

MSG No. 223.109 $P_{I\bar{m}3n}$ [Type IV, cubic]

Table 1: Wyckoff site: 2a, site symmetry: $m\bar{3}m'$

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

Table 2: Wyckoff site: 6b, site symmetry: $4'/mm.m'$

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

Table 3: Wyckoff site: 8c, site symmetry: $\bar{3}m'$

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

Table 4: Wyckoff site: 12d, site symmetry: $\bar{4}m.2$

No.	position	mapping
1	$[\frac{1}{4}, 0, \frac{1}{2}]$	[1, 8, 13, 14, 26, 27, 33, 34]
2	$[\frac{3}{4}, 0, \frac{1}{2}]$	[2, 3, 9, 10, 25, 32, 37, 38]
3	$[0, \frac{1}{2}, \frac{1}{4}]$	[4, 16, 18, 21, 29, 39, 43, 47]
4	$[0, \frac{1}{2}, \frac{3}{4}]$	[5, 15, 19, 23, 28, 40, 42, 45]
5	$[\frac{1}{2}, \frac{3}{4}, 0]$	[6, 11, 20, 22, 31, 36, 41, 48]
6	$[\frac{1}{2}, \frac{1}{4}, 0]$	[7, 12, 17, 24, 30, 35, 44, 46]
7	$[\frac{3}{4}, \frac{1}{2}, 0]$	[49, 56, 61, 62, 74, 75, 81, 82]

continued ...

Table 4

No.	position	mapping
8	$[\frac{1}{4}, \frac{1}{2}, 0]$	[50, 51, 57, 58, 73, 80, 85, 86]
9	$[\frac{1}{2}, 0, \frac{3}{4}]$	[52, 64, 66, 69, 77, 87, 91, 95]
10	$[\frac{1}{2}, 0, \frac{1}{4}]$	[53, 63, 67, 71, 76, 88, 90, 93]
11	$[0, \frac{1}{4}, \frac{1}{2}]$	[54, 59, 68, 70, 79, 84, 89, 96]
12	$[0, \frac{3}{4}, \frac{1}{2}]$	[55, 60, 65, 72, 78, 83, 92, 94]

Table 5: Wyckoff site: 12e, site symmetry: $4'm.m'$

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

Table 6: Wyckoff site: 16f, site symmetry: $.3m'$

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

Table 7: Wyckoff site: 24g, site symmetry: $2mm$.

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

Table 8: Wyckoff site: 24h, site symmetry: $m.2'm'$

No.	position	mapping
1	$[0, y, y]$	[1, 32, 61, 86]
2	$[\frac{1}{2}, \frac{1}{2} - y, y + \frac{1}{2}]$	[2, 27, 58, 81]
3	$[\frac{1}{2}, y + \frac{1}{2}, \frac{1}{2} - y]$	[3, 26, 57, 82]
4	$[y + \frac{1}{2}, y + \frac{1}{2}, \frac{1}{2}]$	[4, 40, 66, 93]
5	$[\frac{1}{2} - y, y + \frac{1}{2}, \frac{1}{2}]$	[5, 39, 67, 95]
6	$[\frac{1}{2} - y, \frac{1}{2}, y + \frac{1}{2}]$	[6, 35, 68, 94]
7	$[y + \frac{1}{2}, \frac{1}{2}, y + \frac{1}{2}]$	[7, 36, 65, 96]
8	$[0, -y, -y]$	[8, 25, 62, 85]
9	$[0, y, -y]$	[9, 34, 51, 74]
10	$[0, -y, y]$	[10, 33, 50, 75]
11	$[y + \frac{1}{2}, \frac{1}{2}, \frac{1}{2} - y]$	[11, 30, 70, 92]
12	$[\frac{1}{2} - y, \frac{1}{2}, \frac{1}{2} - y]$	[12, 31, 72, 89]
13	$[\frac{1}{2}, y + \frac{1}{2}, y + \frac{1}{2}]$	[13, 38, 49, 80]
14	$[\frac{1}{2}, \frac{1}{2} - y, \frac{1}{2} - y]$	[14, 37, 56, 73]
15	$[y + \frac{1}{2}, \frac{1}{2} - y, \frac{1}{2}]$	[15, 29, 71, 91]

continued ...

