

# MSG No. 209.50 $F4'32'$ [ Type III, cubic ]

Table 1: Wyckoff site: 4a, site symmetry:  $4'32'$

No.	position	mapping
1	$[0, 0, 0]$	$[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24]$
2	$[0, \frac{1}{2}, \frac{1}{2}]$	$[25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48]$
3	$[\frac{1}{2}, 0, \frac{1}{2}]$	$[49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72]$
4	$[\frac{1}{2}, \frac{1}{2}, 0]$	$[73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96]$

Table 2: Wyckoff site: 4b, site symmetry:  $4'32'$

No.	position	mapping
1	$[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}]$	$[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24]$
2	$[\frac{1}{2}, 0, 0]$	$[25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48]$
3	$[0, \frac{1}{2}, 0]$	$[49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72]$
4	$[0, 0, \frac{1}{2}]$	$[73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96]$

Table 3: Wyckoff site: 8c, site symmetry: 23.

No.	position	mapping
1	$[\frac{1}{4}, \frac{1}{4}, \frac{1}{4}]$	$[1, 5, 6, 26, 34, 35, 51, 55, 60, 76, 80, 81]$
2	$[\frac{1}{4}, \frac{3}{4}, \frac{3}{4}]$	$[2, 10, 11, 25, 29, 30, 52, 56, 57, 75, 79, 84]$
3	$[\frac{3}{4}, \frac{1}{4}, \frac{3}{4}]$	$[3, 7, 12, 28, 32, 33, 49, 53, 54, 74, 82, 83]$
4	$[\frac{3}{4}, \frac{3}{4}, \frac{1}{4}]$	$[4, 8, 9, 27, 31, 36, 50, 58, 59, 73, 77, 78]$
5	$[\frac{1}{4}, \frac{3}{4}, \frac{1}{4}]$	$[13, 18, 23, 38, 39, 43, 68, 70, 72, 88, 89, 93]$
6	$[\frac{1}{4}, \frac{1}{4}, \frac{3}{4}]$	$[14, 15, 19, 37, 42, 47, 64, 65, 69, 92, 94, 96]$
7	$[\frac{3}{4}, \frac{1}{4}, \frac{1}{4}]$	$[16, 17, 21, 44, 46, 48, 62, 63, 67, 85, 90, 95]$
8	$[\frac{3}{4}, \frac{3}{4}, \frac{3}{4}]$	$[20, 22, 24, 40, 41, 45, 61, 66, 71, 86, 87, 91]$

Table 4: Wyckoff site: 24d, site symmetry: 2.2'2'

No.	position	mapping
1	$[0, \frac{1}{4}, \frac{1}{4}]$	$[1, 21, 26, 46]$
2	$[0, \frac{3}{4}, \frac{3}{4}]$	$[2, 22, 25, 45]$
3	$[0, \frac{1}{4}, \frac{3}{4}]$	$[3, 14, 28, 37]$
4	$[0, \frac{3}{4}, \frac{1}{4}]$	$[4, 13, 27, 38]$
5	$[\frac{1}{4}, 0, \frac{1}{4}]$	$[5, 18, 60, 68]$
6	$[\frac{1}{4}, \frac{1}{4}, 0]$	$[6, 15, 81, 96]$
7	$[\frac{3}{4}, \frac{1}{4}, 0]$	$[7, 16, 83, 95]$
8	$[\frac{3}{4}, 0, \frac{1}{4}]$	$[8, 17, 58, 67]$
9	$[\frac{3}{4}, \frac{3}{4}, 0]$	$[9, 24, 78, 87]$

