ 0 $-\frac{3\sqrt{286}}{1144}$ 0 0 0 0 0 0 0
	0	0 0 0 $-\frac{5\sqrt{429}}{858}$ $-\frac{3\sqrt{286}i}{1144}$ 0 $-\frac{3\sqrt{286}}{1144}$ 0 0 0 0 0 0 0
	$\frac{5\sqrt{429}}{858}$	0 0 0 0 0 $-\frac{3\sqrt{286}}{1144}$ 0 $-\frac{3\sqrt{286}i}{1144}$ 0 0 0 0 0 0 0
	0	$-\frac{5\sqrt{429}}{858}$ 0 0 $-\frac{3\sqrt{286}}{1144}$ 0 $\frac{3\sqrt{286}i}{1144}$ 0 0 0 0 0 0 0
	0	$\frac{\sqrt{286}i}{572}$ 0 $-\frac{\sqrt{286}}{572}$ 0 0 0 0 0 0 0 0 0 0 0
	$-\frac{\sqrt{286}i}{572}$	0 $-\frac{\sqrt{286}}{572}$ 0 0 0 0 0 0 0 0 0 0 0 0
$\frac{z(15x^4+30x^2y^2-40x^2z^2+15y^4-40y^2z^2+8z^4)}{8}$		
1015	symmetry	

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_5^{(1,1;a)}(A, 2)$	$-\frac{\sqrt{1001}}{2002}$	0	0	0	0	$\frac{\sqrt{6006}}{3432}$	0	$\frac{\sqrt{6006}i}{3432}$	0	0	0	0	0	0	0	0
	0	$\frac{\sqrt{1001}}{2002}$	0	0	$\frac{\sqrt{6006}}{3432}$	0	$-\frac{\sqrt{6006}i}{3432}$	0	0	0	0	0	0	0	0	0
	0	0	$-\frac{\sqrt{1001}}{2002}$	0	0	$-\frac{\sqrt{6006}i}{3432}$	0	$\frac{\sqrt{6006}}{3432}$	0	0	0	0	0	0	0	0
	0	0	0	$\frac{\sqrt{1001}}{2002}$	$\frac{\sqrt{6006}i}{3432}$	0	$\frac{\sqrt{6006}}{3432}$	0	0	0	0	0	0	0	0	0
	0	$\frac{\sqrt{6006}}{3432}$	0	$-\frac{\sqrt{6006}i}{3432}$	$\frac{3\sqrt{1001}}{1001}$	0	0	0	0	$-\frac{\sqrt{10010}}{1144}$	0	$-\frac{\sqrt{10010}i}{1144}$	0	0	0	0
	$\frac{\sqrt{6006}}{3432}$	0	$\frac{\sqrt{6006}i}{3432}$	0	0	$-\frac{3\sqrt{1001}}{1001}$	0	0	$-\frac{\sqrt{10010}}{1144}$	0	$\frac{\sqrt{10010}i}{1144}$	0	0	0	0	0
	0	$\frac{\sqrt{6006}i}{3432}$	0	$\frac{\sqrt{6006}}{3432}$	0	0	$\frac{3\sqrt{1001}}{1001}$	0	0	$\frac{\sqrt{10010}i}{1144}$	0	$-\frac{\sqrt{10010}}{1144}$	0	0	0	0
	$-\frac{\sqrt{6006}i}{3432}$	0	$\frac{\sqrt{6006}}{3432}$	0	0	0	0	$-\frac{3\sqrt{1001}}{1001}$	$-\frac{\sqrt{10010}i}{1144}$	0	$-\frac{\sqrt{10010}}{1144}$	0	0	0	0	0
	0	0	0	0	0	$-\frac{\sqrt{10010}}{1144}$	0	$\frac{\sqrt{10010}i}{1144}$	$-\frac{15\sqrt{1001}}{2002}$	0	0	0	0	$\frac{5\sqrt{6006}}{1716}$	0	
	0	0	0	0	$-\frac{\sqrt{10010}}{1144}$	0	$-\frac{\sqrt{10010}i}{1144}$	0	0	$\frac{15\sqrt{1001}}{2002}$	0	0	$\frac{5\sqrt{6006}}{1716}$	0	0	0
	0	0	0	0	$\frac{\sqrt{10010}i}{1144}$	0	$-\frac{\sqrt{10010}}{1144}$	0	0	0	$-\frac{15\sqrt{1001}}{2002}$	0	0	$-\frac{5\sqrt{6006}i}{1716}$	0	0
	0	0	0	0	0	0	0	0	$\frac{5\sqrt{6006}}{1716}$	0	$-\frac{5\sqrt{6006}i}{1716}$	$\frac{10\sqrt{1001}}{1001}$	0	0	0	0
	0	0	0	0	0	0	0	$\frac{5\sqrt{6006}}{1716}$	0	$\frac{5\sqrt{6006}i}{1716}$	0	0	0	$-\frac{10\sqrt{1001}}{1001}$	0	0
1016	symmetry	$\frac{3\sqrt{35}z(x^2 - 2xy - y^2)(x^2 + 2xy - y^2)}{8}$														

continued ...

