

SG No. 142 D_{4h}^{20} $I4_1/acd$ [tetragonal]

* plus set: $+ [0, 0, 0], + [\frac{1}{2}, \frac{1}{2}, \frac{1}{2}]$

* Wyckoff site: **8a**, site symmetry: $-4..$

Table 1: Wyckoff bond: **8a@8a**

No.	vector	center	mapping
1	$[0, 0, Z]$	$[0, \frac{1}{4}, \frac{3}{8}]$	$[1, 2, -11, -12]$
2	$[0, 0, Z]$	$[0, \frac{3}{4}, \frac{5}{8}]$	$[3, 4, -9, -10]$
3	$[0, 0, -Z]$	$[\frac{1}{2}, \frac{1}{4}, \frac{5}{8}]$	$[5, 6, -15, -16]$
4	$[0, 0, -Z]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{8}]$	$[7, 8, -13, -14]$

Table 2: Wyckoff bond: **16b@8a**

No.	vector	center	mapping
1	$[X, Y, 0]$	$[0, \frac{1}{4}, \frac{3}{8}]$	$[1, -2]$
2	$[-Y, X, 0]$	$[0, \frac{3}{4}, \frac{5}{8}]$	$[3, -4]$
3	$[-X, Y, 0]$	$[\frac{1}{2}, \frac{1}{4}, \frac{5}{8}]$	$[5, -6]$
4	$[Y, X, 0]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{8}]$	$[7, -8]$
5	$[-X, -Y, 0]$	$[0, \frac{3}{4}, \frac{5}{8}]$	$[9, -10]$
6	$[Y, -X, 0]$	$[0, \frac{1}{4}, \frac{3}{8}]$	$[11, -12]$
7	$[X, -Y, 0]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{8}]$	$[13, -14]$
8	$[-Y, -X, 0]$	$[\frac{1}{2}, \frac{1}{4}, \frac{5}{8}]$	$[15, -16]$

Table 3: Wyckoff bond: **32c@8a**

No.	vector	center	mapping
1	$[X, Y, Z]$	$[0, \frac{1}{4}, \frac{3}{8}]$	$[1]$
2	$[-X, -Y, Z]$	$[0, \frac{1}{4}, \frac{3}{8}]$	$[2]$
3	$[-Y, X, Z]$	$[0, \frac{3}{4}, \frac{5}{8}]$	$[3]$
4	$[Y, -X, Z]$	$[0, \frac{3}{4}, \frac{5}{8}]$	$[4]$
5	$[-X, Y, -Z]$	$[\frac{1}{2}, \frac{1}{4}, \frac{5}{8}]$	$[5]$
6	$[X, -Y, -Z]$	$[\frac{1}{2}, \frac{1}{4}, \frac{5}{8}]$	$[6]$
7	$[Y, X, -Z]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{8}]$	$[7]$
8	$[-Y, -X, -Z]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{8}]$	$[8]$
9	$[-X, -Y, -Z]$	$[0, \frac{3}{4}, \frac{5}{8}]$	$[9]$
10	$[X, Y, -Z]$	$[0, \frac{3}{4}, \frac{5}{8}]$	$[10]$
11	$[Y, -X, -Z]$	$[0, \frac{1}{4}, \frac{3}{8}]$	$[11]$
12	$[-Y, X, -Z]$	$[0, \frac{1}{4}, \frac{3}{8}]$	$[12]$
13	$[X, -Y, Z]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{8}]$	$[13]$
14	$[-X, Y, Z]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{8}]$	$[14]$
15	$[-Y, -X, Z]$	$[\frac{1}{2}, \frac{1}{4}, \frac{5}{8}]$	$[15]$
16	$[Y, X, Z]$	$[\frac{1}{2}, \frac{1}{4}, \frac{5}{8}]$	$[16]$