*continued ...*

Table 4

No.	position	mapping
10	$[\frac{1}{4}, 0, \frac{3}{4}]$	[10, 19, 56, 65]
11	$[\frac{1}{4}, \frac{3}{4}, 0]$	[11, 23, 79, 88]
12	$[\frac{3}{4}, 0, \frac{3}{4}]$	[12, 20, 53, 66]
13	$[\frac{1}{4}, \frac{1}{2}, \frac{3}{4}]$	[29, 42, 84, 92]
14	$[\frac{1}{4}, \frac{3}{4}, \frac{1}{2}]$	[30, 39, 57, 72]
15	$[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}]$	[31, 40, 59, 71]
16	$[\frac{3}{4}, \frac{1}{2}, \frac{3}{4}]$	[32, 41, 82, 91]
17	$[\frac{3}{4}, \frac{1}{4}, \frac{1}{2}]$	[33, 48, 54, 63]
18	$[\frac{1}{4}, \frac{1}{2}, \frac{1}{4}]$	[34, 43, 80, 89]
19	$[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}]$	[35, 47, 55, 64]
20	$[\frac{3}{4}, \frac{1}{2}, \frac{1}{4}]$	[36, 44, 77, 90]
21	$[\frac{1}{2}, \frac{1}{4}, \frac{3}{4}]$	[49, 69, 74, 94]
22	$[\frac{1}{2}, \frac{3}{4}, \frac{1}{4}]$	[50, 70, 73, 93]
23	$[\frac{1}{2}, \frac{1}{4}, \frac{1}{4}]$	[51, 62, 76, 85]
24	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{4}]$	[52, 61, 75, 86]

Table 5: Wyckoff site: 24e, site symmetry: 4' ..

No.	position	mapping
1	$[x, 0, 0]$	[1, 2, 13, 14]
2	$[-x, 0, 0]$	[3, 4, 21, 22]
3	$[0, x, 0]$	[5, 12, 17, 19]
4	$[0, 0, x]$	[6, 9, 16, 23]
5	$[0, 0, -x]$	[7, 11, 15, 24]
6	$[0, -x, 0]$	[8, 10, 18, 20]
7	$[x, \frac{1}{2}, \frac{1}{2}]$	[25, 26, 37, 38]
8	$[-x, \frac{1}{2}, \frac{1}{2}]$	[27, 28, 45, 46]
9	$[0, x + \frac{1}{2}, \frac{1}{2}]$	[29, 36, 41, 43]
10	$[0, \frac{1}{2}, x + \frac{1}{2}]$	[30, 33, 40, 47]
11	$[0, \frac{1}{2}, \frac{1}{2} - x]$	[31, 35, 39, 48]
12	$[0, \frac{1}{2} - x, \frac{1}{2}]$	[32, 34, 42, 44]
13	$[x + \frac{1}{2}, 0, \frac{1}{2}]$	[49, 50, 61, 62]
14	$[\frac{1}{2} - x, 0, \frac{1}{2}]$	[51, 52, 69, 70]
15	$[\frac{1}{2}, x, \frac{1}{2}]$	[53, 60, 65, 67]
16	$[\frac{1}{2}, 0, x + \frac{1}{2}]$	[54, 57, 64, 71]
17	$[\frac{1}{2}, 0, \frac{1}{2} - x]$	[55, 59, 63, 72]
18	$[\frac{1}{2}, -x, \frac{1}{2}]$	[56, 58, 66, 68]
19	$[x + \frac{1}{2}, \frac{1}{2}, 0]$	[73, 74, 85, 86]
20	$[\frac{1}{2} - x, \frac{1}{2}, 0]$	[75, 76, 93, 94]
21	$[\frac{1}{2}, x + \frac{1}{2}, 0]$	[77, 84, 89, 91]
22	$[\frac{1}{2}, \frac{1}{2}, x]$	[78, 81, 88, 95]
23	$[\frac{1}{2}, \frac{1}{2}, -x]$	[79, 83, 87, 96]
24	$[\frac{1}{2}, \frac{1}{2} - x, 0]$	[80, 82, 90, 92]

Table 6: Wyckoff site: 32f, site symmetry: .3.