Table 10

No.	multipole	matrix													
$\mathbb{M}_5^{(1,1;a)}(A, 3)$	0	0	0	0	0	$\frac{\sqrt{4290}}{312}$	0	$-\frac{\sqrt{4290}i}{312}$	$\frac{5\sqrt{429}}{858}$	0	0	0	0	$-\frac{\sqrt{286}}{572}$	
	0	0	0	0	$\frac{\sqrt{4290}}{312}$	0	$\frac{\sqrt{4290}i}{312}$	0	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{\sqrt{286}}{572}$	0	
	0	0	0	0	0	$-\frac{\sqrt{4290}i}{312}$	0	$-\frac{\sqrt{4290}}{312}$	0	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{\sqrt{286}i}{572}$	
	0	0	0	0	$\frac{\sqrt{4290}i}{312}$	0	$-\frac{\sqrt{4290}}{312}$	0	0	0	0	$\frac{5\sqrt{429}}{858}$	$\frac{\sqrt{286}i}{572}$	0	
	0	$\frac{\sqrt{4290}}{312}$	0	$-\frac{\sqrt{4290}i}{312}$	$\frac{\sqrt{715}}{143}$	0	0	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$-\frac{3\sqrt{286}i}{1144}$	0	0	
	$\frac{\sqrt{4290}}{312}$	0	$\frac{\sqrt{4290}i}{312}$	0	0	$-\frac{\sqrt{715}}{143}$	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$\frac{3\sqrt{286}i}{1144}$	0	0	0	
	0	$-\frac{\sqrt{4290}i}{312}$	0	$-\frac{\sqrt{4290}}{312}$	0	0	$-\frac{\sqrt{715}}{143}$	0	0	$-\frac{3\sqrt{286}i}{1144}$	0	$\frac{3\sqrt{286}}{1144}$	0	0	
	$\frac{\sqrt{4290}i}{312}$	0	$-\frac{\sqrt{4290}}{312}$	0	0	0	0	$\frac{\sqrt{715}}{143}$	$\frac{3\sqrt{286}i}{1144}$	0	$\frac{3\sqrt{286}}{1144}$	0	0	0	
	$\frac{5\sqrt{429}}{858}$	0	0	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$-\frac{3\sqrt{286}i}{1144}$	0	0	0	0	0	0	
	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{3\sqrt{286}}{1144}$	0	$\frac{3\sqrt{286}i}{1144}$	0	0	0	0	0	0	0	
	0	0	$-\frac{5\sqrt{429}}{858}$	0	0	$-\frac{3\sqrt{286}i}{1144}$	0	$\frac{3\sqrt{286}}{1144}$	0	0	0	0	0	0	
	0	0	0	$\frac{5\sqrt{429}}{858}$	$\frac{3\sqrt{286}i}{1144}$	0	$\frac{3\sqrt{286}}{1144}$	0	0	0	0	0	0	0	
	0	$-\frac{\sqrt{286}}{572}$	0	$-\frac{\sqrt{286}i}{572}$	0	0	0	0	0	0	0	0	0	0	
	$-\frac{\sqrt{286}}{572}$	0	$\frac{\sqrt{286}i}{572}$	0	0	0	0	0	0	0	0	0	0	0	

1017 symmetry

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

continued ...