Table 4: Wyckoff bond: 8a@8b

No.	vector	center	mapping
1	$[X, X, 0]$	$[0, \frac{1}{4}, \frac{1}{8}]$	$[1, -2, 7, -8]$
2	$[-X, X, 0]$	$[0, \frac{3}{4}, \frac{3}{8}]$	$[3, -4, 5, -6]$
3	$[-X, -X, 0]$	$[0, \frac{3}{4}, \frac{7}{8}]$	$[9, -10, 15, -16]$
4	$[X, -X, 0]$	$[0, \frac{1}{4}, \frac{5}{8}]$	$[11, -12, 13, -14]$

Table 5: Wyckoff bond: 8b@8b

No.	vector	center	mapping
1	$[X, -X, 0]$	$[0, \frac{1}{4}, \frac{1}{8}]$	$[1, -2, -7, 8]$
2	$[X, X, 0]$	$[0, \frac{3}{4}, \frac{3}{8}]$	$[3, -4, -5, 6]$
3	$[-X, X, 0]$	$[0, \frac{3}{4}, \frac{7}{8}]$	$[9, -10, -15, 16]$
4	$[-X, -X, 0]$	$[0, \frac{1}{4}, \frac{5}{8}]$	$[11, -12, -13, 14]$

Table 6: Wyckoff bond: 8c@8b

No.	vector	center	mapping
1	$[0, 0, Z]$	$[0, \frac{1}{4}, \frac{1}{8}]$	$[1, 2, -7, -8]$
2	$[0, 0, Z]$	$[0, \frac{3}{4}, \frac{3}{8}]$	$[3, 4, -5, -6]$
3	$[0, 0, -Z]$	$[0, \frac{3}{4}, \frac{7}{8}]$	$[9, 10, -15, -16]$
4	$[0, 0, -Z]$	$[0, \frac{1}{4}, \frac{5}{8}]$	$[11, 12, -13, -14]$

Table 7: Wyckoff bond: 16d@8b

No.	vector	center	mapping
1	$[X, X, Z]$	$[0, \frac{1}{4}, \frac{1}{8}]$	$[1, -8]$
2	$[-X, -X, Z]$	$[0, \frac{1}{4}, \frac{1}{8}]$	$[2, -7]$
3	$[-X, X, Z]$	$[0, \frac{3}{4}, \frac{3}{8}]$	$[3, -6]$
4	$[X, -X, Z]$	$[0, \frac{3}{4}, \frac{3}{8}]$	$[4, -5]$
5	$[-X, -X, -Z]$	$[0, \frac{3}{4}, \frac{7}{8}]$	$[9, -16]$
6	$[X, X, -Z]$	$[0, \frac{3}{4}, \frac{7}{8}]$	$[10, -15]$
7	$[X, -X, -Z]$	$[0, \frac{1}{4}, \frac{5}{8}]$	$[11, -14]$
8	$[-X, X, -Z]$	$[0, \frac{1}{4}, \frac{5}{8}]$	$[12, -13]$

Table 8: Wyckoff bond: 16e@8b

No.	vector	center	mapping
1	$[X, -X, Z]$	$[0, \frac{1}{4}, \frac{1}{8}]$	[1,-7]
2	$[-X, X, Z]$	$[0, \frac{1}{4}, \frac{1}{8}]$	[2,-8]
3	$[X, X, Z]$	$[0, \frac{3}{4}, \frac{3}{8}]$	[3,-5]
4	$[-X, -X, Z]$	$[0, \frac{3}{4}, \frac{3}{8}]$	[4,-6]
5	$[-X, X, -Z]$	$[0, \frac{3}{4}, \frac{7}{8}]$	[9,-15]
6	$[X, -X, -Z]$	$[0, \frac{3}{4}, \frac{7}{8}]$	[10,-16]
7	$[-X, -X, -Z]$	$[0, \frac{1}{4}, \frac{5}{8}]$	[11,-13]
8	$[X, X, -Z]$	$[0, \frac{1}{4}, \frac{5}{8}]$	[12,-14]

