

No. 23 C_{6h} $6/m$ [hexagonal] (axial)

表 1 rank 0

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
1	A_u	Au	—	—	$\mathbb{G}_0^{(h,A_u)}$	Gh(0, Au, ,)	C_0

表 2 rank 1

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
2	A_g	Ag	—	—	$\mathbb{G}_1^{(h,A_g)}$	Gh(1, Ag, ,)	C_0
3	E_{1g}	E1g	—	0	$\mathbb{G}_{1,0}^{(h,E_{1g})}$	Gh(1, E1g, , 0)	C_1
4	E_{1g}	E1g	—	1	$\mathbb{G}_{1,1}^{(h,E_{1g})}$	Gh(1, E1g, , 1)	S_1

表 3 rank 2

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
5	A_u	Au	—	—	$\mathbb{G}_2^{(h,A_u)}$	Gh(2, Au, ,)	C_0
6	E_{1u}	E1u	—	0	$\mathbb{G}_{2,0}^{(h,E_{1u})}$	Gh(2, E1u, , 0)	C_1
7	E_{1u}	E1u	—	1	$\mathbb{G}_{2,1}^{(h,E_{1u})}$	Gh(2, E1u, , 1)	S_1
8	E_{2u}	E2u	—	0	$\mathbb{G}_{2,0}^{(h,E_{2u})}$	Gh(2, E2u, , 0)	C_2
9	E_{2u}	E2u	—	1	$\mathbb{G}_{2,1}^{(h,E_{2u})}$	Gh(2, E2u, , 1)	$-S_2$

表 4 rank 3

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
10	A_g	Ag	—	—	$\mathbb{G}_3^{(h,A_g)}$	Gh(3, Ag, ,)	C_0
11	B_g	Bg	1	—	$\mathbb{G}_3^{(h,B_g,1)}$	Gh(3, Bg, 1,)	S_3
12	B_g	Bg	2	—	$\mathbb{G}_3^{(h,B_g,2)}$	Gh(3, Bg, 2,)	C_3
13	E_{1g}	E1g	—	0	$\mathbb{G}_{3,0}^{(h,E_{1g})}$	Gh(3, E1g, , 0)	C_1
14	E_{1g}	E1g	—	1	$\mathbb{G}_{3,1}^{(h,E_{1g})}$	Gh(3, E1g, , 1)	S_1
15	E_{2g}	E2g	—	0	$\mathbb{G}_{3,0}^{(h,E_{2g})}$	Gh(3, E2g, , 0)	C_2
16	E_{2g}	E2g	—	1	$\mathbb{G}_{3,1}^{(h,E_{2g})}$	Gh(3, E2g, , 1)	$-S_2$

表 5 rank 4

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
17	A_u	Au	—	—	$\mathbb{G}_4^{(h,A_u)}$	Gh(4, Au, ,)	C_0
18	B_u	Bu	1	—	$\mathbb{G}_4^{(h,B_u,1)}$	Gh(4, Bu, 1,)	C_3
19	B_u	Bu	2	—	$\mathbb{G}_4^{(h,B_u,2)}$	Gh(4, Bu, 2,)	S_3
20	E_{1u}	E1u	—	0	$\mathbb{G}_{4,0}^{(h,E_{1u})}$	Gh(4, E1u, , 0)	C_1
21	E_{1u}	E1u	—	1	$\mathbb{G}_{4,1}^{(h,E_{1u})}$	Gh(4, E1u, , 1)	S_1
22	E_{2u}	E2u	1	0	$\mathbb{G}_{4,0}^{(h,E_{2u},1)}$	Gh(4, E2u, 1, 0)	C_4
23	E_{2u}	E2u	1	1	$\mathbb{G}_{4,1}^{(h,E_{2u},1)}$	Gh(4, E2u, 1, 1)	S_4
24	E_{2u}	E2u	2	0	$\mathbb{G}_{4,0}^{(h,E_{2u},2)}$	Gh(4, E2u, 2, 0)	C_2
25	E_{2u}	E2u	2	1	$\mathbb{G}_{4,1}^{(h,E_{2u},2)}$	Gh(4, E2u, 2, 1)	$-S_2$

