

No. 27 D_{6h} $6/mmm$ [hexagonal] (axial)

表 1 rank 0

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
1	A_{1u}	A1u	—	—	$\mathbb{G}_0^{(h,A_{1u})}$	Gh(0, A1u, ,)	C_0

表 2 rank 1

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
2	A_{2g}	A2g	—	—	$\mathbb{G}_1^{(h,A_{2g})}$	Gh(1, A2g, ,)	C_0
3	E_{1g}	E1g	—	0	$\mathbb{G}_{1,0}^{(h,E_{1g})}$	Gh(1, E1g, , 0)	$-S_1$
4	E_{1g}	E1g	—	1	$\mathbb{G}_{1,1}^{(h,E_{1g})}$	Gh(1, E1g, , 1)	C_1

表 3 rank 2

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
5	A_{1u}	A1u	—	—	$\mathbb{G}_2^{(h,A_{1u})}$	Gh(2, A1u, ,)	C_0
6	E_{1u}	E1u	—	0	$\mathbb{G}_{2,0}^{(h,E_{1u})}$	Gh(2, E1u, , 0)	$-S_1$
7	E_{1u}	E1u	—	1	$\mathbb{G}_{2,1}^{(h,E_{1u})}$	Gh(2, E1u, , 1)	C_1
8	E_{2u}	E2u	—	0	$\mathbb{G}_{2,0}^{(h,E_{2u})}$	Gh(2, E2u, , 0)	S_2
9	E_{2u}	E2u	—	1	$\mathbb{G}_{2,1}^{(h,E_{2u})}$	Gh(2, E2u, , 1)	C_2

表 4 rank 3

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
10	A_{2g}	A2g	—	—	$\mathbb{G}_3^{(h,A_{2g})}$	Gh(3, A2g, ,)	C_0
11	B_{1g}	B1g	—	—	$\mathbb{G}_3^{(h,B_{1g})}$	Gh(3, B1g, ,)	S_3
12	B_{2g}	B2g	—	—	$\mathbb{G}_3^{(h,B_{2g})}$	Gh(3, B2g, ,)	C_3
13	E_{1g}	E1g	—	0	$\mathbb{G}_{3,0}^{(h,E_{1g})}$	Gh(3, E1g, , 0)	$-S_1$
14	E_{1g}	E1g	—	1	$\mathbb{G}_{3,1}^{(h,E_{1g})}$	Gh(3, E1g, , 1)	C_1
15	E_{2g}	E2g	—	0	$\mathbb{G}_{3,0}^{(h,E_{2g})}$	Gh(3, E2g, , 0)	S_2
16	E_{2g}	E2g	—	1	$\mathbb{G}_{3,1}^{(h,E_{2g})}$	Gh(3, E2g, , 1)	C_2

表 5 rank 4

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
17	A_{1u}	A1u	—	—	$\mathbb{G}_4^{(h,A_{1u})}$	Gh(4, A1u, ,)	C_0
18	B_{1u}	B1u	—	—	$\mathbb{G}_4^{(h,B_{1u})}$	Gh(4, B1u, ,)	C_3
19	B_{2u}	B2u	—	—	$\mathbb{G}_4^{(h,B_{2u})}$	Gh(4, B2u, ,)	S_3
20	E_{1u}	E1u	—	0	$\mathbb{G}_{4,0}^{(h,E_{1u})}$	Gh(4, E1u, , 0)	$-S_1$
21	E_{1u}	E1u	—	1	$\mathbb{G}_{4,1}^{(h,E_{1u})}$	Gh(4, E1u, , 1)	C_1
22	E_{2u}	E2u	1	0	$\mathbb{G}_{4,0}^{(h,E_{2u},1)}$	Gh(4, E2u, 1, 0)	$-S_4$
23	E_{2u}	E2u	1	1	$\mathbb{G}_{4,1}^{(h,E_{2u},1)}$	Gh(4, E2u, 1, 1)	C_4
24	E_{2u}	E2u	2	0	$\mathbb{G}_{4,0}^{(h,E_{2u},2)}$	Gh(4, E2u, 2, 0)	S_2
25	E_{2u}	E2u	2	1	$\mathbb{G}_{4,1}^{(h,E_{2u},2)}$	Gh(4, E2u, 2, 1)	C_2