No.	position	mapping
1	[x, x, x]	[1,5,6]
2	[x, -x, -x]	[2,10,11]
3	[-x, x, -x]	[3,7,12]
4	[-x, -x, x]	[4,8,9]
5	[x, -x, x]	[13,18,23]
6	[x, x, -x]	[14,15,19]
7	[-x, x, x]	[16,17,21]
8	[-x, -x, -x]	[20,22,24]
9	[x, x + $\frac{1}{2}$ , x + $\frac{1}{2}$ ]	[25,29,30]
10	[x, $\frac{1}{2}$ - x, $\frac{1}{2}$ - x]	[26,34,35]
11	[-x, x + $\frac{1}{2}$ , $\frac{1}{2}$ - x]	[27,31,36]
12	[-x, $\frac{1}{2}$ - x, x + $\frac{1}{2}$ ]	[28,32,33]
13	[x, $\frac{1}{2}$ - x, x + $\frac{1}{2}$ ]	[37,42,47]
14	[x, x + $\frac{1}{2}$ , $\frac{1}{2}$ - x]	[38,39,43]
15	[-x, x + $\frac{1}{2}$ , x + $\frac{1}{2}$ ]	[40,41,45]
16	[-x, $\frac{1}{2}$ - x, $\frac{1}{2}$ - x]	[44,46,48]
17	[x + $\frac{1}{2}$ , x, x + $\frac{1}{2}$ ]	[49,53,54]
18	[x + $\frac{1}{2}$ , -x, $\frac{1}{2}$ - x]	[50,58,59]
19	[\mathbf{\frac{1}{2}} - x, x, $\frac{1}{2}$ - x]	[51,55,60]
20	[\mathbf{\frac{1}{2}} - x, -x, x + $\frac{1}{2}$ ]	[52,56,57]
21	[x + $\frac{1}{2}$ , -x, x + $\frac{1}{2}$ ]	[61,66,71]
22	[x + $\frac{1}{2}$ , x, $\frac{1}{2}$ - x]	[62,63,67]
23	[\mathbf{\frac{1}{2}} - x, x, x + $\frac{1}{2}$ ]	[64,65,69]
24	[\mathbf{\frac{1}{2}} - x, -x, $\frac{1}{2}$ - x]	[68,70,72]
25	[x + $\frac{1}{2}$ , x + $\frac{1}{2}$ , x]	[73,77,78]
26	[x + $\frac{1}{2}$ , $\frac{1}{2}$ - x, -x]	[74,82,83]
27	[\mathbf{\frac{1}{2}} - x, x + $\frac{1}{2}$ , -x]	[75,79,84]
28	[\mathbf{\frac{1}{2}} - x, $\frac{1}{2}$ - x, x]	[76,80,81]
29	[x + $\frac{1}{2}$ , $\frac{1}{2}$ - x, x]	[85,90,95]
30	[x + $\frac{1}{2}$ , x + $\frac{1}{2}$ , -x]	[86,87,91]
31	[\mathbf{\frac{1}{2}} - x, x + $\frac{1}{2}$ , x]	[88,89,93]
32	[\mathbf{\frac{1}{2}} - x, $\frac{1}{2}$ - x, -x]	[92,94,96]

Table 7: Wyckoff site: 48g, site symmetry: ..2'

No.	position	mapping
1	[0, y, y]	[1,21]
2	[0, -y, -y]	[2,22]
3	[0, y, -y]	[3,14]
4	[0, -y, y]	[4,13]
5	[y, 0, y]	[5,18]
6	[y, y, 0]	[6,15]
7	[-y, y, 0]	[7,16]

continued ...