表 6 rank 5

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
26	A_g	Ag	—	—	$\mathbb{G}_5^{(h,A_g)}$	Gh(5, Ag, ,)	C_0
27	B_g	Bg	1	—	$\mathbb{G}_5^{(h,B_g,1)}$	Gh(5, Bg, 1,)	S_3
28	B_g	Bg	2	—	$\mathbb{G}_5^{(h,B_g,2)}$	Gh(5, Bg, 2,)	C_3
29	E_{1g}	E1g	1	0	$\mathbb{G}_{5,0}^{(h,E_{1g},1)}$	Gh(5, E1g, 1, 0)	C_5
30	E_{1g}	E1g	1	1	$\mathbb{G}_{5,1}^{(h,E_{1g},1)}$	Gh(5, E1g, 1, 1)	$-S_5$
31	E_{1g}	E1g	2	0	$\mathbb{G}_{5,0}^{(h,E_{1g},2)}$	Gh(5, E1g, 2, 0)	C_1
32	E_{1g}	E1g	2	1	$\mathbb{G}_{5,1}^{(h,E_{1g},2)}$	Gh(5, E1g, 2, 1)	S_1
33	E_{2g}	E2g	1	0	$\mathbb{G}_{5,0}^{(h,E_{2g},1)}$	Gh(5, E2g, 1, 0)	C_4
34	E_{2g}	E2g	1	1	$\mathbb{G}_{5,1}^{(h,E_{2g},1)}$	Gh(5, E2g, 1, 1)	S_4
35	E_{2g}	E2g	2	0	$\mathbb{G}_{5,0}^{(h,E_{2g},2)}$	Gh(5, E2g, 2, 0)	C_2
36	E_{2g}	E2g	2	1	$\mathbb{G}_{5,1}^{(h,E_{2g},2)}$	Gh(5, E2g, 2, 1)	$-S_2$

表 7 rank 6

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
37	A_u	Au	1	—	$\mathbb{G}_6^{(h,A_u,1)}$	Gh(6, Au, 1,)	C_0
38	A_u	Au	2	—	$\mathbb{G}_6^{(h,A_u,2)}$	Gh(6, Au, 2,)	C_6
39	A_u	Au	3	—	$\mathbb{G}_6^{(h,A_u,3)}$	Gh(6, Au, 3,)	S_6
40	B_u	Bu	1	—	$\mathbb{G}_6^{(h,B_u,1)}$	Gh(6, Bu, 1,)	C_3
41	B_u	Bu	2	—	$\mathbb{G}_6^{(h,B_u,2)}$	Gh(6, Bu, 2,)	S_3
42	E_{1u}	E1u	1	0	$\mathbb{G}_{6,0}^{(h,E_{1u},1)}$	Gh(6, E1u, 1, 0)	C_5
43	E_{1u}	E1u	1	1	$\mathbb{G}_{6,1}^{(h,E_{1u},1)}$	Gh(6, E1u, 1, 1)	$-S_5$
44	E_{1u}	E1u	2	0	$\mathbb{G}_{6,0}^{(h,E_{1u},2)}$	Gh(6, E1u, 2, 0)	C_1
45	E_{1u}	E1u	2	1	$\mathbb{G}_{6,1}^{(h,E_{1u},2)}$	Gh(6, E1u, 2, 1)	S_1
46	E_{2u}	E2u	1	0	$\mathbb{G}_{6,0}^{(h,E_{2u},1)}$	Gh(6, E2u, 1, 0)	C_4
47	E_{2u}	E2u	1	1	$\mathbb{G}_{6,1}^{(h,E_{2u},1)}$	Gh(6, E2u, 1, 1)	S_4
48	E_{2u}	E2u	2	0	$\mathbb{G}_{6,0}^{(h,E_{2u},2)}$	Gh(6, E2u, 2, 0)	C_2
49	E_{2u}	E2u	2	1	$\mathbb{G}_{6,1}^{(h,E_{2u},2)}$	Gh(6, E2u, 2, 1)	$-S_2$