表 6 rank 5

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
26	A_{2g}	A2g	—	—	$\mathbb{G}_5^{(h,A_{2g})}$	Gh(5, A2g, ,)	C_0
27	B_{1g}	B1g	—	—	$\mathbb{G}_5^{(h,B_{1g})}$	Gh(5, B1g, ,)	S_3
28	B_{2g}	B2g	—	—	$\mathbb{G}_5^{(h,B_{2g})}$	Gh(5, B2g, ,)	C_3
29	E_{1g}	E1g	1	0	$\mathbb{G}_{5,0}^{(h,E_{1g},1)}$	Gh(5, E1g, 1, 0)	S_5
30	E_{1g}	E1g	1	1	$\mathbb{G}_{5,1}^{(h,E_{1g},1)}$	Gh(5, E1g, 1, 1)	C_5
31	E_{1g}	E1g	2	0	$\mathbb{G}_{5,0}^{(h,E_{1g},2)}$	Gh(5, E1g, 2, 0)	$-S_1$
32	E_{1g}	E1g	2	1	$\mathbb{G}_{5,1}^{(h,E_{1g},2)}$	Gh(5, E1g, 2, 1)	C_1
33	E_{2g}	E2g	1	0	$\mathbb{G}_{5,0}^{(h,E_{2g},1)}$	Gh(5, E2g, 1, 0)	$-S_4$
34	E_{2g}	E2g	1	1	$\mathbb{G}_{5,1}^{(h,E_{2g},1)}$	Gh(5, E2g, 1, 1)	C_4
35	E_{2g}	E2g	2	0	$\mathbb{G}_{5,0}^{(h,E_{2g},2)}$	Gh(5, E2g, 2, 0)	S_2
36	E_{2g}	E2g	2	1	$\mathbb{G}_{5,1}^{(h,E_{2g},2)}$	Gh(5, E2g, 2, 1)	C_2

表 7 rank 6

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
37	A_{1u}	A1u	1	—	$\mathbb{G}_6^{(h,A_{1u},1)}$	Gh(6, A1u, 1,)	C_0
38	A_{1u}	A1u	2	—	$\mathbb{G}_6^{(h,A_{1u},2)}$	Gh(6, A1u, 2,)	C_6
39	A_{2u}	A2u	—	—	$\mathbb{G}_6^{(h,A_{2u})}$	Gh(6, A2u, ,)	S_6
40	B_{1u}	B1u	—	—	$\mathbb{G}_6^{(h,B_{1u})}$	Gh(6, B1u, ,)	C_3
41	B_{2u}	B2u	—	—	$\mathbb{G}_6^{(h,B_{2u})}$	Gh(6, B2u, ,)	S_3
42	E_{1u}	E1u	1	0	$\mathbb{G}_{6,0}^{(h,E_{1u},1)}$	Gh(6, E1u, 1, 0)	S_5
43	E_{1u}	E1u	1	1	$\mathbb{G}_{6,1}^{(h,E_{1u},1)}$	Gh(6, E1u, 1, 1)	C_5
44	E_{1u}	E1u	2	0	$\mathbb{G}_{6,0}^{(h,E_{1u},2)}$	Gh(6, E1u, 2, 0)	$-S_1$
45	E_{1u}	E1u	2	1	$\mathbb{G}_{6,1}^{(h,E_{1u},2)}$	Gh(6, E1u, 2, 1)	C_1
46	E_{2u}	E2u	1	0	$\mathbb{G}_{6,0}^{(h,E_{2u},1)}$	Gh(6, E2u, 1, 0)	$-S_4$
47	E_{2u}	E2u	1	1	$\mathbb{G}_{6,1}^{(h,E_{2u},1)}$	Gh(6, E2u, 1, 1)	C_4
48	E_{2u}	E2u	2	0	$\mathbb{G}_{6,0}^{(h,E_{2u},2)}$	Gh(6, E2u, 2, 0)	S_2
49	E_{2u}	E2u	2	1	$\mathbb{G}_{6,1}^{(h,E_{2u},2)}$	Gh(6, E2u, 2, 1)	C_2