Table 7

No.	position	mapping
8	$[-y, 0, y]$	[8,17]
9	$[-y, -y, 0]$	[9,24]
10	$[y, 0, -y]$	[10,19]
11	$[y, -y, 0]$	[11,23]
12	$[-y, 0, -y]$	[12,20]
13	$[0, y + \frac{1}{2}, y + \frac{1}{2}]$	[25,45]
14	$[0, \frac{1}{2} - y, \frac{1}{2} - y]$	[26,46]
15	$[0, y + \frac{1}{2}, \frac{1}{2} - y]$	[27,38]
16	$[0, \frac{1}{2} - y, y + \frac{1}{2}]$	[28,37]
17	$[y, \frac{1}{2}, y + \frac{1}{2}]$	[29,42]
18	$[y, y + \frac{1}{2}, \frac{1}{2}]$	[30,39]
19	$[-y, y + \frac{1}{2}, \frac{1}{2}]$	[31,40]
20	$[-y, \frac{1}{2}, y + \frac{1}{2}]$	[32,41]
21	$[-y, \frac{1}{2} - y, \frac{1}{2}]$	[33,48]
22	$[y, \frac{1}{2}, \frac{1}{2} - y]$	[34,43]
23	$[y, \frac{1}{2} - y, \frac{1}{2}]$	[35,47]
24	$[-y, \frac{1}{2}, \frac{1}{2} - y]$	[36,44]
25	$[\frac{1}{2}, y, y + \frac{1}{2}]$	[49,69]
26	$[\frac{1}{2}, -y, \frac{1}{2} - y]$	[50,70]
27	$[\frac{1}{2}, y, \frac{1}{2} - y]$	[51,62]
28	$[\frac{1}{2}, -y, y + \frac{1}{2}]$	[52,61]
29	$[y + \frac{1}{2}, 0, y + \frac{1}{2}]$	[53,66]
30	$[y + \frac{1}{2}, y, \frac{1}{2}]$	[54,63]
31	$[\frac{1}{2} - y, y, \frac{1}{2}]$	[55,64]
32	$[\frac{1}{2} - y, 0, y + \frac{1}{2}]$	[56,65]
33	$[\frac{1}{2} - y, -y, \frac{1}{2}]$	[57,72]
34	$[y + \frac{1}{2}, 0, \frac{1}{2} - y]$	[58,67]
35	$[y + \frac{1}{2}, -y, \frac{1}{2}]$	[59,71]
36	$[\frac{1}{2} - y, 0, \frac{1}{2} - y]$	[60,68]
37	$[\frac{1}{2}, y + \frac{1}{2}, y]$	[73,93]
38	$[\frac{1}{2}, \frac{1}{2} - y, -y]$	[74,94]
39	$[\frac{1}{2}, y + \frac{1}{2}, -y]$	[75,86]
40	$[\frac{1}{2}, \frac{1}{2} - y, y]$	[76,85]
41	$[y + \frac{1}{2}, \frac{1}{2}, y]$	[77,90]
42	$[y + \frac{1}{2}, y + \frac{1}{2}, 0]$	[78,87]
43	$[\frac{1}{2} - y, y + \frac{1}{2}, 0]$	[79,88]
44	$[\frac{1}{2} - y, \frac{1}{2}, y]$	[80,89]
45	$[\frac{1}{2} - y, \frac{1}{2} - y, 0]$	[81,96]
46	$[y + \frac{1}{2}, \frac{1}{2}, -y]$	[82,91]
47	$[y + \frac{1}{2}, \frac{1}{2} - y, 0]$	[83,95]
48	$[\frac{1}{2} - y, \frac{1}{2}, -y]$	[84,92]

Table 8: Wyckoff site: 48h, site symmetry: ...2'

