No. 17 C_{3i} -3 [trigonal] (polar)

表1 rank 0

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
1	A_g	Ag	–	–	$\mathbb{Q}_0^{(h,A_g)}$	Qh(0,Ag,,)	C_0

表2 rank 1

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
2	A_u	Au	–	–	$\mathbb{Q}_1^{(h,A_u)}$	Qh(1,Au,,)	C_0
3	E_u	Eu	–	0	$\mathbb{Q}_{1,0}^{(h,E_u)}$	Qh(1,Eu,,0)	C_1
4	E_u	Eu	–	1	$\mathbb{Q}_{1,1}^{(h,E_u)}$	Qh(1,Eu,,1)	S_1

表3 rank 2

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
5	A_g	Ag	–	–	$\mathbb{Q}_2^{(h,A_g)}$	Qh(2,Ag,,)	C_0
6	E_g	Eg	1	0	$\mathbb{Q}_{2,0}^{(h,E_g,1)}$	Qh(2,Eg,1,0)	C_1
7	E_g	Eg	1	1	$\mathbb{Q}_{2,1}^{(h,E_g,1)}$	Qh(2,Eg,1,1)	S_1
8	E_g	Eg	2	0	$\mathbb{Q}_{2,0}^{(h,E_g,2)}$	Qh(2,Eg,2,0)	C_2
9	E_g	Eg	2	1	$\mathbb{Q}_{2,1}^{(h,E_g,2)}$	Qh(2,Eg,2,1)	$-S_2$

表4 rank 3

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
10	A_u	Au	1	–	$\mathbb{Q}_3^{(h,A_u,1)}$	Qh(3,Au,1,)	C_0
11	A_u	Au	2	–	$\mathbb{Q}_3^{(h,A_u,2)}$	Qh(3,Au,2,)	S_3
12	A_u	Au	3	–	$\mathbb{Q}_3^{(h,A_u,3)}$	Qh(3,Au,3,)	C_3
13	E_u	Eu	1	0	$\mathbb{Q}_{3,0}^{(h,E_u,1)}$	Qh(3,Eu,1,0)	C_1
14	E_u	Eu	1	1	$\mathbb{Q}_{3,1}^{(h,E_u,1)}$	Qh(3,Eu,1,1)	S_1
15	E_u	Eu	2	0	$\mathbb{Q}_{3,0}^{(h,E_u,2)}$	Qh(3,Eu,2,0)	C_2
16	E_u	Eu	2	1	$\mathbb{Q}_{3,1}^{(h,E_u,2)}$	Qh(3,Eu,2,1)	$-S_2$

表5 rank 4

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
17	A_g	Ag	1	–	$\mathbb{Q}_4^{(h,A_g,1)}$	Qh(4,Ag,1,)	C_0
18	A_g	Ag	2	–	$\mathbb{Q}_4^{(h,A_g,2)}$	Qh(4,Ag,2,)	C_3
19	A_g	Ag	3	–	$\mathbb{Q}_4^{(h,A_g,3)}$	Qh(4,Ag,3,)	S_3
20	E_g	Eg	1	0	$\mathbb{Q}_{4,0}^{(h,E_g,1)}$	Qh(4,Eg,1,0)	C_1
21	E_g	Eg	1	1	$\mathbb{Q}_{4,1}^{(h,E_g,1)}$	Qh(4,Eg,1,1)	S_1
22	E_g	Eg	2	0	$\mathbb{Q}_{4,0}^{(h,E_g,2)}$	Qh(4,Eg,2,0)	C_4
23	E_g	Eg	2	1	$\mathbb{Q}_{4,1}^{(h,E_g,2)}$	Qh(4,Eg,2,1)	S_4
24	E_g	Eg	3	0	$\mathbb{Q}_{4,0}^{(h,E_g,3)}$	Qh(4,Eg,3,0)	C_2
25	E_g	Eg	3	1	$\mathbb{Q}_{4,1}^{(h,E_g,3)}$	Qh(4,Eg,3,1)	$-S_2$