表 8 rank 7

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
50	A_g	Ag	1	—	$\mathbb{G}_7^{(h,A_g,1)}$	Gh(7, Ag, 1,)	S_6
51	A_g	Ag	2	—	$\mathbb{G}_7^{(h,A_g,2)}$	Gh(7, Ag, 2,)	C_0
52	A_g	Ag	3	—	$\mathbb{G}_7^{(h,A_g,3)}$	Gh(7, Ag, 3,)	C_6
53	B_g	Bg	1	—	$\mathbb{G}_7^{(h,B_g,1)}$	Gh(7, Bg, 1,)	S_3
54	B_g	Bg	2	—	$\mathbb{G}_7^{(h,B_g,2)}$	Gh(7, Bg, 2,)	C_3
55	E_{1g}	E1g	1	0	$\mathbb{G}_{7,0}^{(h,E_{1g},1)}$	Gh(7, E1g, 1, 0)	C_7
56	E_{1g}	E1g	1	1	$\mathbb{G}_{7,1}^{(h,E_{1g},1)}$	Gh(7, E1g, 1, 1)	S_7
57	E_{1g}	E1g	2	0	$\mathbb{G}_{7,0}^{(h,E_{1g},2)}$	Gh(7, E1g, 2, 0)	C_5
58	E_{1g}	E1g	2	1	$\mathbb{G}_{7,1}^{(h,E_{1g},2)}$	Gh(7, E1g, 2, 1)	$-S_5$
59	E_{1g}	E1g	3	0	$\mathbb{G}_{7,0}^{(h,E_{1g},3)}$	Gh(7, E1g, 3, 0)	C_1
60	E_{1g}	E1g	3	1	$\mathbb{G}_{7,1}^{(h,E_{1g},3)}$	Gh(7, E1g, 3, 1)	S_1
61	E_{2g}	E2g	1	0	$\mathbb{G}_{7,0}^{(h,E_{2g},1)}$	Gh(7, E2g, 1, 0)	C_4
62	E_{2g}	E2g	1	1	$\mathbb{G}_{7,1}^{(h,E_{2g},1)}$	Gh(7, E2g, 1, 1)	S_4
63	E_{2g}	E2g	2	0	$\mathbb{G}_{7,0}^{(h,E_{2g},2)}$	Gh(7, E2g, 2, 0)	C_2
64	E_{2g}	E2g	2	1	$\mathbb{G}_{7,1}^{(h,E_{2g},2)}$	Gh(7, E2g, 2, 1)	$-S_2$