Table 8

No.	position	mapping
16	$[\frac{1}{2} - y, \frac{1}{2} - y, \frac{1}{2}]$	[16, 28, 69, 90]
17	$[y, 0, y]$	[17, 48, 55, 84]
18	$[y, y, 0]$	[18, 45, 52, 88]
19	$[-y, y, 0]$	[19, 47, 53, 87]
20	$[-y, 0, y]$	[20, 46, 54, 83]
21	$[-y, -y, 0]$	[21, 42, 64, 76]
22	$[y, 0, -y]$	[22, 44, 59, 78]
23	$[y, -y, 0]$	[23, 43, 63, 77]
24	$[-y, 0, -y]$	[24, 41, 60, 79]

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

No.	position	mapping
1	$[\frac{1}{4}, y, \frac{1}{2} - y]$	[1, 14]
2	$[\frac{3}{4}, y, y + \frac{1}{2}]$	[2, 9]
3	$[\frac{3}{4}, -y, \frac{1}{2} - y]$	[3, 10]
4	$[-y, y + \frac{1}{2}, \frac{1}{4}]$	[4, 21]
5	$[y, y + \frac{1}{2}, \frac{3}{4}]$	[5, 23]
6	$[\frac{1}{2} - y, \frac{3}{4}, -y]$	[6, 22]
7	$[y + \frac{1}{2}, \frac{1}{4}, -y]$	[7, 24]
8	$[\frac{1}{4}, -y, y + \frac{1}{2}]$	[8, 13]
9	$[y + \frac{1}{2}, \frac{3}{4}, y]$	[11, 20]
10	$[\frac{1}{2} - y, \frac{1}{4}, y]$	[12, 17]
11	$[-y, \frac{1}{2} - y, \frac{3}{4}]$	[15, 19]
12	$[y, \frac{1}{2} - y, \frac{1}{4}]$	[16, 18]
13	$[\frac{3}{4}, -y, y + \frac{1}{2}]$	[25, 38]
14	$[\frac{1}{4}, -y, \frac{1}{2} - y]$	[26, 33]
15	$[\frac{1}{4}, y, y + \frac{1}{2}]$	[27, 34]
16	$[y, \frac{1}{2} - y, \frac{3}{4}]$	[28, 45]
17	$[-y, \frac{1}{2} - y, \frac{1}{4}]$	[29, 47]
18	$[y + \frac{1}{2}, \frac{1}{4}, y]$	[30, 46]
19	$[\frac{1}{2} - y, \frac{3}{4}, y]$	[31, 48]
20	$[\frac{3}{4}, y, \frac{1}{2} - y]$	[32, 37]
21	$[\frac{1}{2} - y, \frac{1}{4}, -y]$	[35, 44]
22	$[y + \frac{1}{2}, \frac{3}{4}, -y]$	[36, 41]
23	$[y, y + \frac{1}{2}, \frac{1}{4}]$	[39, 43]
24	$[-y, y + \frac{1}{2}, \frac{3}{4}]$	[40, 42]
25	$[\frac{3}{4}, y + \frac{1}{2}, -y]$	[49, 62]
26	$[\frac{1}{4}, y + \frac{1}{2}, y]$	[50, 57]
27	$[\frac{1}{4}, \frac{1}{2} - y, -y]$	[51, 58]
28	$[\frac{1}{2} - y, y, \frac{3}{4}]$	[52, 69]
29	$[y + \frac{1}{2}, y, \frac{1}{4}]$	[53, 71]
30	$[-y, \frac{1}{4}, \frac{1}{2} - y]$	[54, 70]
31	$[y, \frac{3}{4}, \frac{1}{2} - y]$	[55, 72]

continued ...