表6 rank 5

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
26	A_u	Au	1	—	$\mathbb{Q}_5^{(h,A_u,1)}$	Qh(5, Au, 1,)	C_0
27	A_u	Au	2	—	$\mathbb{Q}_5^{(h,A_u,2)}$	Qh(5, Au, 2,)	S_3
28	A_u	Au	3	—	$\mathbb{Q}_5^{(h,A_u,3)}$	Qh(5, Au, 3,)	C_3
29	E_u	Eu	1	0	$\mathbb{Q}_{5,0}^{(h,E_u,1)}$	Qh(5, Eu, 1, 0)	C_5
30	E_u	Eu	1	1	$\mathbb{Q}_{5,1}^{(h,E_u,1)}$	Qh(5, Eu, 1, 1)	$-S_5$
31	E_u	Eu	2	0	$\mathbb{Q}_{5,0}^{(h,E_u,2)}$	Qh(5, Eu, 2, 0)	C_1
32	E_u	Eu	2	1	$\mathbb{Q}_{5,1}^{(h,E_u,2)}$	Qh(5, Eu, 2, 1)	S_1
33	E_u	Eu	3	0	$\mathbb{Q}_{5,0}^{(h,E_u,3)}$	Qh(5, Eu, 3, 0)	C_4
34	E_u	Eu	3	1	$\mathbb{Q}_{5,1}^{(h,E_u,3)}$	Qh(5, Eu, 3, 1)	S_4
35	E_u	Eu	4	0	$\mathbb{Q}_{5,0}^{(h,E_u,4)}$	Qh(5, Eu, 4, 0)	C_2
36	E_u	Eu	4	1	$\mathbb{Q}_{5,1}^{(h,E_u,4)}$	Qh(5, Eu, 4, 1)	$-S_2$

表7 rank 6

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
37	A_g	Ag	1	—	$\mathbb{Q}_6^{(h,A_g,1)}$	Qh(6, Ag, 1,)	C_0
38	A_g	Ag	2	—	$\mathbb{Q}_6^{(h,A_g,2)}$	Qh(6, Ag, 2,)	C_6
39	A_g	Ag	3	—	$\mathbb{Q}_6^{(h,A_g,3)}$	Qh(6, Ag, 3,)	S_6
40	A_g	Ag	4	—	$\mathbb{Q}_6^{(h,A_g,4)}$	Qh(6, Ag, 4,)	C_3
41	A_g	Ag	5	—	$\mathbb{Q}_6^{(h,A_g,5)}$	Qh(6, Ag, 5,)	S_3
42	E_g	Eg	1	0	$\mathbb{Q}_{6,0}^{(h,E_g,1)}$	Qh(6, Eg, 1, 0)	C_5
43	E_g	Eg	1	1	$\mathbb{Q}_{6,1}^{(h,E_g,1)}$	Qh(6, Eg, 1, 1)	$-S_5$
44	E_g	Eg	2	0	$\mathbb{Q}_{6,0}^{(h,E_g,2)}$	Qh(6, Eg, 2, 0)	C_1
45	E_g	Eg	2	1	$\mathbb{Q}_{6,1}^{(h,E_g,2)}$	Qh(6, Eg, 2, 1)	S_1
46	E_g	Eg	3	0	$\mathbb{Q}_{6,0}^{(h,E_g,3)}$	Qh(6, Eg, 3, 0)	C_4
47	E_g	Eg	3	1	$\mathbb{Q}_{6,1}^{(h,E_g,3)}$	Qh(6, Eg, 3, 1)	S_4
48	E_g	Eg	4	0	$\mathbb{Q}_{6,0}^{(h,E_g,4)}$	Qh(6, Eg, 4, 0)	C_2
49	E_g	Eg	4	1	$\mathbb{Q}_{6,1}^{(h,E_g,4)}$	Qh(6, Eg, 4, 1)	$-S_2$