Table 9: Wyckoff bond: 16f@8b

No.	vector	center	mapping
1	$[X, Y, 0]$	$[0, \frac{1}{4}, \frac{1}{8}]$	[1,-2]
2	$[-Y, X, 0]$	$[0, \frac{3}{4}, \frac{3}{8}]$	[3,-4]
3	$[-X, Y, 0]$	$[0, \frac{3}{4}, \frac{3}{8}]$	[5,-6]
4	$[Y, X, 0]$	$[0, \frac{1}{4}, \frac{1}{8}]$	[7,-8]
5	$[-X, -Y, 0]$	$[0, \frac{3}{4}, \frac{7}{8}]$	[9,-10]
6	$[Y, -X, 0]$	$[0, \frac{1}{4}, \frac{5}{8}]$	[11,-12]
7	$[X, -Y, 0]$	$[0, \frac{1}{4}, \frac{5}{8}]$	[13,-14]
8	$[-Y, -X, 0]$	$[0, \frac{3}{4}, \frac{7}{8}]$	[15,-16]

Table 10: Wyckoff bond: 32g@8b

No.	vector	center	mapping
1	$[X, Y, Z]$	$[0, \frac{1}{4}, \frac{1}{8}]$	[1]
2	$[-X, -Y, Z]$	$[0, \frac{1}{4}, \frac{1}{8}]$	[2]
3	$[-Y, X, Z]$	$[0, \frac{3}{4}, \frac{3}{8}]$	[3]
4	$[Y, -X, Z]$	$[0, \frac{3}{4}, \frac{3}{8}]$	[4]
5	$[-X, Y, -Z]$	$[0, \frac{3}{4}, \frac{3}{8}]$	[5]
6	$[X, -Y, -Z]$	$[0, \frac{3}{4}, \frac{3}{8}]$	[6]
7	$[Y, X, -Z]$	$[0, \frac{1}{4}, \frac{1}{8}]$	[7]
8	$[-Y, -X, -Z]$	$[0, \frac{1}{4}, \frac{1}{8}]$	[8]
9	$[-X, -Y, -Z]$	$[0, \frac{3}{4}, \frac{7}{8}]$	[9]
10	$[X, Y, -Z]$	$[0, \frac{3}{4}, \frac{7}{8}]$	[10]
11	$[Y, -X, -Z]$	$[0, \frac{1}{4}, \frac{5}{8}]$	[11]
12	$[-Y, X, -Z]$	$[0, \frac{1}{4}, \frac{5}{8}]$	[12]
13	$[X, -Y, Z]$	$[0, \frac{1}{4}, \frac{5}{8}]$	[13]
14	$[-X, Y, Z]$	$[0, \frac{1}{4}, \frac{5}{8}]$	[14]
15	$[-Y, -X, Z]$	$[0, \frac{3}{4}, \frac{7}{8}]$	[15]
16	$[Y, X, Z]$	$[0, \frac{3}{4}, \frac{7}{8}]$	[16]

* Wyckoff site: 16c, site symmetry: -1

Table 11: Wyckoff bond: 16a@16c

No.	vector	center	mapping
1	$[X, Y, Z]$	$[0, 0, 0]$	$[1, -9]$
2	$[-X, -Y, Z]$	$[\frac{1}{2}, 0, \frac{1}{2}]$	$[2, -10]$
3	$[-Y, X, Z]$	$[\frac{1}{4}, \frac{3}{4}, \frac{1}{4}]$	$[3, -11]$
4	$[Y, -X, Z]$	$[\frac{1}{4}, \frac{1}{4}, \frac{3}{4}]$	$[4, -12]$
5	$[-X, Y, -Z]$	$[\frac{1}{2}, 0, 0]$	$[5, -13]$
6	$[X, -Y, -Z]$	$[0, 0, \frac{1}{2}]$	$[6, -14]$
7	$[Y, X, -Z]$	$[\frac{1}{4}, \frac{3}{4}, \frac{3}{4}]$	$[7, -15]$
8	$[-Y, -X, -Z]$	$[\frac{1}{4}, \frac{1}{4}, \frac{1}{4}]$	$[8, -16]$