表 8 rank 7

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
50	A_{1g}	A1g	—	—	$\mathbb{G}_7^{(h,A_{1g})}$	Gh(7, A1g, ,)	S_6
51	A_{2g}	A2g	1	—	$\mathbb{G}_7^{(h,A_{2g},1)}$	Gh(7, A2g, 1,)	C_0
52	A_{2g}	A2g	2	—	$\mathbb{G}_7^{(h,A_{2g},2)}$	Gh(7, A2g, 2,)	C_6
53	B_{1g}	B1g	—	—	$\mathbb{G}_7^{(h,B_{1g})}$	Gh(7, B1g, ,)	S_3
54	B_{2g}	B2g	—	—	$\mathbb{G}_7^{(h,B_{2g})}$	Gh(7, B2g, ,)	C_3
55	E_{1g}	E1g	1	0	$\mathbb{G}_{7,0}^{(h,E_{1g},1)}$	Gh(7, E1g, 1, 0)	$-S_7$
56	E_{1g}	E1g	1	1	$\mathbb{G}_{7,1}^{(h,E_{1g},1)}$	Gh(7, E1g, 1, 1)	C_7
57	E_{1g}	E1g	2	0	$\mathbb{G}_{7,0}^{(h,E_{1g},2)}$	Gh(7, E1g, 2, 0)	S_5
58	E_{1g}	E1g	2	1	$\mathbb{G}_{7,1}^{(h,E_{1g},2)}$	Gh(7, E1g, 2, 1)	C_5
59	E_{1g}	E1g	3	0	$\mathbb{G}_{7,0}^{(h,E_{1g},3)}$	Gh(7, E1g, 3, 0)	$-S_1$
60	E_{1g}	E1g	3	1	$\mathbb{G}_{7,1}^{(h,E_{1g},3)}$	Gh(7, E1g, 3, 1)	C_1
61	E_{2g}	E2g	1	0	$\mathbb{G}_{7,0}^{(h,E_{2g},1)}$	Gh(7, E2g, 1, 0)	$-S_4$
62	E_{2g}	E2g	1	1	$\mathbb{G}_{7,1}^{(h,E_{2g},1)}$	Gh(7, E2g, 1, 1)	C_4
63	E_{2g}	E2g	2	0	$\mathbb{G}_{7,0}^{(h,E_{2g},2)}$	Gh(7, E2g, 2, 0)	S_2
64	E_{2g}	E2g	2	1	$\mathbb{G}_{7,1}^{(h,E_{2g},2)}$	Gh(7, E2g, 2, 1)	C_2

