MSG No. 119.316 $I\bar{4}m21'$ [Type II, tetragonal]

Table 1: Wyckoff site: `2a`, site symmetry: `-4m21'`

No.	position	mapping
1	$[0, 0, 0]$	`[1,2,3,4,5,6,7,8,17,18,19,20,21,22,23,24]`
2	$\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}\right]$	`[9,10,11,12,13,14,15,16,25,26,27,28,29,30,31,32]`

Table 2: Wyckoff site: `2b`, site symmetry: `-4m21'`

No.	position	mapping
1	$\left[0, 0, \frac{1}{2}\right]$	`[1,2,3,4,5,6,7,8,17,18,19,20,21,22,23,24]`
2	$\left[\frac{1}{2}, \frac{1}{2}, 0\right]$	`[9,10,11,12,13,14,15,16,25,26,27,28,29,30,31,32]`

Table 3: Wyckoff site: `2c`, site symmetry: `-4m21'`

No.	position	mapping
1	$\left[0, \frac{1}{2}, \frac{1}{4}\right]$	`[1,2,7,8,11,12,13,14,17,18,23,24,27,28,29,30]`
2	$\left[\frac{1}{2}, 0, \frac{3}{4}\right]$	`[3,4,5,6,9,10,15,16,19,20,21,22,25,26,31,32]`

Table 4: Wyckoff site: `2d`, site symmetry: `-4m21'`

No.	position	mapping
1	$\left[0, \frac{1}{2}, \frac{3}{4}\right]$	`[1,2,7,8,11,12,13,14,17,18,23,24,27,28,29,30]`
2	$\left[\frac{1}{2}, 0, \frac{1}{4}\right]$	`[3,4,5,6,9,10,15,16,19,20,21,22,25,26,31,32]`

Table 5: Wyckoff site: `4e`, site symmetry: `2mm.1'`

No.	position	mapping
1	$[0, 0, z]$	`[1,2,7,8,17,18,23,24]`
2	$[0, 0, -z]$	`[3,4,5,6,19,20,21,22]`
3	$\left[\frac{1}{2}, \frac{1}{2}, z + \frac{1}{2}\right]$	`[9,10,15,16,25,26,31,32]`
4	$\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2} - z\right]$	`[11,12,13,14,27,28,29,30]`

Table 6: Wyckoff site: `4f`, site symmetry: `2mm.1'`

No.	position	mapping
1	$\left[0,\ \frac{1}{2},\ z\right]$	`[1,2,7,8,17,18,23,24]`
2	$\left[\frac{1}{2},\ 0,\ -z\right]$	`[3,4,5,6,19,20,21,22]`
3	$\left[\frac{1}{2},\ 0,\ z+\frac{1}{2}\right]$	`[9,10,15,16,25,26,31,32]`
4	$\left[0,\ \frac{1}{2},\ \frac{1}{2}-z\right]$	`[11,12,13,14,27,28,29,30]`

Table 7: Wyckoff site: `8g`, site symmetry: `..21'`

No.	position	mapping
1	$[x,\ x,\ 0]$	`[1,3,17,19]`
2	$[-x,\ -x,\ 0]$	`[2,4,18,20]`
3	$[x,\ -x,\ 0]$	`[5,8,21,24]`
4	$[-x,\ x,\ 0]$	`[6,7,22,23]`
5	$\left[x+\frac{1}{2},\ x+\frac{1}{2},\ \frac{1}{2}\right]$	`[9,11,25,27]`
6	$\left[\frac{1}{2}-x,\ \frac{1}{2}-x,\ \frac{1}{2}\right]$	`[10,12,26,28]`
7	$\left[x+\frac{1}{2},\ \frac{1}{2}-x,\ \frac{1}{2}\right]$	`[13,16,29,32]`
8	$\left[\frac{1}{2}-x,\ x+\frac{1}{2},\ \frac{1}{2}\right]$	`[14,15,30,31]`

Table 8: Wyckoff site: `8h`, site symmetry: `..21'`

No.	position	mapping
1	$\left[x,\ x+\frac{1}{2},\ \frac{1}{4}\right]$	`[1,11,17,27]`
2	$\left[-x,\ \frac{1}{2}-x,\ \frac{1}{4}\right]$	`[2,12,18,28]`
3	$\left[x+\frac{1}{2},\ x,\ \frac{3}{4}\right]$	`[3,9,19,25]`
4	$\left[\frac{1}{2}-x,\ -x,\ \frac{3}{4}\right]$	`[4,10,20,26]`
5	$\left[x+\frac{1}{2},\ -x,\ \frac{3}{4}\right]$	`[5,16,21,32]`
6	$\left[\frac{1}{2}-x,\ x,\ \frac{3}{4}\right]$	`[6,15,22,31]`
7	$\left[-x,\ x+\frac{1}{2},\ \frac{1}{4}\right]$	`[7,14,23,30]`
8	$\left[x,\ \frac{1}{2}-x,\ \frac{1}{4}\right]$	`[8,13,24,29]`

Table 9: Wyckoff site: `8i`, site symmetry: `.m.1'`

No.	position	mapping
1	$[x,\ 0,\ z]$	`[1,8,17,24]`
2	$[-x,\ 0,\ z]$	`[2,7,18,23]`
3	$[0,\ x,\ -z]$	`[3,6,19,22]`
4	$[0,\ -x,\ -z]$	`[4,5,20,21]`
5	$\left[x+\frac{1}{2},\ \frac{1}{2},\ z+\frac{1}{2}\right]$	`[9,16,25,32]`
6	$\left[\frac{1}{2}-x,\ \frac{1}{2},\ z+\frac{1}{2}\right]$	`[10,15,26,31]`
7	$\left[\frac{1}{2},\ x+\frac{1}{2},\ \frac{1}{2}-z\right]$	`[11,14,27,30]`

continued ...

Table 9

No.	position	mapping
8	$\left[\frac{1}{2},\ \frac{1}{2}-x,\ \frac{1}{2}-z\right]$	[12,13,28,29]

Table 10: Wyckoff site: 16j, site symmetry: 11'

No.	position	mapping
1	$[x,\ y,\ z]$	[1,17]
2	$[-x,\ -y,\ z]$	[2,18]
3	$[y,\ x,\ -z]$	[3,19]
4	$[-y,\ -x,\ -z]$	[4,20]
5	$[y,\ -x,\ -z]$	[5,21]
6	$[-y,\ x,\ -z]$	[6,22]
7	$[-x,\ y,\ z]$	[7,23]
8	$[x,\ -y,\ z]$	[8,24]
9	$\left[x+\frac{1}{2},\ y+\frac{1}{2},\ z+\frac{1}{2}\right]$	[9,25]
10	$\left[\frac{1}{2}-x,\ \frac{1}{2}-y,\ z+\frac{1}{2}\right]$	[10,26]
11	$\left[y+\frac{1}{2},\ x+\frac{1}{2},\ \frac{1}{2}-z\right]$	[11,27]
12	$\left[\frac{1}{2}-y,\ \frac{1}{2}-x,\ \frac{1}{2}-z\right]$	[12,28]
13	$\left[y+\frac{1}{2},\ \frac{1}{2}-x,\ \frac{1}{2}-z\right]$	[13,29]
14	$\left[\frac{1}{2}-y,\ x+\frac{1}{2},\ \frac{1}{2}-z\right]$	[14,30]
15	$\left[\frac{1}{2}-x,\ y+\frac{1}{2},\ z+\frac{1}{2}\right]$	[15,31]
16	$\left[x+\frac{1}{2},\ \frac{1}{2}-y,\ z+\frac{1}{2}\right]$	[16,32]