No.	position	mapping
1	$[\frac{1}{2}, y, y]$	[1,21]
2	$[\frac{1}{2}, -y, -y]$	[2,22]
3	$[\frac{1}{2}, y, -y]$	[3,14]
4	$[\frac{1}{2}, -y, y]$	[4,13]
5	$[y, \frac{1}{2}, y]$	[5,18]
6	$[y, y, \frac{1}{2}]$	[6,15]
7	$[-y, y, \frac{1}{2}]$	[7,16]
8	$[-y, \frac{1}{2}, y]$	[8,17]
9	$[-y, -y, \frac{1}{2}]$	[9,24]
10	$[y, \frac{1}{2}, -y]$	[10,19]
11	$[y, -y, \frac{1}{2}]$	[11,23]
12	$[-y, \frac{1}{2}, -y]$	[12,20]
13	$[\frac{1}{2}, y + \frac{1}{2}, y + \frac{1}{2}]$	[25,45]
14	$[\frac{1}{2}, \frac{1}{2} - y, \frac{1}{2} - y]$	[26,46]
15	$[\frac{1}{2}, y + \frac{1}{2}, \frac{1}{2} - y]$	[27,38]
16	$[\frac{1}{2}, \frac{1}{2} - y, y + \frac{1}{2}]$	[28,37]
17	$[y, 0, y + \frac{1}{2}]$	[29,42]
18	$[y, y + \frac{1}{2}, 0]$	[30,39]
19	$[-y, y + \frac{1}{2}, 0]$	[31,40]
20	$[-y, 0, y + \frac{1}{2}]$	[32,41]
21	$[-y, \frac{1}{2} - y, 0]$	[33,48]
22	$[y, 0, \frac{1}{2} - y]$	[34,43]
23	$[y, \frac{1}{2} - y, 0]$	[35,47]
24	$[-y, 0, \frac{1}{2} - y]$	[36,44]
25	$[0, y, y + \frac{1}{2}]$	[49,69]
26	$[0, -y, \frac{1}{2} - y]$	[50,70]
27	$[0, y, \frac{1}{2} - y]$	[51,62]
28	$[0, -y, y + \frac{1}{2}]$	[52,61]
29	$[y + \frac{1}{2}, \frac{1}{2}, y + \frac{1}{2}]$	[53,66]
30	$[y + \frac{1}{2}, y, 0]$	[54,63]
31	$[\frac{1}{2} - y, y, 0]$	[55,64]
32	$[\frac{1}{2} - y, \frac{1}{2}, y + \frac{1}{2}]$	[56,65]
33	$[\frac{1}{2} - y, -y, 0]$	[57,72]
34	$[y + \frac{1}{2}, \frac{1}{2}, \frac{1}{2} - y]$	[58,67]
35	$[y + \frac{1}{2}, -y, 0]$	[59,71]
36	$[\frac{1}{2} - y, \frac{1}{2}, \frac{1}{2} - y]$	[60,68]
37	$[0, y + \frac{1}{2}, y]$	[73,93]
38	$[0, \frac{1}{2} - y, -y]$	[74,94]
39	$[0, y + \frac{1}{2}, -y]$	[75,86]
40	$[0, \frac{1}{2} - y, y]$	[76,85]
41	$[y + \frac{1}{2}, 0, y]$	[77,90]
42	$[y + \frac{1}{2}, y + \frac{1}{2}, \frac{1}{2}]$	[78,87]
43	$[\frac{1}{2} - y, y + \frac{1}{2}, \frac{1}{2}]$	[79,88]
44	$[\frac{1}{2} - y, 0, y]$	[80,89]
45	$[\frac{1}{2} - y, \frac{1}{2} - y, \frac{1}{2}]$	[81,96]
46	$[y + \frac{1}{2}, 0, -y]$	[82,91]

*continued ...*

Table 8

No.	position	mapping
47	$[y + \frac{1}{2}, \frac{1}{2} - y, \frac{1}{2}]$	[83,95]
48	$[\frac{1}{2} - y, 0, -y]$	[84,92]

Table 9: Wyckoff site: 48i, site symmetry: 2..