Table 10

No.	multipole	matrix															
$\mathbb{M}_5^{(1,1;a)}(B, 1)$	0	0	0	0	0	$-\frac{\sqrt{1430}i}{3432}$	0	$-\frac{\sqrt{1430}}{3432}$	0	0	$-\frac{2\sqrt{143}}{429}$	0	0	$-\frac{\sqrt{858}i}{286}$			
	0	0	0	0	$\frac{\sqrt{1430}i}{3432}$	0	$-\frac{\sqrt{1430}}{3432}$	0	0	0	$\frac{2\sqrt{143}}{429}$	$\frac{\sqrt{858}i}{286}$	0				
	0	0	0	0	0	$\frac{\sqrt{1430}}{3432}$	0	$-\frac{\sqrt{1430}i}{3432}$	$\frac{2\sqrt{143}}{429}$	0	0	0	0	$-\frac{\sqrt{858}}{286}$			
	0	0	0	0	$\frac{\sqrt{1430}}{3432}$	0	$-\frac{\sqrt{1430}i}{3432}$	0	0	$-\frac{2\sqrt{143}}{429}$	0	0	$-\frac{\sqrt{858}}{286}$	0			
	0	$-\frac{\sqrt{1430}i}{3432}$	0	$\frac{\sqrt{1430}}{3432}$	0	0	0	0	0	$-\frac{\sqrt{858}i}{264}$	0	$-\frac{\sqrt{858}}{264}$	0	0	0		
	$\frac{\sqrt{1430}i}{3432}$	0	$\frac{\sqrt{1430}}{3432}$	0	0	0	0	0	$\frac{\sqrt{858}i}{264}$	0	$-\frac{\sqrt{858}}{264}$	0	0	0			
	0	$-\frac{\sqrt{1430}}{3432}$	0	$-\frac{\sqrt{1430}i}{3432}$	0	0	0	0	0	$-\frac{23\sqrt{858}}{3432}$	0	$\frac{23\sqrt{858}i}{3432}$	$-\frac{8\sqrt{143}}{429}$	0			
	$-\frac{\sqrt{1430}}{3432}$	0	$\frac{\sqrt{1430}i}{3432}$	0	0	0	0	0	$-\frac{23\sqrt{858}}{3432}$	0	$-\frac{23\sqrt{858}i}{3432}$	0	0	$\frac{8\sqrt{143}}{429}$			
	0	0	$\frac{2\sqrt{143}}{429}$	0	0	$-\frac{\sqrt{858}i}{264}$	0	$-\frac{23\sqrt{858}}{3432}$	0	0	$-\frac{2\sqrt{2145}}{429}$	0	0	$-\frac{5\sqrt{1430}i}{1716}$			
	0	0	0	$-\frac{2\sqrt{143}}{429}$	$\frac{\sqrt{858}i}{264}$	0	$-\frac{23\sqrt{858}}{3432}$	0	0	0	$\frac{2\sqrt{2145}}{429}$	$\frac{5\sqrt{1430}i}{1716}$	0				
	$-\frac{2\sqrt{143}}{429}$	0	0	0	0	$-\frac{\sqrt{858}}{264}$	0	$\frac{23\sqrt{858}i}{3432}$	$-\frac{2\sqrt{2145}}{429}$	0	0	0	0	$\frac{5\sqrt{1430}}{1716}$			
	0	$\frac{2\sqrt{143}}{429}$	0	0	$-\frac{\sqrt{858}}{264}$	0	$-\frac{23\sqrt{858}i}{3432}$	0	0	$\frac{2\sqrt{2145}}{429}$	0	0	$\frac{5\sqrt{1430}}{1716}$	0			
	0	$-\frac{\sqrt{858}i}{286}$	0	$-\frac{\sqrt{858}}{286}$	0	0	$-\frac{8\sqrt{143}}{429}$	0	0	$-\frac{5\sqrt{1430}i}{1716}$	0	$\frac{5\sqrt{1430}}{1716}$	0	0	0		
	$\frac{\sqrt{858}i}{286}$	0	$-\frac{\sqrt{858}}{286}$	0	0	0	0	$\frac{8\sqrt{143}}{429}$	$\frac{5\sqrt{1430}i}{1716}$	0	$\frac{5\sqrt{1430}}{1716}$	0	0	0	0		
1018	symmetry	$-\frac{\sqrt{105z(x-y)(x+y)(x^2+y^2-2z^2)}}{4}$															

continued ...