* Wyckoff site: 16d, site symmetry: $2..$

Table 12: Wyckoff bond: 16a@16d

No.	vector	center	mapping
1	$[X, Y, 0]$	$[0, \frac{1}{4}, z]$	$[1, -2]$
2	$[-Y, X, 0]$	$[0, \frac{3}{4}, z + \frac{1}{4}]$	$[3, -4]$
3	$[-X, Y, 0]$	$[\frac{1}{2}, \frac{1}{4}, -z]$	$[5, -6]$
4	$[Y, X, 0]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{4} - z]$	$[7, -8]$
5	$[-X, -Y, 0]$	$[0, \frac{3}{4}, -z]$	$[9, -10]$
6	$[Y, -X, 0]$	$[0, \frac{1}{4}, \frac{3}{4} - z]$	$[11, -12]$
7	$[X, -Y, 0]$	$[\frac{1}{2}, \frac{3}{4}, z]$	$[13, -14]$
8	$[-Y, -X, 0]$	$[\frac{1}{2}, \frac{1}{4}, z + \frac{1}{4}]$	$[15, -16]$

Table 13: Wyckoff bond: 16b@16d

No.	vector	center	mapping
1	$[0, 0, Z]$	$[0, \frac{1}{4}, z]$	$[1, 2]$
2	$[0, 0, Z]$	$[0, \frac{3}{4}, z + \frac{1}{4}]$	$[3, 4]$
3	$[0, 0, -Z]$	$[\frac{1}{2}, \frac{1}{4}, -z]$	$[5, 6]$
4	$[0, 0, -Z]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{4} - z]$	$[7, 8]$
5	$[0, 0, -Z]$	$[0, \frac{3}{4}, -z]$	$[9, 10]$
6	$[0, 0, -Z]$	$[0, \frac{1}{4}, \frac{3}{4} - z]$	$[11, 12]$
7	$[0, 0, Z]$	$[\frac{1}{2}, \frac{3}{4}, z]$	$[13, 14]$
8	$[0, 0, Z]$	$[\frac{1}{2}, \frac{1}{4}, z + \frac{1}{4}]$	$[15, 16]$

Table 14: Wyckoff bond: 32c@16d

No.	vector	center	mapping
1	$[X, Y, Z]$	$[0, \frac{1}{4}, z]$	[1]
2	$[-X, -Y, Z]$	$[0, \frac{1}{4}, z]$	[2]
3	$[-Y, X, Z]$	$[0, \frac{3}{4}, z + \frac{1}{4}]$	[3]
4	$[Y, -X, Z]$	$[0, \frac{3}{4}, z + \frac{1}{4}]$	[4]
5	$[-X, Y, -Z]$	$[\frac{1}{2}, \frac{1}{4}, -z]$	[5]
6	$[X, -Y, -Z]$	$[\frac{1}{2}, \frac{1}{4}, -z]$	[6]
7	$[Y, X, -Z]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{4} - z]$	[7]
8	$[-Y, -X, -Z]$	$[\frac{1}{2}, \frac{3}{4}, \frac{3}{4} - z]$	[8]
9	$[-X, -Y, -Z]$	$[0, \frac{3}{4}, -z]$	[9]
10	$[X, Y, -Z]$	$[0, \frac{3}{4}, -z]$	[10]
11	$[Y, -X, -Z]$	$[0, \frac{1}{4}, \frac{3}{4} - z]$	[11]
12	$[-Y, X, -Z]$	$[0, \frac{1}{4}, \frac{3}{4} - z]$	[12]
13	$[X, -Y, Z]$	$[\frac{1}{2}, \frac{3}{4}, z]$	[13]
14	$[-X, Y, Z]$	$[\frac{1}{2}, \frac{3}{4}, z]$	[14]
15	$[-Y, -X, Z]$	$[\frac{1}{2}, \frac{1}{4}, z + \frac{1}{4}]$	[15]
16	$[Y, X, Z]$	$[\frac{1}{2}, \frac{1}{4}, z + \frac{1}{4}]$	[16]

* Wyckoff site: 16e, site symmetry: .2.