No.	position	mapping
1	$[x, \frac{1}{4}, \frac{1}{4}]$	[1,26]
2	$[x, \frac{3}{4}, \frac{3}{4}]$	[2,25]
3	$[-x, \frac{1}{4}, \frac{3}{4}]$	[3,28]
4	$[-x, \frac{3}{4}, \frac{1}{4}]$	[4,27]
5	$[\frac{1}{4}, x, \frac{1}{4}]$	[5,60]
6	$[\frac{1}{4}, \frac{1}{4}, x]$	[6,81]
7	$[\frac{3}{4}, \frac{1}{4}, -x]$	[7,83]
8	$[\frac{3}{4}, -x, \frac{1}{4}]$	[8,58]
9	$[\frac{3}{4}, \frac{3}{4}, x]$	[9,78]
10	$[\frac{1}{4}, -x, \frac{3}{4}]$	[10,56]
11	$[\frac{1}{4}, \frac{3}{4}, -x]$	[11,79]
12	$[\frac{3}{4}, x, \frac{3}{4}]$	[12,53]
13	$[x, \frac{3}{4}, \frac{1}{4}]$	[13,38]
14	$[x, \frac{1}{4}, \frac{3}{4}]$	[14,37]
15	$[\frac{1}{4}, \frac{1}{4}, -x]$	[15,96]
16	$[\frac{3}{4}, \frac{1}{4}, x]$	[16,95]
17	$[\frac{3}{4}, x, \frac{1}{4}]$	[17,67]
18	$[\frac{1}{4}, -x, \frac{1}{4}]$	[18,68]
19	$[\frac{1}{4}, x, \frac{3}{4}]$	[19,65]
20	$[\frac{3}{4}, -x, \frac{3}{4}]$	[20,66]
21	$[-x, \frac{1}{4}, \frac{1}{4}]$	[21,46]
22	$[-x, \frac{3}{4}, \frac{3}{4}]$	[22,45]
23	$[\frac{1}{4}, \frac{3}{4}, x]$	[23,88]
24	$[\frac{3}{4}, \frac{3}{4}, -x]$	[24,87]
25	$[\frac{1}{4}, x + \frac{1}{2}, \frac{3}{4}]$	[29,84]
26	$[\frac{1}{4}, \frac{3}{4}, x + \frac{1}{2}]$	[30,57]
27	$[\frac{3}{4}, \frac{3}{4}, \frac{1}{2} - x]$	[31,59]
28	$[\frac{3}{4}, \frac{1}{2} - x, \frac{3}{4}]$	[32,82]
29	$[\frac{3}{4}, \frac{1}{4}, x + \frac{1}{2}]$	[33,54]
30	$[\frac{1}{4}, \frac{1}{2} - x, \frac{1}{4}]$	[34,80]
31	$[\frac{1}{4}, \frac{1}{4}, \frac{1}{2} - x]$	[35,55]
32	$[\frac{3}{4}, x + \frac{1}{2}, \frac{1}{4}]$	[36,77]
33	$[\frac{1}{4}, \frac{3}{4}, \frac{1}{2} - x]$	[39,72]
34	$[\frac{3}{4}, \frac{3}{4}, x + \frac{1}{2}]$	[40,71]
35	$[\frac{3}{4}, x + \frac{1}{2}, \frac{3}{4}]$	[41,91]
36	$[\frac{1}{4}, \frac{1}{2} - x, \frac{3}{4}]$	[42,92]
37	$[\frac{1}{4}, x + \frac{1}{2}, \frac{1}{4}]$	[43,89]
38	$[\frac{3}{4}, \frac{1}{2} - x, \frac{1}{4}]$	[44,90]

continued ...

Table 9

No.	position	mapping
39	$[\frac{1}{4}, \frac{1}{4}, x + \frac{1}{2}]$	[47, 64]
40	$[\frac{3}{4}, \frac{1}{4}, \frac{1}{2} - x]$	[48, 63]
41	$[x + \frac{1}{2}, \frac{1}{4}, \frac{3}{4}]$	[49, 74]
42	$[x + \frac{1}{2}, \frac{3}{4}, \frac{1}{4}]$	[50, 73]
43	$[\frac{1}{2} - x, \frac{1}{4}, \frac{1}{4}]$	[51, 76]
44	$[\frac{1}{2} - x, \frac{3}{4}, \frac{3}{4}]$	[52, 75]
45	$[x + \frac{1}{2}, \frac{3}{4}, \frac{3}{4}]$	[61, 86]
46	$[x + \frac{1}{2}, \frac{1}{4}, \frac{1}{4}]$	[62, 85]
47	$[\frac{1}{2} - x, \frac{1}{4}, \frac{3}{4}]$	[69, 94]
48	$[\frac{1}{2} - x, \frac{3}{4}, \frac{1}{4}]$	[70, 93]

