MSG No. 102.193 P_C4_2nm [Type IV, tetragonal]

Table 1: Symmetry operations for 3d polar vector.

No.	tag	matrix (polar)	det	TR
1	$\{1\|0\}$	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$	1	1
2	$\{4^+_{001}\|\frac{1}{2}\frac{1}{2}\frac{1}{2}\}$	$\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$	1	1
3	$\{4^-_{001}\|\frac{1}{2}\frac{1}{2}\frac{1}{2}\}$	$\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$	1	1
4	$\{2_{001}\|0\}$	$\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$	1	1
5	$\{m_{100}\|\frac{1}{2}\frac{1}{2}\frac{1}{2}\}$	$\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$	-1	1
6	$\{m_{010}\|\frac{1}{2}\frac{1}{2}\frac{1}{2}\}$	$\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$	-1	1
7	$\{m_{110}\|0\}$	$\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$	-1	1
8	$\{m_{1-10}\|0\}$	$\begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$	-1	1
9	$\{1'\|\frac{1}{2}\frac{1}{2}0\}$	$\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$	1	-1
10	$\{4^+_{001}{}'\|00\frac{1}{2}\}$	$\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$	1	-1
11	$\{4^-_{001}{}'\|00\frac{1}{2}\}$	$\begin{bmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$	1	-1
12	$\{2_{001}{}'\|\frac{1}{2}\frac{1}{2}0\}$	$\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$	1	-1
13	$\{m_{100}{}'\|00\frac{1}{2}\}$	$\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$	-1	-1

Table 1

No.	tag	matrix (polar)	det	TR
14	$\{m_{010}{}'\|00\tfrac{1}{2}\}$	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \tfrac{1}{2} \end{bmatrix}$	-1	-1
15	$\{m_{110}{}'\|\tfrac{1}{2}\tfrac{1}{2}0\}$	$\begin{bmatrix} 0 & -1 & 0 & \tfrac{1}{2} \\ -1 & 0 & 0 & \tfrac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$	-1	-1
16	$\{m_{1-10}{}'\|\tfrac{1}{2}\tfrac{1}{2}0\}$	$\begin{bmatrix} 0 & 1 & 0 & \tfrac{1}{2} \\ 1 & 0 & 0 & \tfrac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$	-1	-1

14	$\{m_{010}{}'\|00\tfrac{1}{2}\}$	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \tfrac{1}{2} \end{bmatrix}$	-1	-1

| 15 | $\{m_{110}{}'\|\tfrac{1}{2}\tfrac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & \tfrac{1}{2} \\ -1 & 0 & 0 & \tfrac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | -1 |