Table 9

No.	position	mapping
32	$[\frac{3}{4}, \frac{1}{2} - y, y]$	[56, 61]
33	$[y, \frac{1}{4}, y + \frac{1}{2}]$	[59, 68]
34	$[-y, \frac{3}{4}, y + \frac{1}{2}]$	[60, 65]
35	$[\frac{1}{2} - y, -y, \frac{1}{4}]$	[63, 67]
36	$[y + \frac{1}{2}, -y, \frac{3}{4}]$	[64, 66]
37	$[\frac{1}{4}, \frac{1}{2} - y, y]$	[73, 86]
38	$[\frac{3}{4}, \frac{1}{2} - y, -y]$	[74, 81]
39	$[\frac{3}{4}, y + \frac{1}{2}, y]$	[75, 82]
40	$[y + \frac{1}{2}, -y, \frac{1}{4}]$	[76, 93]
41	$[\frac{1}{2} - y, -y, \frac{3}{4}]$	[77, 95]
42	$[y, \frac{3}{4}, y + \frac{1}{2}]$	[78, 94]
43	$[-y, \frac{1}{4}, y + \frac{1}{2}]$	[79, 96]
44	$[\frac{1}{4}, y + \frac{1}{2}, -y]$	[80, 85]
45	$[-y, \frac{3}{4}, \frac{1}{2} - y]$	[83, 92]
46	$[y, \frac{1}{4}, \frac{1}{2} - y]$	[84, 89]
47	$[y + \frac{1}{2}, y, \frac{3}{4}]$	[87, 91]
48	$[\frac{1}{2} - y, y, \frac{1}{4}]$	[88, 90]

Table 10: Wyckoff site: 48j, site symmetry: m .

No.	position	mapping
1	$[0, y, z]$	[1, 32]
2	$[\frac{1}{2}, \frac{1}{2} - z, y + \frac{1}{2}]$	[2, 27]
3	$[\frac{1}{2}, z + \frac{1}{2}, \frac{1}{2} - y]$	[3, 26]
4	$[z + \frac{1}{2}, y + \frac{1}{2}, \frac{1}{2}]$	[4, 40]
5	$[\frac{1}{2} - z, y + \frac{1}{2}, \frac{1}{2}]$	[5, 39]
6	$[\frac{1}{2} - y, \frac{1}{2}, z + \frac{1}{2}]$	[6, 35]
7	$[y + \frac{1}{2}, \frac{1}{2}, z + \frac{1}{2}]$	[7, 36]
8	$[0, -y, -z]$	[8, 25]
9	$[0, y, -z]$	[9, 34]
10	$[0, -y, z]$	[10, 33]
11	$[y + \frac{1}{2}, \frac{1}{2}, \frac{1}{2} - z]$	[11, 30]
12	$[\frac{1}{2} - y, \frac{1}{2}, \frac{1}{2} - z]$	[12, 31]
13	$[\frac{1}{2}, z + \frac{1}{2}, y + \frac{1}{2}]$	[13, 38]
14	$[\frac{1}{2}, \frac{1}{2} - z, \frac{1}{2} - y]$	[14, 37]
15	$[z + \frac{1}{2}, \frac{1}{2} - y, \frac{1}{2}]$	[15, 29]
16	$[\frac{1}{2} - z, \frac{1}{2} - y, \frac{1}{2}]$	[16, 28]
17	$[z, 0, y]$	[17, 48]
18	$[y, z, 0]$	[18, 45]
19	$[-y, z, 0]$	[19, 47]
20	$[-z, 0, y]$	[20, 46]
21	$[-y, -z, 0]$	[21, 42]
22	$[z, 0, -y]$	[22, 44]
23	$[y, -z, 0]$	[23, 43]

continued ...