Table 10: Wyckoff site: 96j, site symmetry: 1

No.	position	mapping
1	$[x, y, z]$	[1]
2	$[x, -y, -z]$	[2]
3	$[-x, y, -z]$	[3]
4	$[-x, -y, z]$	[4]
5	$[z, x, y]$	[5]
6	$[y, z, x]$	[6]
7	$[-y, z, -x]$	[7]
8	$[-z, -x, y]$	[8]
9	$[-y, -z, x]$	[9]
10	$[z, -x, -y]$	[10]
11	$[y, -z, -x]$	[11]
12	$[-z, x, -y]$	[12]
13	$[x, -z, y]$	[13]
14	$[x, z, -y]$	[14]
15	$[z, y, -x]$	[15]
16	$[-z, y, x]$	[16]
17	$[-y, x, z]$	[17]
18	$[y, -x, z]$	[18]
19	$[y, x, -z]$	[19]
20	$[-y, -x, -z]$	[20]
21	$[-x, z, y]$	[21]
22	$[-x, -z, -y]$	[22]
23	$[z, -y, x]$	[23]
24	$[-z, -y, -x]$	[24]
25	$[x, y + \frac{1}{2}, z + \frac{1}{2}]$	[25]
26	$[x, \frac{1}{2} - y, \frac{1}{2} - z]$	[26]
27	$[-x, y + \frac{1}{2}, \frac{1}{2} - z]$	[27]
28	$[-x, \frac{1}{2} - y, z + \frac{1}{2}]$	[28]
29	$[z, x + \frac{1}{2}, y + \frac{1}{2}]$	[29]
30	$[y, z + \frac{1}{2}, x + \frac{1}{2}]$	[30]

continued ...