Table 10

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

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													
$\mathbb{M}_{5,1}^{(1,1;a)}(E, 1)$	0	$\frac{59\sqrt{1001}}{8008}$	0	$-\frac{3\sqrt{1001}i}{416}$	$\frac{19\sqrt{6006}}{13728}$	0	0	0	0	$-\frac{\sqrt{15015}}{1144}$	0	$\frac{5\sqrt{15015}i}{13728}$	$-\frac{3\sqrt{10010}}{4576}$	0	
	$\frac{59\sqrt{1001}}{8008}$	0	$\frac{3\sqrt{1001}i}{416}$	0	0	$-\frac{19\sqrt{6006}}{13728}$	0	0	$-\frac{\sqrt{15015}}{1144}$	0	$-\frac{5\sqrt{15015}i}{13728}$	0	0	$\frac{3\sqrt{10010}}{4576}$	
	0	$-\frac{3\sqrt{1001}i}{416}$	0	$-\frac{113\sqrt{1001}}{16016}$	0	0	$-\frac{7\sqrt{6006}}{6864}$	0	0	$\frac{7\sqrt{15015}i}{13728}$	0	$\frac{\sqrt{15015}}{2288}$	0	0	0
	$\frac{3\sqrt{1001}i}{416}$	0	$-\frac{113\sqrt{1001}}{16016}$	0	0	0	0	$\frac{7\sqrt{6006}}{6864}$	$-\frac{7\sqrt{15015}i}{13728}$	0	$\frac{\sqrt{15015}}{2288}$	0	0	0	
	$\frac{19\sqrt{6006}}{13728}$	0	0	0	0	$-\frac{3\sqrt{1001}}{616}$	0	$\frac{3\sqrt{1001}i}{1144}$	$-\frac{7\sqrt{10010}}{4576}$	0	0	0	0	$\frac{\sqrt{15015}}{1144}$	
	0	$-\frac{19\sqrt{6006}}{13728}$	0	0	$-\frac{3\sqrt{1001}}{616}$	0	$-\frac{3\sqrt{1001}i}{1144}$	0	0	$\frac{7\sqrt{10010}}{4576}$	0	0	$\frac{\sqrt{15015}}{1144}$	0	
	0	0	$-\frac{7\sqrt{6006}}{6864}$	0	0	$\frac{3\sqrt{1001}i}{1144}$	0	$\frac{3\sqrt{1001}}{1001}$	0	0	$\frac{\sqrt{10010}}{2288}$	0	0	$-\frac{\sqrt{15015}i}{3432}$	
	0	0	0	$\frac{7\sqrt{6006}}{6864}$	$-\frac{3\sqrt{1001}i}{1144}$	0	$\frac{3\sqrt{1001}}{1001}$	0	0	0	0	$-\frac{\sqrt{10010}}{2288}$	$\frac{\sqrt{15015}i}{3432}$	0	
	0	$-\frac{\sqrt{15015}}{1144}$	0	$\frac{7\sqrt{15015}i}{13728}$	$-\frac{7\sqrt{10010}}{4576}$	0	0	0	0	$\frac{45\sqrt{1001}}{8008}$	0	$-\frac{5\sqrt{1001}i}{4576}$	$\frac{25\sqrt{6006}}{13728}$	0	
	$-\frac{\sqrt{15015}}{1144}$	0	$-\frac{7\sqrt{15015}i}{13728}$	0	$\frac{7\sqrt{10010}}{4576}$	0	0	$\frac{45\sqrt{1001}}{8008}$	0	$\frac{5\sqrt{1001}i}{4576}$	0	0	0	$-\frac{25\sqrt{6006}}{13728}$	
1020	symmetry	$\frac{y(15x^4 - 40x^2y^2 + 30x^2z^2 + 8y^4 - 40y^2z^2 + 15z^4)}{8}$													