Table 10

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

Table 11: Wyckoff site: 48k, site symmetry: $\cdot \cdot m'$

No.	position	mapping
1	$[x, x, z]$	[1,84]
2	$[x + \frac{1}{2}, \frac{1}{2} - z, x + \frac{1}{2}]$	[2,91]
3	$[x + \frac{1}{2}, z + \frac{1}{2}, \frac{1}{2} - x]$	[3,93]
4	$[z + \frac{1}{2}, x + \frac{1}{2}, \frac{1}{2} - x]$	[4,92]
5	$[\frac{1}{2} - z, x + \frac{1}{2}, x + \frac{1}{2}]$	[5,94]
6	$[\frac{1}{2} - x, x + \frac{1}{2}, z + \frac{1}{2}]$	[6,80]
7	$[x + \frac{1}{2}, \frac{1}{2} - x, z + \frac{1}{2}]$	[7,81]
8	$[x, -x, -z]$	[8,78]
9	$[-x, x, -z]$	[9,79]
10	$[-x, -x, z]$	[10,83]
11	$[x + \frac{1}{2}, x + \frac{1}{2}, \frac{1}{2} - z]$	[11,82]
12	$[\frac{1}{2} - x, \frac{1}{2} - x, \frac{1}{2} - z]$	[12,73]
13	$[\frac{1}{2} - x, z + \frac{1}{2}, x + \frac{1}{2}]$	[13,95]
14	$[\frac{1}{2} - x, \frac{1}{2} - z, \frac{1}{2} - x]$	[14,90]
15	$[z + \frac{1}{2}, \frac{1}{2} - x, x + \frac{1}{2}]$	[15,96]

continued ...

Table 11

No.	position	mapping
16	$[\frac{1}{2} - z, \frac{1}{2} - x, \frac{1}{2} - x]$	[16, 89]
17	$[z, x, x]$	[17, 88]
18	$[x, z, x]$	[18, 86]
19	$[-x, z, -x]$	[19, 74]
20	$[-z, -x, x]$	[20, 76]
21	$[-x, -z, x]$	[21, 75]
22	$[z, -x, -x]$	[22, 77]
23	$[x, -z, -x]$	[23, 85]
24	$[-z, x, -x]$	[24, 87]
25	$[-x, -x, -z]$	[25, 60]
26	$[\frac{1}{2} - x, z + \frac{1}{2}, \frac{1}{2} - x]$	[26, 67]
27	$[\frac{1}{2} - x, \frac{1}{2} - z, x + \frac{1}{2}]$	[27, 69]
28	$[\frac{1}{2} - z, \frac{1}{2} - x, x + \frac{1}{2}]$	[28, 68]
29	$[z + \frac{1}{2}, \frac{1}{2} - x, \frac{1}{2} - x]$	[29, 70]
30	$[x + \frac{1}{2}, \frac{1}{2} - x, \frac{1}{2} - z]$	[30, 56]
31	$[\frac{1}{2} - x, x + \frac{1}{2}, \frac{1}{2} - z]$	[31, 57]
32	$[-x, x, z]$	[32, 54]
33	$[x, -x, z]$	[33, 55]
34	$[x, x, -z]$	[34, 59]
35	$[\frac{1}{2} - x, \frac{1}{2} - x, z + \frac{1}{2}]$	[35, 58]
36	$[x + \frac{1}{2}, x + \frac{1}{2}, z + \frac{1}{2}]$	[36, 49]
37	$[x + \frac{1}{2}, \frac{1}{2} - z, \frac{1}{2} - x]$	[37, 71]
38	$[x + \frac{1}{2}, z + \frac{1}{2}, x + \frac{1}{2}]$	[38, 66]
39	$[\frac{1}{2} - z, x + \frac{1}{2}, \frac{1}{2} - x]$	[39, 72]
40	$[z + \frac{1}{2}, x + \frac{1}{2}, x + \frac{1}{2}]$	[40, 65]
41	$[-z, -x, -x]$	[41, 64]
42	$[-x, -z, -x]$	[42, 62]
43	$[x, -z, x]$	[43, 50]
44	$[z, x, -x]$	[44, 52]
45	$[x, z, -x]$	[45, 51]
46	$[-z, x, x]$	[46, 53]
47	$[-x, z, x]$	[47, 61]
48	$[z, -x, x]$	[48, 63]