表 8 rank 7

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
50	A_u	Au	1	—	$\mathbb{Q}_7^{(h,A_u,1)}$	Qh(7, Au, 1,)	S_6
51	A_u	Au	2	—	$\mathbb{Q}_7^{(h,A_u,2)}$	Qh(7, Au, 2,)	C_0
52	A_u	Au	3	—	$\mathbb{Q}_7^{(h,A_u,3)}$	Qh(7, Au, 3,)	C_6
53	A_u	Au	4	—	$\mathbb{Q}_7^{(h,A_u,4)}$	Qh(7, Au, 4,)	S_3
54	A_u	Au	5	—	$\mathbb{Q}_7^{(h,A_u,5)}$	Qh(7, Au, 5,)	C_3
55	E_u	Eu	1	0	$\mathbb{Q}_{7,0}^{(h,E_u,1)}$	Qh(7, Eu, 1, 0)	C_7
56	E_u	Eu	1	1	$\mathbb{Q}_{7,1}^{(h,E_u,1)}$	Qh(7, Eu, 1, 1)	S_7
57	E_u	Eu	2	0	$\mathbb{Q}_{7,0}^{(h,E_u,2)}$	Qh(7, Eu, 2, 0)	C_5
58	E_u	Eu	2	1	$\mathbb{Q}_{7,1}^{(h,E_u,2)}$	Qh(7, Eu, 2, 1)	$-S_5$
59	E_u	Eu	3	0	$\mathbb{Q}_{7,0}^{(h,E_u,3)}$	Qh(7, Eu, 3, 0)	C_1
60	E_u	Eu	3	1	$\mathbb{Q}_{7,1}^{(h,E_u,3)}$	Qh(7, Eu, 3, 1)	S_1
61	E_u	Eu	4	0	$\mathbb{Q}_{7,0}^{(h,E_u,4)}$	Qh(7, Eu, 4, 0)	C_4
62	E_u	Eu	4	1	$\mathbb{Q}_{7,1}^{(h,E_u,4)}$	Qh(7, Eu, 4, 1)	S_4
63	E_u	Eu	5	0	$\mathbb{Q}_{7,0}^{(h,E_u,5)}$	Qh(7, Eu, 5, 0)	C_2
64	E_u	Eu	5	1	$\mathbb{Q}_{7,1}^{(h,E_u,5)}$	Qh(7, Eu, 5, 1)	$-S_2$