Table 10

No.	position	mapping
31	$[-y, z + \frac{1}{2}, \frac{1}{2} - x]$	[31]
32	$[-z, \frac{1}{2} - x, y + \frac{1}{2}]$	[32]
33	$[-y, \frac{1}{2} - z, x + \frac{1}{2}]$	[33]
34	$[z, \frac{1}{2} - x, \frac{1}{2} - y]$	[34]
35	$[y, \frac{1}{2} - z, \frac{1}{2} - x]$	[35]
36	$[-z, x + \frac{1}{2}, \frac{1}{2} - y]$	[36]
37	$[x, \frac{1}{2} - z, y + \frac{1}{2}]$	[37]
38	$[x, z + \frac{1}{2}, \frac{1}{2} - y]$	[38]
39	$[z, y + \frac{1}{2}, \frac{1}{2} - x]$	[39]
40	$[-z, y + \frac{1}{2}, x + \frac{1}{2}]$	[40]
41	$[-y, x + \frac{1}{2}, z + \frac{1}{2}]$	[41]
42	$[y, \frac{1}{2} - x, z + \frac{1}{2}]$	[42]
43	$[y, x + \frac{1}{2}, \frac{1}{2} - z]$	[43]
44	$[-y, \frac{1}{2} - x, \frac{1}{2} - z]$	[44]
45	$[-x, z + \frac{1}{2}, y + \frac{1}{2}]$	[45]
46	$[-x, \frac{1}{2} - z, \frac{1}{2} - y]$	[46]
47	$[z, \frac{1}{2} - y, x + \frac{1}{2}]$	[47]
48	$[-z, \frac{1}{2} - y, \frac{1}{2} - x]$	[48]
49	$[x + \frac{1}{2}, y, z + \frac{1}{2}]$	[49]
50	$[x + \frac{1}{2}, -y, \frac{1}{2} - z]$	[50]
51	$[\frac{1}{2} - x, y, \frac{1}{2} - z]$	[51]
52	$[\frac{1}{2} - x, -y, z + \frac{1}{2}]$	[52]
53	$[z + \frac{1}{2}, x, y + \frac{1}{2}]$	[53]
54	$[y + \frac{1}{2}, z, x + \frac{1}{2}]$	[54]
55	$[\frac{1}{2} - y, z, \frac{1}{2} - x]$	[55]
56	$[\frac{1}{2} - z, -x, y + \frac{1}{2}]$	[56]
57	$[\frac{1}{2} - y, -z, x + \frac{1}{2}]$	[57]
58	$[z + \frac{1}{2}, -x, \frac{1}{2} - y]$	[58]
59	$[y + \frac{1}{2}, -z, \frac{1}{2} - x]$	[59]
60	$[\frac{1}{2} - z, x, \frac{1}{2} - y]$	[60]
61	$[x + \frac{1}{2}, -z, y + \frac{1}{2}]$	[61]
62	$[x + \frac{1}{2}, z, \frac{1}{2} - y]$	[62]
63	$[z + \frac{1}{2}, y, \frac{1}{2} - x]$	[63]
64	$[\frac{1}{2} - z, y, x + \frac{1}{2}]$	[64]
65	$[\frac{1}{2} - y, x, z + \frac{1}{2}]$	[65]
66	$[y + \frac{1}{2}, -x, z + \frac{1}{2}]$	[66]
67	$[y + \frac{1}{2}, x, \frac{1}{2} - z]$	[67]
68	$[\frac{1}{2} - y, -x, \frac{1}{2} - z]$	[68]
69	$[\frac{1}{2} - x, z, y + \frac{1}{2}]$	[69]
70	$[\frac{1}{2} - x, -z, \frac{1}{2} - y]$	[70]
71	$[z + \frac{1}{2}, -y, x + \frac{1}{2}]$	[71]
72	$[\frac{1}{2} - z, -y, \frac{1}{2} - x]$	[72]
73	$[x + \frac{1}{2}, y + \frac{1}{2}, z]$	[73]
74	$[x + \frac{1}{2}, \frac{1}{2} - y, -z]$	[74]
75	$[\frac{1}{2} - x, y + \frac{1}{2}, -z]$	[75]
76	$[\frac{1}{2} - x, \frac{1}{2} - y, z]$	[76]
77	$[z + \frac{1}{2}, x + \frac{1}{2}, y]$	[77]

continued ...

Table 10

No.	position	mapping
78	$[y + \frac{1}{2}, z + \frac{1}{2}, x]$	[78]
79	$[\frac{1}{2} - y, z + \frac{1}{2}, -x]$	[79]
80	$[\frac{1}{2} - z, \frac{1}{2} - x, y]$	[80]
81	$[\frac{1}{2} - y, \frac{1}{2} - z, x]$	[81]
82	$[z + \frac{1}{2}, \frac{1}{2} - x, -y]$	[82]
83	$[y + \frac{1}{2}, \frac{1}{2} - z, -x]$	[83]
84	$[\frac{1}{2} - z, x + \frac{1}{2}, -y]$	[84]
85	$[x + \frac{1}{2}, \frac{1}{2} - z, y]$	[85]
86	$[x + \frac{1}{2}, z + \frac{1}{2}, -y]$	[86]
87	$[z + \frac{1}{2}, y + \frac{1}{2}, -x]$	[87]
88	$[\frac{1}{2} - z, y + \frac{1}{2}, x]$	[88]
89	$[\frac{1}{2} - y, x + \frac{1}{2}, z]$	[89]
90	$[y + \frac{1}{2}, \frac{1}{2} - x, z]$	[90]
91	$[y + \frac{1}{2}, x + \frac{1}{2}, -z]$	[91]
92	$[\frac{1}{2} - y, \frac{1}{2} - x, -z]$	[92]
93	$[\frac{1}{2} - x, z + \frac{1}{2}, y]$	[93]
94	$[\frac{1}{2} - x, \frac{1}{2} - z, -y]$	[94]
95	$[z + \frac{1}{2}, \frac{1}{2} - y, x]$	[95]
96	$[\frac{1}{2} - z, \frac{1}{2} - y, -x]$	[96]