Table 15: Wyckoff bond: 16a@16e

No.	vector	center	mapping
1	$[0, X, Z]$	$[x, 0, \frac{1}{4}]$	[1, -6]
2	$[0, -X, Z]$	$[\frac{1}{2} - x, 0, \frac{3}{4}]$	[2, -5]
3	$[-X, 0, Z]$	$[\frac{1}{4}, x + \frac{3}{4}, \frac{1}{2}]$	[3, -7]
4	$[X, 0, Z]$	$[\frac{1}{4}, \frac{1}{4} - x, 0]$	[4, -8]
5	$[0, -X, -Z]$	$[-x, 0, \frac{3}{4}]$	[9, -14]
6	$[0, X, -Z]$	$[x + \frac{1}{2}, 0, \frac{1}{4}]$	[10, -13]
7	$[X, 0, -Z]$	$[\frac{3}{4}, \frac{1}{4} - x, \frac{1}{2}]$	[11, -15]
8	$[-X, 0, -Z]$	$[\frac{3}{4}, x + \frac{3}{4}, 0]$	[12, -16]

Table 16: Wyckoff bond: 16b@16e

No.	vector	center	mapping
1	$[X, 0, 0]$	$[x, 0, \frac{1}{4}]$	[1, 6]
2	$[-X, 0, 0]$	$[\frac{1}{2} - x, 0, \frac{3}{4}]$	[2, 5]
3	$[0, X, 0]$	$[\frac{1}{4}, x + \frac{3}{4}, \frac{1}{2}]$	[3, 7]
4	$[0, -X, 0]$	$[\frac{1}{4}, \frac{1}{4} - x, 0]$	[4, 8]
5	$[-X, 0, 0]$	$[-x, 0, \frac{3}{4}]$	[9, 14]
6	$[X, 0, 0]$	$[x + \frac{1}{2}, 0, \frac{1}{4}]$	[10, 13]
7	$[0, -X, 0]$	$[\frac{3}{4}, \frac{1}{4} - x, \frac{1}{2}]$	[11, 15]
8	$[0, X, 0]$	$[\frac{3}{4}, x + \frac{3}{4}, 0]$	[12, 16]

Table 17: Wyckoff bond: 32c@16e

No.	vector	center	mapping
1	$[X, Y, Z]$	$[x, 0, \frac{1}{4}]$	[1]
2	$[-X, -Y, Z]$	$[\frac{1}{2} - x, 0, \frac{3}{4}]$	[2]
3	$[-Y, X, Z]$	$[\frac{1}{4}, x + \frac{3}{4}, \frac{1}{2}]$	[3]
4	$[Y, -X, Z]$	$[\frac{1}{4}, \frac{1}{4} - x, 0]$	[4]
5	$[-X, Y, -Z]$	$[\frac{1}{2} - x, 0, \frac{3}{4}]$	[5]
6	$[X, -Y, -Z]$	$[x, 0, \frac{1}{4}]$	[6]
7	$[Y, X, -Z]$	$[\frac{1}{4}, x + \frac{3}{4}, \frac{1}{2}]$	[7]
8	$[-Y, -X, -Z]$	$[\frac{1}{4}, \frac{1}{4} - x, 0]$	[8]
9	$[-X, -Y, -Z]$	$[-x, 0, \frac{3}{4}]$	[9]
10	$[X, Y, -Z]$	$[x + \frac{1}{2}, 0, \frac{1}{4}]$	[10]
11	$[Y, -X, -Z]$	$[\frac{3}{4}, \frac{1}{4} - x, \frac{1}{2}]$	[11]
12	$[-Y, X, -Z]$	$[\frac{3}{4}, x + \frac{3}{4}, 0]$	[12]
13	$[X, -Y, Z]$	$[x + \frac{1}{2}, 0, \frac{1}{4}]$	[13]
14	$[-X, Y, Z]$	$[-x, 0, \frac{3}{4}]$	[14]
15	$[-Y, -X, Z]$	$[\frac{3}{4}, \frac{1}{4} - x, \frac{1}{2}]$	[15]
16	$[Y, X, Z]$	$[\frac{3}{4}, x + \frac{3}{4}, 0]$	[16]