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_{5,2}^{(1,1;a)}(E, 1)$	0	$\frac{113\sqrt{1001}i}{16016}$	0	$\frac{3\sqrt{1001}}{416}$	0	0	$\frac{7\sqrt{6006}}{6864}$	0	0	$\frac{\sqrt{15015}i}{2288}$	0	$\frac{7\sqrt{15015}}{13728}$	0	0	0	
	$-\frac{113\sqrt{1001}i}{16016}$	0	$\frac{3\sqrt{1001}}{416}$	0	0	0	0	$-\frac{7\sqrt{6006}}{6864}$	$-\frac{\sqrt{15015}i}{2288}$	0	$\frac{7\sqrt{15015}}{13728}$	0	0	0		
	0	$\frac{3\sqrt{1001}}{416}$	0	$-\frac{59\sqrt{1001}i}{8008}$	$\frac{19\sqrt{6006}}{13728}$	0	0	0	0	$\frac{5\sqrt{15015}}{13728}$	0	$-\frac{\sqrt{15015}i}{1144}$	$\frac{3\sqrt{10010}}{4576}$	0		
	$\frac{3\sqrt{1001}}{416}$	0	$\frac{59\sqrt{1001}i}{8008}$	0	0	$-\frac{19\sqrt{6006}}{13728}$	0	0	$\frac{5\sqrt{15015}}{13728}$	0	$\frac{\sqrt{15015}i}{1144}$	0	0	$-\frac{3\sqrt{10010}}{4576}$		
	0	0	$\frac{19\sqrt{6006}}{13728}$	0	0	$\frac{3\sqrt{1001}i}{616}$	0	$\frac{3\sqrt{1001}}{1144}$	0	0	$\frac{7\sqrt{10010}}{4576}$	0	0	$\frac{\sqrt{15015}i}{1144}$		
	0	0	0	$-\frac{19\sqrt{6006}}{13728}$	$-\frac{3\sqrt{1001}i}{616}$	0	$\frac{3\sqrt{1001}}{1144}$	0	0	0	0	$-\frac{7\sqrt{10010}}{4576}$	$-\frac{\sqrt{15015}i}{1144}$	0		
	$\frac{7\sqrt{6006}}{6864}$	0	0	0	0	$\frac{3\sqrt{1001}}{1144}$	0	$-\frac{3\sqrt{1001}i}{1001}$	$\frac{\sqrt{10010}}{2288}$	0	0	0	0	$\frac{\sqrt{15015}}{3432}$		
	0	$-\frac{7\sqrt{6006}}{6864}$	0	0	$\frac{3\sqrt{1001}}{1144}$	0	$\frac{3\sqrt{1001}i}{1001}$	0	0	$-\frac{\sqrt{10010}}{2288}$	0	0	$\frac{\sqrt{15015}}{3432}$	0		
	0	$\frac{\sqrt{15015}i}{2288}$	0	$\frac{5\sqrt{15015}}{13728}$	0	0	$\frac{\sqrt{10010}}{2288}$	0	0	$\frac{15\sqrt{1001}i}{16016}$	0	$\frac{5\sqrt{1001}}{4576}$	0	0		
	$-\frac{\sqrt{15015}i}{2288}$	0	$\frac{5\sqrt{15015}}{13728}$	0	0	0	0	$-\frac{\sqrt{10010}}{2288}$	$-\frac{15\sqrt{1001}i}{16016}$	0	$\frac{5\sqrt{1001}}{4576}$	0	0	0		
	0	$\frac{7\sqrt{15015}}{13728}$	0	$-\frac{\sqrt{15015}i}{1144}$	$\frac{7\sqrt{10010}}{4576}$	0	0	0	0	$\frac{5\sqrt{1001}}{4576}$	0	$-\frac{45\sqrt{1001}i}{8008}$	$\frac{25\sqrt{6006}}{13728}$	0		
	$\frac{7\sqrt{15015}}{13728}$	0	$\frac{\sqrt{15015}i}{1144}$	0	0	$-\frac{7\sqrt{10010}}{4576}$	0	0	$\frac{5\sqrt{1001}}{4576}$	0	$\frac{45\sqrt{1001}i}{8008}$	0	0	$-\frac{25\sqrt{6006}}{13728}$		
	0	0	$\frac{3\sqrt{10010}}{4576}$	0	0	$\frac{\sqrt{15015}i}{1144}$	0	$\frac{\sqrt{15015}}{3432}$	0	0	$\frac{25\sqrt{6006}}{13728}$	0	0	$\frac{25\sqrt{1001}i}{8008}$		
	0	0	0	$-\frac{3\sqrt{10010}}{4576}$	$-\frac{\sqrt{15015}i}{1144}$	0	$\frac{\sqrt{15015}}{3432}$	0	0	0	0	$-\frac{25\sqrt{6006}}{13728}$	$-\frac{25\sqrt{1001}i}{8008}$	0		
1021	symmetry	$\frac{3\sqrt{35}x(y^2 - 2yz - z^2)(y^2 + 2yz - z^2)}{8}$														