表 9 rank 8

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
65	A_g	Ag	1	—	$\mathbb{Q}_8^{(h,A_g,1)}$	Qh(8, Ag, 1,)	C_0
66	A_g	Ag	2	—	$\mathbb{Q}_8^{(h,A_g,2)}$	Qh(8, Ag, 2,)	C_6
67	A_g	Ag	3	—	$\mathbb{Q}_8^{(h,A_g,3)}$	Qh(8, Ag, 3,)	S_6
68	A_g	Ag	4	—	$\mathbb{Q}_8^{(h,A_g,4)}$	Qh(8, Ag, 4,)	C_3
69	A_g	Ag	5	—	$\mathbb{Q}_8^{(h,A_g,5)}$	Qh(8, Ag, 5,)	S_3
70	E_g	Eg	1	0	$\mathbb{Q}_{8,0}^{(h,E_g,1)}$	Qh(8, Eg, 1, 0)	C_7
71	E_g	Eg	1	1	$\mathbb{Q}_{8,1}^{(h,E_g,1)}$	Qh(8, Eg, 1, 1)	S_7
72	E_g	Eg	2	0	$\mathbb{Q}_{8,0}^{(h,E_g,2)}$	Qh(8, Eg, 2, 0)	C_5
73	E_g	Eg	2	1	$\mathbb{Q}_{8,1}^{(h,E_g,2)}$	Qh(8, Eg, 2, 1)	$-S_5$
74	E_g	Eg	3	0	$\mathbb{Q}_{8,0}^{(h,E_g,3)}$	Qh(8, Eg, 3, 0)	C_1
75	E_g	Eg	3	1	$\mathbb{Q}_{8,1}^{(h,E_g,3)}$	Qh(8, Eg, 3, 1)	S_1
76	E_g	Eg	4	0	$\mathbb{Q}_{8,0}^{(h,E_g,4)}$	Qh(8, Eg, 4, 0)	C_8
77	E_g	Eg	4	1	$\mathbb{Q}_{8,1}^{(h,E_g,4)}$	Qh(8, Eg, 4, 1)	$-S_8$
78	E_g	Eg	5	0	$\mathbb{Q}_{8,0}^{(h,E_g,5)}$	Qh(8, Eg, 5, 0)	C_4
79	E_g	Eg	5	1	$\mathbb{Q}_{8,1}^{(h,E_g,5)}$	Qh(8, Eg, 5, 1)	S_4
80	E_g	Eg	6	0	$\mathbb{Q}_{8,0}^{(h,E_g,6)}$	Qh(8, Eg, 6, 0)	C_2
81	E_g	Eg	6	1	$\mathbb{Q}_{8,1}^{(h,E_g,6)}$	Qh(8, Eg, 6, 1)	$-S_2$

表 10　rank 9

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
82	A_u	Au	1	–	$\mathbb{Q}_9^{(h,A_u,1)}$	Qh(9, Au, 1,)	S_6
83	A_u	Au	2	–	$\mathbb{Q}_9^{(h,A_u,2)}$	Qh(9, Au, 2,)	C_0
84	A_u	Au	3	–	$\mathbb{Q}_9^{(h,A_u,3)}$	Qh(9, Au, 3,)	C_6
85	A_u	Au	4	–	$\mathbb{Q}_9^{(h,A_u,4)}$	Qh(9, Au, 4,)	S_9
86	A_u	Au	5	–	$\mathbb{Q}_9^{(h,A_u,5)}$	Qh(9, Au, 5,)	S_3
87	A_u	Au	6	–	$\mathbb{Q}_9^{(h,A_u,6)}$	Qh(9, Au, 6,)	C_9
88	A_u	Au	7	–	$\mathbb{Q}_9^{(h,A_u,7)}$	Qh(9, Au, 7,)	C_3
89	E_u	Eu	1	0	$\mathbb{Q}_{9,0}^{(h,E_u,1)}$	Qh(9, Eu, 1, 0)	C_7
90	E_u	Eu	1	1	$\mathbb{Q}_{9,1}^{(h,E_u,1)}$	Qh(9, Eu, 1, 1)	S_7
91	E_u	Eu	2	0	$\mathbb{Q}_{9,0}^{(h,E_u,2)}$	Qh(9, Eu, 2, 0)	C_5
92	E_u	Eu	2	1	$\mathbb{Q}_{9,1}^{(h,E_u,2)}$	Qh(9, Eu, 2, 1)	$-S_5$
93	E_u	Eu	3	0	$\mathbb{Q}_{9,0}^{(h,E_u,3)}$	Qh(9, Eu, 3, 0)	C_1
94	E_u	Eu	3	1	$\mathbb{Q}_{9,1}^{(h,E_u,3)}$	Qh(9, Eu, 3, 1)	S_1
95	E_u	Eu	4	0	$\mathbb{Q}_{9,0}^{(h,E_u,4)}$	Qh(9, Eu, 4, 0)	C_8
96	E_u	Eu	4	1	$\mathbb{Q}_{9,1}^{(h,E_u,4)}$	Qh(9, Eu, 4, 1)	$-S_8$
97	E_u	Eu	5	0	$\mathbb{Q}_{9,0}^{(h,E_u,5)}$	Qh(9, Eu, 5, 0)	C_4
98	E_u	Eu	5	1	$\mathbb{Q}_{9,1}^{(h,E_u,5)}$	Qh(9, Eu, 5, 1)	S_4
99	E_u	Eu	6	0	$\mathbb{Q}_{9,0}^{(h,E_u,6)}$	Qh(9, Eu, 6, 0)	C_2
100	E_u	Eu	6	1	$\mathbb{Q}_{9,1}^{(h,E_u,6)}$	Qh(9, Eu, 6, 1)	$-S_2$