* Wyckoff site: 16f, site symmetry: ..2

Table 18: Wyckoff bond: 16a@16f

No.	vector	center	mapping
1	$[X, -X, Z]$	$[x, x + \frac{1}{4}, \frac{1}{8}]$	[1, -7]
2	$[-X, X, Z]$	$[\frac{1}{2} - x, \frac{3}{4} - x, \frac{5}{8}]$	[2, -8]
3	$[X, X, Z]$	$[-x, x + \frac{3}{4}, \frac{3}{8}]$	[3, -5]
4	$[-X, -X, Z]$	$[x + \frac{1}{2}, \frac{1}{4} - x, \frac{7}{8}]$	[4, -6]
5	$[-X, X, -Z]$	$[-x, \frac{3}{4} - x, \frac{7}{8}]$	[9, -15]
6	$[X, -X, -Z]$	$[x + \frac{1}{2}, x + \frac{1}{4}, \frac{3}{8}]$	[10, -16]
7	$[-X, -X, -Z]$	$[x, \frac{1}{4} - x, \frac{5}{8}]$	[11, -13]
8	$[X, X, -Z]$	$[\frac{1}{2} - x, x + \frac{3}{4}, \frac{1}{8}]$	[12, -14]

Table 19: Wyckoff bond: 16b@16f

No.	vector	center	mapping
1	$[X, X, 0]$	$[x, x + \frac{1}{4}, \frac{1}{8}]$	[1, 7]
2	$[-X, -X, 0]$	$[\frac{1}{2} - x, \frac{3}{4} - x, \frac{5}{8}]$	[2, 8]
3	$[-X, X, 0]$	$[-x, x + \frac{3}{4}, \frac{3}{8}]$	[3, 5]
4	$[X, -X, 0]$	$[x + \frac{1}{2}, \frac{1}{4} - x, \frac{7}{8}]$	[4, 6]
5	$[-X, -X, 0]$	$[-x, \frac{3}{4} - x, \frac{7}{8}]$	[9, 15]
6	$[X, X, 0]$	$[x + \frac{1}{2}, x + \frac{1}{4}, \frac{3}{8}]$	[10, 16]

continued ...

Table 19

No.	vector	center	mapping
7	$[X, -X, 0]$	$[x, \frac{1}{4} - x, \frac{5}{8}]$	[11, 13]
8	$[-X, X, 0]$	$[\frac{1}{2} - x, x + \frac{3}{4}, \frac{1}{8}]$	[12, 14]

