

PG No. 42  $C_{3i}(c)$   $\bar{3}$  [ trigonal ]

\* generator :  $3_{001}^+$ ,  $-1$

\* conjugacy class

- [1] : 1
- $[3_{001}^+]$  :  $3_{001}^+$
- $[3_{001}^-]$  :  $3_{001}^-$
- $[-1]$  :  $-1$
- $[-3_{001}^+]$  :  $-3_{001}^+$
- $[-3_{001}^-]$  :  $-3_{001}^-$

\* symmetry operation

Table 1: Symmetry operations for 3d polar vector.

No.	tag	matrix (polar)	det
1	1	$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
2	$3_{001}^+$	$\begin{bmatrix} 0 & -1 & 0 \\ 1 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
3	$3_{001}^-$	$\begin{bmatrix} -1 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
4	$-1$	$\begin{bmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	$-1$
5	$-3_{001}^+$	$\begin{bmatrix} 0 & 1 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	$-1$
6	$-3_{001}^-$	$\begin{bmatrix} 1 & -1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	$-1$