Table 12: Wyckoff site: 961, site symmetry: 1

No.	position	mapping
1	$[x, y, z]$	[1]
2	$[x + \frac{1}{2}, \frac{1}{2} - z, y + \frac{1}{2}]$	[2]
3	$[x + \frac{1}{2}, z + \frac{1}{2}, \frac{1}{2} - y]$	[3]
4	$[z + \frac{1}{2}, y + \frac{1}{2}, \frac{1}{2} - x]$	[4]
5	$[\frac{1}{2} - z, y + \frac{1}{2}, x + \frac{1}{2}]$	[5]
6	$[\frac{1}{2} - y, x + \frac{1}{2}, z + \frac{1}{2}]$	[6]
7	$[y + \frac{1}{2}, \frac{1}{2} - x, z + \frac{1}{2}]$	[7]

continued ...

Table 12

No.	position	mapping
8	$[x, -y, -z]$	[8]
9	$[-x, y, -z]$	[9]
10	$[-x, -y, z]$	[10]
11	$[y + \frac{1}{2}, x + \frac{1}{2}, \frac{1}{2} - z]$	[11]
12	$[\frac{1}{2} - y, \frac{1}{2} - x, \frac{1}{2} - z]$	[12]
13	$[\frac{1}{2} - x, z + \frac{1}{2}, y + \frac{1}{2}]$	[13]
14	$[\frac{1}{2} - x, \frac{1}{2} - z, \frac{1}{2} - y]$	[14]
15	$[z + \frac{1}{2}, \frac{1}{2} - y, x + \frac{1}{2}]$	[15]
16	$[\frac{1}{2} - z, \frac{1}{2} - y, \frac{1}{2} - x]$	[16]
17	$[z, x, y]$	[17]
18	$[y, z, x]$	[18]
19	$[-y, z, -x]$	[19]
20	$[-z, -x, y]$	[20]
21	$[-y, -z, x]$	[21]
22	$[z, -x, -y]$	[22]
23	$[y, -z, -x]$	[23]
24	$[-z, x, -y]$	[24]
25	$[-x, -y, -z]$	[25]
26	$[\frac{1}{2} - x, z + \frac{1}{2}, \frac{1}{2} - y]$	[26]
27	$[\frac{1}{2} - x, \frac{1}{2} - z, y + \frac{1}{2}]$	[27]
28	$[\frac{1}{2} - z, \frac{1}{2} - y, x + \frac{1}{2}]$	[28]
29	$[z + \frac{1}{2}, \frac{1}{2} - y, \frac{1}{2} - x]$	[29]
30	$[y + \frac{1}{2}, \frac{1}{2} - x, \frac{1}{2} - z]$	[30]
31	$[\frac{1}{2} - y, x + \frac{1}{2}, \frac{1}{2} - z]$	[31]
32	$[-x, y, z]$	[32]
33	$[x, -y, z]$	[33]
34	$[x, y, -z]$	[34]
35	$[\frac{1}{2} - y, \frac{1}{2} - x, z + \frac{1}{2}]$	[35]
36	$[y + \frac{1}{2}, x + \frac{1}{2}, z + \frac{1}{2}]$	[36]
37	$[x + \frac{1}{2}, \frac{1}{2} - z, \frac{1}{2} - y]$	[37]
38	$[x + \frac{1}{2}, z + \frac{1}{2}, y + \frac{1}{2}]$	[38]
39	$[\frac{1}{2} - z, y + \frac{1}{2}, \frac{1}{2} - x]$	[39]
40	$[z + \frac{1}{2}, y + \frac{1}{2}, x + \frac{1}{2}]$	[40]
41	$[-z, -x, -y]$	[41]
42	$[-y, -z, -x]$	[42]
43	$[y, -z, x]$	[43]
44	$[z, x, -y]$	[44]
45	$[y, z, -x]$	[45]
46	$[-z, x, y]$	[46]
47	$[-y, z, x]$	[47]
48	$[z, -x, y]$	[48]
49	$[x + \frac{1}{2}, y + \frac{1}{2}, z + \frac{1}{2}]$	[49]
50	$[x, -z, y]$	[50]
51	$[x, z, -y]$	[51]
52	$[z, y, -x]$	[52]
53	$[-z, y, x]$	[53]
54	$[-y, x, z]$	[54]

continued ...