表 9 rank 8

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
65	A_{1u}	A1u	1	—	$\mathbb{G}_8^{(h,A_{1u},1)}$	Gh(8, A1u, 1,)	C_0
66	A_{1u}	A1u	2	—	$\mathbb{G}_8^{(h,A_{1u},2)}$	Gh(8, A1u, 2,)	C_6
67	A_{2u}	A2u	—	—	$\mathbb{G}_8^{(h,A_{2u})}$	Gh(8, A2u, ,)	S_6
68	B_{1u}	B1u	—	—	$\mathbb{G}_8^{(h,B_{1u})}$	Gh(8, B1u, ,)	C_3
69	B_{2u}	B2u	—	—	$\mathbb{G}_8^{(h,B_{2u})}$	Gh(8, B2u, ,)	S_3
70	E_{1u}	E1u	1	0	$\mathbb{G}_{8,0}^{(h,E_{1u},1)}$	Gh(8, E1u, 1, 0)	$-S_7$
71	E_{1u}	E1u	1	1	$\mathbb{G}_{8,1}^{(h,E_{1u},1)}$	Gh(8, E1u, 1, 1)	C_7
72	E_{1u}	E1u	2	0	$\mathbb{G}_{8,0}^{(h,E_{1u},2)}$	Gh(8, E1u, 2, 0)	S_5
73	E_{1u}	E1u	2	1	$\mathbb{G}_{8,1}^{(h,E_{1u},2)}$	Gh(8, E1u, 2, 1)	C_5
74	E_{1u}	E1u	3	0	$\mathbb{G}_{8,0}^{(h,E_{1u},3)}$	Gh(8, E1u, 3, 0)	$-S_1$
75	E_{1u}	E1u	3	1	$\mathbb{G}_{8,1}^{(h,E_{1u},3)}$	Gh(8, E1u, 3, 1)	C_1
76	E_{2u}	E2u	1	0	$\mathbb{G}_{8,0}^{(h,E_{2u},1)}$	Gh(8, E2u, 1, 0)	S_8
77	E_{2u}	E2u	1	1	$\mathbb{G}_{8,1}^{(h,E_{2u},1)}$	Gh(8, E2u, 1, 1)	C_8
78	E_{2u}	E2u	2	0	$\mathbb{G}_{8,0}^{(h,E_{2u},2)}$	Gh(8, E2u, 2, 0)	$-S_4$
79	E_{2u}	E2u	2	1	$\mathbb{G}_{8,1}^{(h,E_{2u},2)}$	Gh(8, E2u, 2, 1)	C_4
80	E_{2u}	E2u	3	0	$\mathbb{G}_{8,0}^{(h,E_{2u},3)}$	Gh(8, E2u, 3, 0)	S_2
81	E_{2u}	E2u	3	1	$\mathbb{G}_{8,1}^{(h,E_{2u},3)}$	Gh(8, E2u, 3, 1)	C_2

表 10 rank 9

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
82	A_{1g}	A1g	—	—	$\mathbb{G}_9^{(h,A_{1g})}$	Gh(9, A1g, ,)	S_6
83	A_{2g}	A2g	1	—	$\mathbb{G}_9^{(h,A_{2g},1)}$	Gh(9, A2g, 1,)	C_0
84	A_{2g}	A2g	2	—	$\mathbb{G}_9^{(h,A_{2g},2)}$	Gh(9, A2g, 2,)	C_6
85	B_{1g}	B1g	1	—	$\mathbb{G}_9^{(h,B_{1g},1)}$	Gh(9, B1g, 1,)	S_9
86	B_{1g}	B1g	2	—	$\mathbb{G}_9^{(h,B_{1g},2)}$	Gh(9, B1g, 2,)	S_3
87	B_{2g}	B2g	1	—	$\mathbb{G}_9^{(h,B_{2g},1)}$	Gh(9, B2g, 1,)	C_9
88	B_{2g}	B2g	2	—	$\mathbb{G}_9^{(h,B_{2g},2)}$	Gh(9, B2g, 2,)	C_3
89	E_{1g}	E1g	1	0	$\mathbb{G}_{9,0}^{(h,E_{1g},1)}$	Gh(9, E1g, 1, 0)	$-S_7$
90	E_{1g}	E1g	1	1	$\mathbb{G}_{9,1}^{(h,E_{1g},1)}$	Gh(9, E1g, 1, 1)	C_7
91	E_{1g}	E1g	2	0	$\mathbb{G}_{9,0}^{(h,E_{1g},2)}$	Gh(9, E1g, 2, 0)	S_5
92	E_{1g}	E1g	2	1	$\mathbb{G}_{9,1}^{(h,E_{1g},2)}$	Gh(9, E1g, 2, 1)	C_5
93	E_{1g}	E1g	3	0	$\mathbb{G}_{9,0}^{(h,E_{1g},3)}$	Gh(9, E1g, 3, 0)	$-S_1$
94	E_{1g}	E1g	3	1	$\mathbb{G}_{9,1}^{(h,E_{1g},3)}$	Gh(9, E1g, 3, 1)	C_1
95	E_{2g}	E2g	1	0	$\mathbb{G}_{9,0}^{(h,E_{2g},1)}$	Gh(9, E2g, 1, 0)	S_8
96	E_{2g}	E2g	1	1	$\mathbb{G}_{9,1}^{(h,E_{2g},1)}$	Gh(9, E2g, 1, 1)	C_8
97	E_{2g}	E2g	2	0	$\mathbb{G}_{9,0}^{(h,E_{2g},2)}$	Gh(9, E2g, 2, 0)	$-S_4$
98	E_{2g}	E2g	2	1	$\mathbb{G}_{9,1}^{(h,E_{2g},2)}$	Gh(9, E2g, 2, 1)	C_4
99	E_{2g}	E2g	3	0	$\mathbb{G}_{9,0}^{(h,E_{2g},3)}$	Gh(9, E2g, 3, 0)	S_2
100	E_{2g}	E2g	3	1	$\mathbb{G}_{9,1}^{(h,E_{2g},3)}$	Gh(9, E2g, 3, 1)	C_2