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_{5,1}^{(1,1;a)}(E, 2)$	0	$\frac{3\sqrt{715}}{1144}$	0	$-\frac{\sqrt{715}i}{416}$	$\frac{3\sqrt{4290}}{4576}$	0	0	0	0	$\frac{5\sqrt{429}}{1144}$	0	$-\frac{31\sqrt{429}i}{4576}$	$\frac{27\sqrt{286}}{4576}$	0		
	$\frac{3\sqrt{715}}{1144}$	0	$\frac{\sqrt{715}i}{416}$	0	0	$-\frac{3\sqrt{4290}}{4576}$	0	0	$\frac{5\sqrt{429}}{1144}$	0	$\frac{31\sqrt{429}i}{4576}$	0	0	$-\frac{27\sqrt{286}}{4576}$		
	0	$-\frac{\sqrt{715}i}{416}$	0	$-\frac{5\sqrt{715}}{2288}$	0	0	$-\frac{\sqrt{4290}}{6864}$	0	0	$-\frac{47\sqrt{429}i}{13728}$	0	$-\frac{35\sqrt{429}}{6864}$	0	0		
	$\frac{\sqrt{715}i}{416}$	0	$-\frac{5\sqrt{715}}{2288}$	0	0	0	0	$\frac{\sqrt{4290}}{6864}$	$\frac{47\sqrt{429}i}{13728}$	0	$-\frac{35\sqrt{429}}{6864}$	0	0	0		
	$\frac{3\sqrt{4290}}{4576}$	0	0	0	0	$\frac{5\sqrt{715}}{1144}$	0	$-\frac{7\sqrt{715}i}{1144}$	$\frac{23\sqrt{286}}{4576}$	0	0	0	0	$\frac{5\sqrt{429}}{3432}$		
	0	$-\frac{3\sqrt{4290}}{4576}$	0	0	$\frac{5\sqrt{715}}{1144}$	0	$\frac{7\sqrt{715}i}{1144}$	0	0	$-\frac{23\sqrt{286}}{4576}$	0	0	$\frac{5\sqrt{429}}{3432}$	0		
	0	0	$-\frac{\sqrt{4290}}{6864}$	0	0	$-\frac{7\sqrt{715}i}{1144}$	0	$-\frac{\sqrt{715}}{143}$	0	0	$-\frac{29\sqrt{286}}{2288}$	0	0	$-\frac{23\sqrt{429}i}{3432}$		
	0	0	0	$\frac{\sqrt{4290}}{6864}$	$\frac{7\sqrt{715}i}{1144}$	0	$-\frac{\sqrt{715}}{143}$	0	0	0	0	$\frac{29\sqrt{286}}{2288}$	$\frac{23\sqrt{429}i}{3432}$	0		
	0	$\frac{5\sqrt{429}}{1144}$	0	$-\frac{47\sqrt{429}i}{13728}$	$\frac{23\sqrt{286}}{4576}$	0	0	0	0	$\frac{5\sqrt{715}}{1144}$	0	$-\frac{23\sqrt{715}i}{4576}$	$\frac{35\sqrt{4290}}{13728}$	0		
	$\frac{5\sqrt{429}}{1144}$	0	$\frac{47\sqrt{429}i}{13728}$	0	0	$-\frac{23\sqrt{286}}{4576}$	0	0	$\frac{5\sqrt{715}}{1144}$	0	$\frac{23\sqrt{715}i}{4576}$	0	0	$-\frac{35\sqrt{4290}}{13728}$		
	0	$-\frac{31\sqrt{429}i}{4576}$	0	$-\frac{35\sqrt{429}}{6864}$	0	0	$-\frac{29\sqrt{286}}{2288}$	0	0	$-\frac{23\sqrt{715}i}{4576}$	0	$\frac{5\sqrt{715}}{2288}$	0	0		
	$\frac{31\sqrt{429}i}{4576}$	0	$-\frac{35\sqrt{429}}{6864}$	0	0	0	0	$\frac{29\sqrt{286}}{2288}$	$\frac{23\sqrt{715}i}{4576}$	0	$\frac{5\sqrt{715}}{2288}$	0	0	0		
	$\frac{27\sqrt{286}}{4576}$	0	0	0	0	$\frac{5\sqrt{429}}{3432}$	0	$-\frac{23\sqrt{429}i}{3432}$	$\frac{35\sqrt{4290}}{13728}$	0	0	0	0	$-\frac{5\sqrt{715}}{1144}$		
1022 symmetry		$\frac{3\sqrt{35}y(x^2 - 2xz - z^2)(x^2 + 2xz - z^2)}{8}$														