Table 12

No.	position	mapping
55	$[y, -x, z]$	[55]
56	$[x + \frac{1}{2}, \frac{1}{2} - y, \frac{1}{2} - z]$	[56]
57	$[\frac{1}{2} - x, y + \frac{1}{2}, \frac{1}{2} - z]$	[57]
58	$[\frac{1}{2} - x, \frac{1}{2} - y, z + \frac{1}{2}]$	[58]
59	$[y, x, -z]$	[59]
60	$[-y, -x, -z]$	[60]
61	$[-x, z, y]$	[61]
62	$[-x, -z, -y]$	[62]
63	$[z, -y, x]$	[63]
64	$[-z, -y, -x]$	[64]
65	$[z + \frac{1}{2}, x + \frac{1}{2}, y + \frac{1}{2}]$	[65]
66	$[y + \frac{1}{2}, z + \frac{1}{2}, x + \frac{1}{2}]$	[66]
67	$[\frac{1}{2} - y, z + \frac{1}{2}, \frac{1}{2} - x]$	[67]
68	$[\frac{1}{2} - z, \frac{1}{2} - x, y + \frac{1}{2}]$	[68]
69	$[\frac{1}{2} - y, \frac{1}{2} - z, x + \frac{1}{2}]$	[69]
70	$[z + \frac{1}{2}, \frac{1}{2} - x, \frac{1}{2} - y]$	[70]
71	$[y + \frac{1}{2}, \frac{1}{2} - z, \frac{1}{2} - x]$	[71]
72	$[\frac{1}{2} - z, x + \frac{1}{2}, \frac{1}{2} - y]$	[72]
73	$[\frac{1}{2} - x, \frac{1}{2} - y, \frac{1}{2} - z]$	[73]
74	$[-x, z, -y]$	[74]
75	$[-x, -z, y]$	[75]
76	$[-z, -y, x]$	[76]
77	$[z, -y, -x]$	[77]
78	$[y, -x, -z]$	[78]
79	$[-y, x, -z]$	[79]
80	$[\frac{1}{2} - x, y + \frac{1}{2}, z + \frac{1}{2}]$	[80]
81	$[x + \frac{1}{2}, \frac{1}{2} - y, z + \frac{1}{2}]$	[81]
82	$[x + \frac{1}{2}, y + \frac{1}{2}, \frac{1}{2} - z]$	[82]
83	$[-y, -x, z]$	[83]
84	$[y, x, z]$	[84]
85	$[x, -z, -y]$	[85]
86	$[x, z, y]$	[86]
87	$[-z, y, -x]$	[87]
88	$[z, y, x]$	[88]
89	$[\frac{1}{2} - z, \frac{1}{2} - x, \frac{1}{2} - y]$	[89]
90	$[\frac{1}{2} - y, \frac{1}{2} - z, \frac{1}{2} - x]$	[90]
91	$[y + \frac{1}{2}, \frac{1}{2} - z, x + \frac{1}{2}]$	[91]
92	$[z + \frac{1}{2}, x + \frac{1}{2}, \frac{1}{2} - y]$	[92]
93	$[y + \frac{1}{2}, z + \frac{1}{2}, \frac{1}{2} - x]$	[93]
94	$[\frac{1}{2} - z, x + \frac{1}{2}, y + \frac{1}{2}]$	[94]
95	$[\frac{1}{2} - y, z + \frac{1}{2}, x + \frac{1}{2}]$	[95]
96	$[z + \frac{1}{2}, \frac{1}{2} - x, y + \frac{1}{2}]$	[96]