表 9 rank 8

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
65	A_u	Au	1	—	$\mathbb{G}_8^{(h,A_u,1)}$	Gh(8, Au, 1,)	C_0
66	A_u	Au	2	—	$\mathbb{G}_8^{(h,A_u,2)}$	Gh(8, Au, 2,)	C_6
67	A_u	Au	3	—	$\mathbb{G}_8^{(h,A_u,3)}$	Gh(8, Au, 3,)	S_6
68	B_u	Bu	1	—	$\mathbb{G}_8^{(h,B_u,1)}$	Gh(8, Bu, 1,)	C_3
69	B_u	Bu	2	—	$\mathbb{G}_8^{(h,B_u,2)}$	Gh(8, Bu, 2,)	S_3
70	E_{1u}	E1u	1	0	$\mathbb{G}_{8,0}^{(h,E_{1u},1)}$	Gh(8, E1u, 1, 0)	C_7
71	E_{1u}	E1u	1	1	$\mathbb{G}_{8,1}^{(h,E_{1u},1)}$	Gh(8, E1u, 1, 1)	S_7
72	E_{1u}	E1u	2	0	$\mathbb{G}_{8,0}^{(h,E_{1u},2)}$	Gh(8, E1u, 2, 0)	C_5
73	E_{1u}	E1u	2	1	$\mathbb{G}_{8,1}^{(h,E_{1u},2)}$	Gh(8, E1u, 2, 1)	$-S_5$
74	E_{1u}	E1u	3	0	$\mathbb{G}_{8,0}^{(h,E_{1u},3)}$	Gh(8, E1u, 3, 0)	C_1
75	E_{1u}	E1u	3	1	$\mathbb{G}_{8,1}^{(h,E_{1u},3)}$	Gh(8, E1u, 3, 1)	S_1
76	E_{2u}	E2u	1	0	$\mathbb{G}_{8,0}^{(h,E_{2u},1)}$	Gh(8, E2u, 1, 0)	C_8
77	E_{2u}	E2u	1	1	$\mathbb{G}_{8,1}^{(h,E_{2u},1)}$	Gh(8, E2u, 1, 1)	$-S_8$
78	E_{2u}	E2u	2	0	$\mathbb{G}_{8,0}^{(h,E_{2u},2)}$	Gh(8, E2u, 2, 0)	C_4
79	E_{2u}	E2u	2	1	$\mathbb{G}_{8,1}^{(h,E_{2u},2)}$	Gh(8, E2u, 2, 1)	S_4
80	E_{2u}	E2u	3	0	$\mathbb{G}_{8,0}^{(h,E_{2u},3)}$	Gh(8, E2u, 3, 0)	C_2
81	E_{2u}	E2u	3	1	$\mathbb{G}_{8,1}^{(h,E_{2u},3)}$	Gh(8, E2u, 3, 1)	$-S_2$

表 10 rank 9

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
82	A_g	Ag	1	—	$\mathbb{G}_9^{(h,A_g,1)}$	Gh(9, Ag, 1,)	S_6
83	A_g	Ag	2	—	$\mathbb{G}_9^{(h,A_g,2)}$	Gh(9, Ag, 2,)	C_0
84	A_g	Ag	3	—	$\mathbb{G}_9^{(h,A_g,3)}$	Gh(9, Ag, 3,)	C_6
85	B_g	Bg	1	—	$\mathbb{G}_9^{(h,B_g,1)}$	Gh(9, Bg, 1,)	S_9
86	B_g	Bg	2	—	$\mathbb{G}_9^{(h,B_g,2)}$	Gh(9, Bg, 2,)	S_3
87	B_g	Bg	3	—	$\mathbb{G}_9^{(h,B_g,3)}$	Gh(9, Bg, 3,)	C_9
88	B_g	Bg	4	—	$\mathbb{G}_9^{(h,B_g,4)}$	Gh(9, Bg, 4,)	C_3
89	E_{1g}	E1g	1	0	$\mathbb{G}_{9,0}^{(h,E_{1g},1)}$	Gh(9, E1g, 1, 0)	C_7
90	E_{1g}	E1g	1	1	$\mathbb{G}_{9,1}^{(h,E_{1g},1)}$	Gh(9, E1g, 1, 1)	S_7
91	E_{1g}	E1g	2	0	$\mathbb{G}_{9,0}^{(h,E_{1g},2)}$	Gh(9, E1g, 2, 0)	C_5
92	E_{1g}	E1g	2	1	$\mathbb{G}_{9,1}^{(h,E_{1g},2)}$	Gh(9, E1g, 2, 1)	$-S_5$
93	E_{1g}	E1g	3	0	$\mathbb{G}_{9,0}^{(h,E_{1g},3)}$	Gh(9, E1g, 3, 0)	C_1
94	E_{1g}	E1g	3	1	$\mathbb{G}_{9,1}^{(h,E_{1g},3)}$	Gh(9, E1g, 3, 1)	S_1
95	E_{2g}	E2g	1	0	$\mathbb{G}_{9,0}^{(h,E_{2g},1)}$	Gh(9, E2g, 1, 0)	C_8
96	E_{2g}	E2g	1	1	$\mathbb{G}_{9,1}^{(h,E_{2g},1)}$	Gh(9, E2g, 1, 1)	$-S_8$
97	E_{2g}	E2g	2	0	$\mathbb{G}_{9,0}^{(h,E_{2g},2)}$	Gh(9, E2g, 2, 0)	C_4
98	E_{2g}	E2g	2	1	$\mathbb{G}_{9,1}^{(h,E_{2g},2)}$	Gh(9, E2g, 2, 1)	S_4
99	E_{2g}	E2g	3	0	$\mathbb{G}_{9,0}^{(h,E_{2g},3)}$	Gh(9, E2g, 3, 0)	C_2
100	E_{2g}	E2g	3	1	$\mathbb{G}_{9,1}^{(h,E_{2g},3)}$	Gh(9, E2g, 3, 1)	$-S_2$