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_{5,2}^{(1,1;a)}(E, 2)$	0	$\frac{5\sqrt{715}i}{2288}$	0	$\frac{\sqrt{715}}{416}$	0	0	$\frac{\sqrt{4290}}{6864}$	0	0	$-\frac{35\sqrt{429}i}{6864}$	0	$-\frac{47\sqrt{429}}{13728}$	0	0	0	
	$-\frac{5\sqrt{715}i}{2288}$	0	$\frac{\sqrt{715}}{416}$	0	0	0	0	$-\frac{\sqrt{4290}}{6864}$	$\frac{35\sqrt{429}i}{6864}$	0	$-\frac{47\sqrt{429}}{13728}$	0	0	0	0	
	0	$\frac{\sqrt{715}}{416}$	0	$-\frac{3\sqrt{715}i}{1144}$	$\frac{3\sqrt{4290}}{4576}$	0	0	0	0	$-\frac{31\sqrt{429}}{4576}$	0	$\frac{5\sqrt{429}i}{1144}$	$-\frac{27\sqrt{286}}{4576}$	0	0	
	$\frac{\sqrt{715}}{416}$	0	$\frac{3\sqrt{715}i}{1144}$	0	0	$-\frac{3\sqrt{4290}}{4576}$	0	0	$-\frac{31\sqrt{429}}{4576}$	0	$-\frac{5\sqrt{429}i}{1144}$	0	0	$\frac{27\sqrt{286}}{4576}$	0	
	0	0	$\frac{3\sqrt{4290}}{4576}$	0	0	$-\frac{5\sqrt{715}i}{1144}$	0	$-\frac{7\sqrt{715}}{1144}$	0	0	$-\frac{23\sqrt{286}}{4576}$	0	0	$\frac{5\sqrt{429}i}{3432}$	0	
	0	0	0	$-\frac{3\sqrt{4290}}{4576}$	$\frac{5\sqrt{715}i}{1144}$	0	$-\frac{7\sqrt{715}}{1144}$	0	0	0	0	$\frac{23\sqrt{286}}{4576}$	$-\frac{5\sqrt{429}i}{3432}$	0	0	
	$\frac{\sqrt{4290}}{6864}$	0	0	0	0	$-\frac{7\sqrt{715}}{1144}$	0	$\frac{\sqrt{715}i}{143}$	$-\frac{29\sqrt{286}}{2288}$	0	0	0	0	$\frac{23\sqrt{429}}{3432}$	0	
	0	$-\frac{\sqrt{4290}}{6864}$	0	0	$-\frac{7\sqrt{715}}{1144}$	0	$-\frac{\sqrt{715}i}{143}$	0	0	$\frac{29\sqrt{286}}{2288}$	0	0	$\frac{23\sqrt{429}}{3432}$	0	0	
	0	$-\frac{35\sqrt{429}i}{6864}$	0	$-\frac{31\sqrt{429}}{4576}$	0	0	$-\frac{29\sqrt{286}}{2288}$	0	0	$-\frac{5\sqrt{715}i}{2288}$	0	$\frac{23\sqrt{715}}{4576}$	0	0	0	
	$\frac{35\sqrt{429}i}{6864}$	0	$-\frac{31\sqrt{429}}{4576}$	0	0	0	0	$\frac{29\sqrt{286}}{2288}$	$\frac{5\sqrt{715}i}{2288}$	0	$\frac{23\sqrt{715}}{4576}$	0	0	0	0	
	0	$-\frac{47\sqrt{429}}{13728}$	0	$\frac{5\sqrt{429}i}{1144}$	$-\frac{23\sqrt{286}}{4576}$	0	0	0	0	$\frac{23\sqrt{715}}{4576}$	0	$-\frac{5\sqrt{715}i}{1144}$	$\frac{35\sqrt{4290}}{13728}$	0	0	
	$-\frac{47\sqrt{429}}{13728}$	0	$-\frac{5\sqrt{429}i}{1144}$	0	0	$\frac{23\sqrt{286}}{4576}$	0	0	$\frac{23\sqrt{715}}{4576}$	0	$\frac{5\sqrt{715}i}{1144}$	0	0	$-\frac{35\sqrt{4290}}{13728}$	0	
	0	0	$-\frac{27\sqrt{286}}{4576}$	0	0	$\frac{5\sqrt{429}i}{3432}$	0	$\frac{23\sqrt{429}}{3432}$	0	0	$\frac{35\sqrt{4290}}{13728}$	0	0	$\frac{5\sqrt{715}i}{1144}$	0	
	0	0	0	$\frac{27\sqrt{286}}{4576}$	$-\frac{5\sqrt{429}i}{3432}$	0	$\frac{23\sqrt{429}}{3432}$	0	0	0	0	$-\frac{35\sqrt{4290}}{13728}$	$-\frac{5\sqrt{715}i}{1144}$	0	0	
1023	symmetry	$\frac{\sqrt{105}y(x-z)(x+z)(x^2-2y^2+z^2)}{4}$														

continued ...

Table 10

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

continued ...