表 11　rank 10

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
101	A_g	Ag	1	–	$\mathbb{Q}_{10}^{(h,A_g,1)}$	Qh(10, Ag, 1,)	C_0
102	A_g	Ag	2	–	$\mathbb{Q}_{10}^{(h,A_g,2)}$	Qh(10, Ag, 2,)	C_6
103	A_g	Ag	3	–	$\mathbb{Q}_{10}^{(h,A_g,3)}$	Qh(10, Ag, 3,)	S_6
104	A_g	Ag	4	–	$\mathbb{Q}_{10}^{(h,A_g,4)}$	Qh(10, Ag, 4,)	C_9
105	A_g	Ag	5	–	$\mathbb{Q}_{10}^{(h,A_g,5)}$	Qh(10, Ag, 5,)	C_3
106	A_g	Ag	6	–	$\mathbb{Q}_{10}^{(h,A_g,6)}$	Qh(10, Ag, 6,)	S_9
107	A_g	Ag	7	–	$\mathbb{Q}_{10}^{(h,A_g,7)}$	Qh(10, Ag, 7,)	S_3
108	E_g	Eg	1	0	$\mathbb{Q}_{10,0}^{(h,E_g,1)}$	Qh(10, Eg, 1, 0)	C_7
109	E_g	Eg	1	1	$\mathbb{Q}_{10,1}^{(h,E_g,1)}$	Qh(10, Eg, 1, 1)	S_7
110	E_g	Eg	2	0	$\mathbb{Q}_{10,0}^{(h,E_g,2)}$	Qh(10, Eg, 2, 0)	C_5
111	E_g	Eg	2	1	$\mathbb{Q}_{10,1}^{(h,E_g,2)}$	Qh(10, Eg, 2, 1)	$-S_5$
112	E_g	Eg	3	0	$\mathbb{Q}_{10,0}^{(h,E_g,3)}$	Qh(10, Eg, 3, 0)	C_1
113	E_g	Eg	3	1	$\mathbb{Q}_{10,1}^{(h,E_g,3)}$	Qh(10, Eg, 3, 1)	S_1
114	E_g	Eg	4	0	$\mathbb{Q}_{10,0}^{(h,E_g,4)}$	Qh(10, Eg, 4, 0)	C_{10}
115	E_g	Eg	4	1	$\mathbb{Q}_{10,1}^{(h,E_g,4)}$	Qh(10, Eg, 4, 1)	S_{10}
116	E_g	Eg	5	0	$\mathbb{Q}_{10,0}^{(h,E_g,5)}$	Qh(10, Eg, 5, 0)	C_8
117	E_g	Eg	5	1	$\mathbb{Q}_{10,1}^{(h,E_g,5)}$	Qh(10, Eg, 5, 1)	$-S_8$
118	E_g	Eg	6	0	$\mathbb{Q}_{10,0}^{(h,E_g,6)}$	Qh(10, Eg, 6, 0)	C_4
119	E_g	Eg	6	1	$\mathbb{Q}_{10,1}^{(h,E_g,6)}$	Qh(10, Eg, 6, 1)	S_4
120	E_g	Eg	7	0	$\mathbb{Q}_{10,0}^{(h,E_g,7)}$	Qh(10, Eg, 7, 0)	C_2
121	E_g	Eg	7	1	$\mathbb{Q}_{10,1}^{(h,E_g,7)}$	Qh(10, Eg, 7, 1)	$-S_2$