表 11 rank 10

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
101	A_u	Au	1	—	$\mathbb{G}_{10}^{(h,A_u,1)}$	Gh(10, Au, 1,)	C_0
102	A_u	Au	2	—	$\mathbb{G}_{10}^{(h,A_u,2)}$	Gh(10, Au, 2,)	C_6
103	A_u	Au	3	—	$\mathbb{G}_{10}^{(h,A_u,3)}$	Gh(10, Au, 3,)	S_6
104	B_u	Bu	1	—	$\mathbb{G}_{10}^{(h,B_u,1)}$	Gh(10, Bu, 1,)	C_9
105	B_u	Bu	2	—	$\mathbb{G}_{10}^{(h,B_u,2)}$	Gh(10, Bu, 2,)	C_3
106	B_u	Bu	3	—	$\mathbb{G}_{10}^{(h,B_u,3)}$	Gh(10, Bu, 3,)	S_9
107	B_u	Bu	4	—	$\mathbb{G}_{10}^{(h,B_u,4)}$	Gh(10, Bu, 4,)	S_3
108	E_{1u}	E1u	1	0	$\mathbb{G}_{10,0}^{(h,E_{1u},1)}$	Gh(10, E1u, 1, 0)	C_7
109	E_{1u}	E1u	1	1	$\mathbb{G}_{10,1}^{(h,E_{1u},1)}$	Gh(10, E1u, 1, 1)	S_7
110	E_{1u}	E1u	2	0	$\mathbb{G}_{10,0}^{(h,E_{1u},2)}$	Gh(10, E1u, 2, 0)	C_5
111	E_{1u}	E1u	2	1	$\mathbb{G}_{10,1}^{(h,E_{1u},2)}$	Gh(10, E1u, 2, 1)	$-S_5$
112	E_{1u}	E1u	3	0	$\mathbb{G}_{10,0}^{(h,E_{1u},3)}$	Gh(10, E1u, 3, 0)	C_1
113	E_{1u}	E1u	3	1	$\mathbb{G}_{10,1}^{(h,E_{1u},3)}$	Gh(10, E1u, 3, 1)	S_1
114	E_{2u}	E2u	1	0	$\mathbb{G}_{10,0}^{(h,E_{2u},1)}$	Gh(10, E2u, 1, 0)	C_{10}
115	E_{2u}	E2u	1	1	$\mathbb{G}_{10,1}^{(h,E_{2u},1)}$	Gh(10, E2u, 1, 1)	S_{10}
116	E_{2u}	E2u	2	0	$\mathbb{G}_{10,0}^{(h,E_{2u},2)}$	Gh(10, E2u, 2, 0)	C_8
117	E_{2u}	E2u	2	1	$\mathbb{G}_{10,1}^{(h,E_{2u},2)}$	Gh(10, E2u, 2, 1)	$-S_8$
118	E_{2u}	E2u	3	0	$\mathbb{G}_{10,0}^{(h,E_{2u},3)}$	Gh(10, E2u, 3, 0)	C_4
119	E_{2u}	E2u	3	1	$\mathbb{G}_{10,1}^{(h,E_{2u},3)}$	Gh(10, E2u, 3, 1)	S_4
120	E_{2u}	E2u	4	0	$\mathbb{G}_{10,0}^{(h,E_{2u},4)}$	Gh(10, E2u, 4, 0)	C_2
121	E_{2u}	E2u	4	1	$\mathbb{G}_{10,1}^{(h,E_{2u},4)}$	Gh(10, E2u, 4, 1)	$-S_2$