Table 10

No.	multipole	matrix														
$\mathbb{M}_{5,2}^{(1,1;a)}(E, 3)$	0	$-\frac{2\sqrt{2145}}{429}$	0	$\frac{\sqrt{2145}i}{208}$	$-\frac{\sqrt{1430}}{528}$	0	0	0	0	$-\frac{2\sqrt{143}}{429}$	0	$\frac{19\sqrt{143}i}{6864}$	$-\frac{3\sqrt{858}}{2288}$	0		
	$-\frac{2\sqrt{2145}}{429}$	0	$-\frac{\sqrt{2145}i}{208}$	0	0	$\frac{\sqrt{1430}}{528}$	0	0	$-\frac{2\sqrt{143}}{429}$	0	$-\frac{19\sqrt{143}i}{6864}$	0	0	$\frac{3\sqrt{858}}{2288}$		
	0	$\frac{\sqrt{2145}i}{208}$	0	$\frac{17\sqrt{2145}}{3432}$	0	0	$\frac{5\sqrt{1430}}{1716}$	0	0	$\frac{41\sqrt{143}i}{6864}$	0	$-\frac{\sqrt{143}}{3432}$	0	0	0	
	$-\frac{\sqrt{2145}i}{208}$	0	$\frac{17\sqrt{2145}}{3432}$	0	0	0	0	$-\frac{5\sqrt{1430}}{1716}$	$-\frac{41\sqrt{143}i}{6864}$	0	$-\frac{\sqrt{143}}{3432}$	0	0	0	0	
	$-\frac{\sqrt{1430}}{528}$	0	0	0	0	$-\frac{\sqrt{2145}}{572}$	0	$\frac{\sqrt{2145}i}{572}$	$-\frac{31\sqrt{858}}{6864}$	0	0	0	0	$\frac{17\sqrt{143}}{1716}$		
	0	$\frac{\sqrt{1430}}{528}$	0	0	$-\frac{\sqrt{2145}}{572}$	0	$-\frac{\sqrt{2145}i}{572}$	0	0	$\frac{31\sqrt{858}}{6864}$	0	0	$\frac{17\sqrt{143}}{1716}$	0		
	0	0	$\frac{5\sqrt{1430}}{1716}$	0	0	$\frac{\sqrt{2145}i}{572}$	0	0	0	0	$-\frac{\sqrt{858}}{1716}$	0	0	$-\frac{\sqrt{143}i}{156}$		
	0	0	0	$-\frac{5\sqrt{1430}}{1716}$	$-\frac{\sqrt{2145}i}{572}$	0	0	0	0	0	$\frac{\sqrt{858}}{1716}$	$\frac{\sqrt{143}i}{156}$	0			
	0	$-\frac{2\sqrt{143}}{429}$	0	$\frac{41\sqrt{143}i}{6864}$	$-\frac{31\sqrt{858}}{6864}$	0	0	0	0	$\frac{2\sqrt{2145}}{429}$	0	$-\frac{\sqrt{2145}i}{624}$	$\frac{35\sqrt{1430}}{6864}$	0		
	$-\frac{2\sqrt{143}}{429}$	0	$-\frac{41\sqrt{143}i}{6864}$	0	0	$\frac{31\sqrt{858}}{6864}$	0	0	$\frac{2\sqrt{2145}}{429}$	0	$\frac{\sqrt{2145}i}{624}$	0	0	$-\frac{35\sqrt{1430}}{6864}$		
	0	$\frac{19\sqrt{143}i}{6864}$	0	$-\frac{\sqrt{143}}{3432}$	0	0	$-\frac{\sqrt{858}}{1716}$	0	0	$-\frac{\sqrt{2145}i}{624}$	0	$-\frac{\sqrt{2145}}{3432}$	0	0	0	
	$-\frac{19\sqrt{143}i}{6864}$	0	$-\frac{\sqrt{143}}{3432}$	0	0	0	0	$\frac{\sqrt{858}}{1716}$	$\frac{\sqrt{2145}i}{624}$	0	$-\frac{\sqrt{2145}}{3432}$	0	0	0		
	$-\frac{3\sqrt{858}}{2288}$	0	0	0	0	$\frac{17\sqrt{143}}{1716}$	0	$-\frac{\sqrt{143}i}{156}$	$\frac{35\sqrt{1430}}{6864}$	0	0	0	0	$-\frac{5\sqrt{2145}}{1716}$		
	0	$\frac{3\sqrt{858}}{2288}$	0	0	$\frac{17\sqrt{143}}{1716}$	0	$\frac{\sqrt{143}i}{156}$	0	0	$-\frac{35\sqrt{1430}}{6864}$	0	0	$-\frac{5\sqrt{2145}}{1716}$	0		