表 11 rank 10

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
101	A_{1u}	A1u	1	—	$\mathbb{G}_{10}^{(h,A_{1u},1)}$	Gh(10, A1u, 1,)	C_0
102	A_{1u}	A1u	2	—	$\mathbb{G}_{10}^{(h,A_{1u},2)}$	Gh(10, A1u, 2,)	C_6
103	A_{2u}	A2u	—	—	$\mathbb{G}_{10}^{(h,A_{2u})}$	Gh(10, A2u, ,)	S_6
104	B_{1u}	B1u	1	—	$\mathbb{G}_{10}^{(h,B_{1u},1)}$	Gh(10, B1u, 1,)	C_9
105	B_{1u}	B1u	2	—	$\mathbb{G}_{10}^{(h,B_{1u},2)}$	Gh(10, B1u, 2,)	C_3
106	B_{2u}	B2u	1	—	$\mathbb{G}_{10}^{(h,B_{2u},1)}$	Gh(10, B2u, 1,)	S_9
107	B_{2u}	B2u	2	—	$\mathbb{G}_{10}^{(h,B_{2u},2)}$	Gh(10, B2u, 2,)	S_3
108	E_{1u}	E1u	1	0	$\mathbb{G}_{10,0}^{(h,E_{1u},1)}$	Gh(10, E1u, 1, 0)	$-S_7$
109	E_{1u}	E1u	1	1	$\mathbb{G}_{10,1}^{(h,E_{1u},1)}$	Gh(10, E1u, 1, 1)	C_7
110	E_{1u}	E1u	2	0	$\mathbb{G}_{10,0}^{(h,E_{1u},2)}$	Gh(10, E1u, 2, 0)	S_5
111	E_{1u}	E1u	2	1	$\mathbb{G}_{10,1}^{(h,E_{1u},2)}$	Gh(10, E1u, 2, 1)	C_5
112	E_{1u}	E1u	3	0	$\mathbb{G}_{10,0}^{(h,E_{1u},3)}$	Gh(10, E1u, 3, 0)	$-S_1$
113	E_{1u}	E1u	3	1	$\mathbb{G}_{10,1}^{(h,E_{1u},3)}$	Gh(10, E1u, 3, 1)	C_1
114	E_{2u}	E2u	1	0	$\mathbb{G}_{10,0}^{(h,E_{2u},1)}$	Gh(10, E2u, 1, 0)	$-S_{10}$
115	E_{2u}	E2u	1	1	$\mathbb{G}_{10,1}^{(h,E_{2u},1)}$	Gh(10, E2u, 1, 1)	C_{10}
116	E_{2u}	E2u	2	0	$\mathbb{G}_{10,0}^{(h,E_{2u},2)}$	Gh(10, E2u, 2, 0)	S_8
117	E_{2u}	E2u	2	1	$\mathbb{G}_{10,1}^{(h,E_{2u},2)}$	Gh(10, E2u, 2, 1)	C_8
118	E_{2u}	E2u	3	0	$\mathbb{G}_{10,0}^{(h,E_{2u},3)}$	Gh(10, E2u, 3, 0)	$-S_4$
119	E_{2u}	E2u	3	1	$\mathbb{G}_{10,1}^{(h,E_{2u},3)}$	Gh(10, E2u, 3, 1)	C_4
120	E_{2u}	E2u	4	0	$\mathbb{G}_{10,0}^{(h,E_{2u},4)}$	Gh(10, E2u, 4, 0)	S_2
121	E_{2u}	E2u	4	1	$\mathbb{G}_{10,1}^{(h,E_{2u},4)}$	Gh(10, E2u, 4, 1)	C_2