表 12 rank 11

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
122	A_g	Ag	1	—	$\mathbb{G}_{11}^{(h,A_g,1)}$	Gh(11, Ag, 1,)	S_6
123	A_g	Ag	2	—	$\mathbb{G}_{11}^{(h,A_g,2)}$	Gh(11, Ag, 2,)	C_0
124	A_g	Ag	3	—	$\mathbb{G}_{11}^{(h,A_g,3)}$	Gh(11, Ag, 3,)	C_6
125	B_g	Bg	1	—	$\mathbb{G}_{11}^{(h,B_g,1)}$	Gh(11, Bg, 1,)	S_9
126	B_g	Bg	2	—	$\mathbb{G}_{11}^{(h,B_g,2)}$	Gh(11, Bg, 2,)	S_3
127	B_g	Bg	3	—	$\mathbb{G}_{11}^{(h,B_g,3)}$	Gh(11, Bg, 3,)	C_9
128	B_g	Bg	4	—	$\mathbb{G}_{11}^{(h,B_g,4)}$	Gh(11, Bg, 4,)	C_3
129	E_{1g}	E1g	1	0	$\mathbb{G}_{11,0}^{(h,E_{1g},1)}$	Gh(11, E1g, 1, 0)	C_{11}
130	E_{1g}	E1g	1	1	$\mathbb{G}_{11,1}^{(h,E_{1g},1)}$	Gh(11, E1g, 1, 1)	$-S_{11}$
131	E_{1g}	E1g	2	0	$\mathbb{G}_{11,0}^{(h,E_{1g},2)}$	Gh(11, E1g, 2, 0)	C_7
132	E_{1g}	E1g	2	1	$\mathbb{G}_{11,1}^{(h,E_{1g},2)}$	Gh(11, E1g, 2, 1)	S_7
133	E_{1g}	E1g	3	0	$\mathbb{G}_{11,0}^{(h,E_{1g},3)}$	Gh(11, E1g, 3, 0)	C_5
134	E_{1g}	E1g	3	1	$\mathbb{G}_{11,1}^{(h,E_{1g},3)}$	Gh(11, E1g, 3, 1)	$-S_5$
135	E_{1g}	E1g	4	0	$\mathbb{G}_{11,0}^{(h,E_{1g},4)}$	Gh(11, E1g, 4, 0)	C_1
136	E_{1g}	E1g	4	1	$\mathbb{G}_{11,1}^{(h,E_{1g},4)}$	Gh(11, E1g, 4, 1)	S_1
137	E_{2g}	E2g	1	0	$\mathbb{G}_{11,0}^{(h,E_{2g},1)}$	Gh(11, E2g, 1, 0)	C_{10}
138	E_{2g}	E2g	1	1	$\mathbb{G}_{11,1}^{(h,E_{2g},1)}$	Gh(11, E2g, 1, 1)	S_{10}
139	E_{2g}	E2g	2	0	$\mathbb{G}_{11,0}^{(h,E_{2g},2)}$	Gh(11, E2g, 2, 0)	C_8
140	E_{2g}	E2g	2	1	$\mathbb{G}_{11,1}^{(h,E_{2g},2)}$	Gh(11, E2g, 2, 1)	$-S_8$
141	E_{2g}	E2g	3	0	$\mathbb{G}_{11,0}^{(h,E_{2g},3)}$	Gh(11, E2g, 3, 0)	C_4
142	E_{2g}	E2g	3	1	$\mathbb{G}_{11,1}^{(h,E_{2g},3)}$	Gh(11, E2g, 3, 1)	S_4
143	E_{2g}	E2g	4	0	$\mathbb{G}_{11,0}^{(h,E_{2g},4)}$	Gh(11, E2g, 4, 0)	C_2
144	E_{2g}	E2g	4	1	$\mathbb{G}_{11,1}^{(h,E_{2g},4)}$	Gh(11, E2g, 4, 1)	$-S_2$