Table 20: Wyckoff bond: 32c@16f

No.	vector	center	mapping
1	$[X, Y, Z]$	$[x, x + \frac{1}{4}, \frac{1}{8}]$	[1]
2	$[-X, -Y, Z]$	$[\frac{1}{2} - x, \frac{3}{4} - x, \frac{5}{8}]$	[2]
3	$[-Y, X, Z]$	$[-x, x + \frac{3}{4}, \frac{3}{8}]$	[3]
4	$[Y, -X, Z]$	$[x + \frac{1}{2}, \frac{1}{4} - x, \frac{7}{8}]$	[4]
5	$[-X, Y, -Z]$	$[-x, x + \frac{3}{4}, \frac{3}{8}]$	[5]
6	$[X, -Y, -Z]$	$[x + \frac{1}{2}, \frac{1}{4} - x, \frac{7}{8}]$	[6]
7	$[Y, X, -Z]$	$[x, x + \frac{1}{4}, \frac{1}{8}]$	[7]
8	$[-Y, -X, -Z]$	$[\frac{1}{2} - x, \frac{3}{4} - x, \frac{5}{8}]$	[8]
9	$[-X, -Y, -Z]$	$[-x, \frac{3}{4} - x, \frac{7}{8}]$	[9]
10	$[X, Y, -Z]$	$[x + \frac{1}{2}, x + \frac{1}{4}, \frac{3}{8}]$	[10]
11	$[Y, -X, -Z]$	$[x, \frac{1}{4} - x, \frac{5}{8}]$	[11]
12	$[-Y, X, -Z]$	$[\frac{1}{2} - x, x + \frac{3}{4}, \frac{1}{8}]$	[12]
13	$[X, -Y, Z]$	$[x, \frac{1}{4} - x, \frac{5}{8}]$	[13]
14	$[-X, Y, Z]$	$[\frac{1}{2} - x, x + \frac{3}{4}, \frac{1}{8}]$	[14]
15	$[-Y, -X, Z]$	$[-x, \frac{3}{4} - x, \frac{7}{8}]$	[15]
16	$[Y, X, Z]$	$[x + \frac{1}{2}, x + \frac{1}{4}, \frac{3}{8}]$	[16]

* Wyckoff site: 32g, site symmetry: 1

Table 21: Wyckoff bond: 32a@32g

No.	vector	center	mapping
1	$[X, Y, Z]$	$[x, y, z]$	[1]
2	$[-X, -Y, Z]$	$[\frac{1}{2} - x, -y, z + \frac{1}{2}]$	[2]
3	$[-Y, X, Z]$	$[\frac{1}{4} - y, x + \frac{3}{4}, z + \frac{1}{4}]$	[3]
4	$[Y, -X, Z]$	$[y + \frac{1}{4}, \frac{1}{4} - x, z + \frac{3}{4}]$	[4]
5	$[-X, Y, -Z]$	$[\frac{1}{2} - x, y, -z]$	[5]
6	$[X, -Y, -Z]$	$[x, -y, \frac{1}{2} - z]$	[6]
7	$[Y, X, -Z]$	$[y + \frac{1}{4}, x + \frac{3}{4}, \frac{3}{4} - z]$	[7]
8	$[-Y, -X, -Z]$	$[\frac{1}{4} - y, \frac{1}{4} - x, \frac{1}{4} - z]$	[8]
9	$[-X, -Y, -Z]$	$[-x, -y, -z]$	[9]
10	$[X, Y, -Z]$	$[x + \frac{1}{2}, y, \frac{1}{2} - z]$	[10]
11	$[Y, -X, -Z]$	$[y + \frac{3}{4}, \frac{1}{4} - x, \frac{3}{4} - z]$	[11]
12	$[-Y, X, -Z]$	$[\frac{3}{4} - y, x + \frac{3}{4}, \frac{1}{4} - z]$	[12]
13	$[X, -Y, Z]$	$[x + \frac{1}{2}, -y, z]$	[13]
14	$[-X, Y, Z]$	$[-x, y, z + \frac{1}{2}]$	[14]

continued ...

Table 21

No.	vector	center	mapping
15	$[-Y, -X, Z]$	$[\frac{3}{4} - y, \frac{1}{4} - x, z + \frac{1}{4}]$	[15]
16	$[Y, X, Z]$	$[y + \frac{3}{4}, x + \frac{3}{4}, z + \frac{3}{4}]$	[16]