表 12 rank 11

No.	irrep.	(tag)	mul.	comp.	harmonics	(tag)	definition
122	A_u	Au	1	–	$\mathbb{Q}_{11}^{(h,A_u,1)}$	Qh(11, Au, 1,)	S_6
123	A_u	Au	2	–	$\mathbb{Q}_{11}^{(h,A_u,2)}$	Qh(11, Au, 2,)	C_0
124	A_u	Au	3	–	$\mathbb{Q}_{11}^{(h,A_u,3)}$	Qh(11, Au, 3,)	C_6
125	A_u	Au	4	–	$\mathbb{Q}_{11}^{(h,A_u,4)}$	Qh(11, Au, 4,)	S_9
126	A_u	Au	5	–	$\mathbb{Q}_{11}^{(h,A_u,5)}$	Qh(11, Au, 5,)	S_3
127	A_u	Au	6	–	$\mathbb{Q}_{11}^{(h,A_u,6)}$	Qh(11, Au, 6,)	C_9
128	A_u	Au	7	–	$\mathbb{Q}_{11}^{(h,A_u,7)}$	Qh(11, Au, 7,)	C_3
129	E_u	Eu	1	0	$\mathbb{Q}_{11,0}^{(h,E_u,1)}$	Qh(11, Eu, 1, 0)	C_{11}
130	E_u	Eu	1	1	$\mathbb{Q}_{11,1}^{(h,E_u,1)}$	Qh(11, Eu, 1, 1)	$-S_{11}$
131	E_u	Eu	2	0	$\mathbb{Q}_{11,0}^{(h,E_u,2)}$	Qh(11, Eu, 2, 0)	C_7
132	E_u	Eu	2	1	$\mathbb{Q}_{11,1}^{(h,E_u,2)}$	Qh(11, Eu, 2, 1)	S_7
133	E_u	Eu	3	0	$\mathbb{Q}_{11,0}^{(h,E_u,3)}$	Qh(11, Eu, 3, 0)	C_5
134	E_u	Eu	3	1	$\mathbb{Q}_{11,1}^{(h,E_u,3)}$	Qh(11, Eu, 3, 1)	$-S_5$
135	E_u	Eu	4	0	$\mathbb{Q}_{11,0}^{(h,E_u,4)}$	Qh(11, Eu, 4, 0)	C_1
136	E_u	Eu	4	1	$\mathbb{Q}_{11,1}^{(h,E_u,4)}$	Qh(11, Eu, 4, 1)	S_1
137	E_u	Eu	5	0	$\mathbb{Q}_{11,0}^{(h,E_u,5)}$	Qh(11, Eu, 5, 0)	C_{10}
138	E_u	Eu	5	1	$\mathbb{Q}_{11,1}^{(h,E_u,5)}$	Qh(11, Eu, 5, 1)	S_{10}
139	E_u	Eu	6	0	$\mathbb{Q}_{11,0}^{(h,E_u,6)}$	Qh(11, Eu, 6, 0)	C_8
140	E_u	Eu	6	1	$\mathbb{Q}_{11,1}^{(h,E_u,6)}$	Qh(11, Eu, 6, 1)	$-S_8$
141	E_u	Eu	7	0	$\mathbb{Q}_{11,0}^{(h,E_u,7)}$	Qh(11, Eu, 7, 0)	C_4
142	E_u	Eu	7	1	$\mathbb{Q}_{11,1}^{(h,E_u,7)}$	Qh(11, Eu, 7, 1)	S_4
143	E_u	Eu	8	0	$\mathbb{Q}_{11,0}^{(h,E_u,8)}$	Qh(11, Eu, 8, 0)	C_2
144	E_u	Eu	8	1	$\mathbb{Q}_{11,1}^{(h,E_u,8)}$	Qh(11, Eu, 8, 1)	$-S_2$