表 12 rank 11

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
122	A_{1g}	A1g	—	—	$\mathbb{G}_{11}^{(h,A_{1g})}$	Gh(11, A1g, ,)	S_6
123	A_{2g}	A2g	1	—	$\mathbb{G}_{11}^{(h,A_{2g},1)}$	Gh(11, A2g, 1,)	C_0
124	A_{2g}	A2g	2	—	$\mathbb{G}_{11}^{(h,A_{2g},2)}$	Gh(11, A2g, 2,)	C_6
125	B_{1g}	B1g	1	—	$\mathbb{G}_{11}^{(h,B_{1g},1)}$	Gh(11, B1g, 1,)	S_9
126	B_{1g}	B1g	2	—	$\mathbb{G}_{11}^{(h,B_{1g},2)}$	Gh(11, B1g, 2,)	S_3
127	B_{2g}	B2g	1	—	$\mathbb{G}_{11}^{(h,B_{2g},1)}$	Gh(11, B2g, 1,)	C_9
128	B_{2g}	B2g	2	—	$\mathbb{G}_{11}^{(h,B_{2g},2)}$	Gh(11, B2g, 2,)	C_3
129	E_{1g}	E1g	1	0	$\mathbb{G}_{11,0}^{(h,E_{1g},1)}$	Gh(11, E1g, 1, 0)	S_{11}
130	E_{1g}	E1g	1	1	$\mathbb{G}_{11,1}^{(h,E_{1g},1)}$	Gh(11, E1g, 1, 1)	C_{11}
131	E_{1g}	E1g	2	0	$\mathbb{G}_{11,0}^{(h,E_{1g},2)}$	Gh(11, E1g, 2, 0)	$-S_7$
132	E_{1g}	E1g	2	1	$\mathbb{G}_{11,1}^{(h,E_{1g},2)}$	Gh(11, E1g, 2, 1)	C_7
133	E_{1g}	E1g	3	0	$\mathbb{G}_{11,0}^{(h,E_{1g},3)}$	Gh(11, E1g, 3, 0)	S_5
134	E_{1g}	E1g	3	1	$\mathbb{G}_{11,1}^{(h,E_{1g},3)}$	Gh(11, E1g, 3, 1)	C_5
135	E_{1g}	E1g	4	0	$\mathbb{G}_{11,0}^{(h,E_{1g},4)}$	Gh(11, E1g, 4, 0)	$-S_1$
136	E_{1g}	E1g	4	1	$\mathbb{G}_{11,1}^{(h,E_{1g},4)}$	Gh(11, E1g, 4, 1)	C_1
137	E_{2g}	E2g	1	0	$\mathbb{G}_{11,0}^{(h,E_{2g},1)}$	Gh(11, E2g, 1, 0)	$-S_{10}$
138	E_{2g}	E2g	1	1	$\mathbb{G}_{11,1}^{(h,E_{2g},1)}$	Gh(11, E2g, 1, 1)	C_{10}
139	E_{2g}	E2g	2	0	$\mathbb{G}_{11,0}^{(h,E_{2g},2)}$	Gh(11, E2g, 2, 0)	S_8
140	E_{2g}	E2g	2	1	$\mathbb{G}_{11,1}^{(h,E_{2g},2)}$	Gh(11, E2g, 2, 1)	C_8
141	E_{2g}	E2g	3	0	$\mathbb{G}_{11,0}^{(h,E_{2g},3)}$	Gh(11, E2g, 3, 0)	$-S_4$
142	E_{2g}	E2g	3	1	$\mathbb{G}_{11,1}^{(h,E_{2g},3)}$	Gh(11, E2g, 3, 1)	C_4
143	E_{2g}	E2g	4	0	$\mathbb{G}_{11,0}^{(h,E_{2g},4)}$	Gh(11, E2g, 4, 0)	S_2
144	E_{2g}	E2g	4	1	$\mathbb{G}_{11,1}^{(h,E_{2g},4)}$	Gh(11, E2g, 4, 1)	C_2