

MSG No. 226.127 $FSm\bar{3}c$ [Type IV, cubic]

* symmetry operation

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 ⁺ ₁₀₀ $\frac{1}{2}\frac{1}{2}\frac{1}{2}$ } | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 3 | {4 ⁻ ₁₀₀ $\frac{1}{2}\frac{1}{2}\frac{1}{2}$ } | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 4 | {4 ⁺ ₀₁₀ $\frac{1}{2}\frac{1}{2}\frac{1}{2}$ } | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 5 | {4 ⁻ ₀₁₀ $\frac{1}{2}\frac{1}{2}\frac{1}{2}$ } | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 6 | {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 |
| 7 | {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 |
| 8 | {2 ₁₀₀ 0} | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | 1 |
| 9 | {2 ₀₁₀ 0} | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | 1 |
| 10 | {2 ₀₀₁ 0} | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | 1 |
| 11 | {2 ₁₁₀ $\frac{1}{2}\frac{1}{2}\frac{1}{2}$ } | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 12 | {2 ₁₋₁₀ $\frac{1}{2}\frac{1}{2}\frac{1}{2}$ } | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 13 | {2 ₀₁₁ $\frac{1}{2}\frac{1}{2}\frac{1}{2}$ } | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|--|-----|----|
| 14 | $\{2_{01-1} \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 15 | $\{2_{101} \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 16 | $\{2_{-101} \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 17 | $\{3^+_{111} 0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 18 | $\{3^-_{111} 0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 19 | $\{3^-_{-1-1-1} 0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 20 | $\{3^+_{1-1-1} 0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 21 | $\{3^-_{-11-1} 0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 22 | $\{3^+_{-11-1} 0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 23 | $\{3^-_{-1-11} 0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 24 | $\{3^+_{-1-11} 0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 25 | $\{-1 0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | 1 |
| 26 | $\{-4^+_{100} \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 27 | $\{-4^-_{100} \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|---|-----|----|
| 28 | $\{-4^+_{010} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 29 | $\{-4^-_{010} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 30 | $\{-4^+_{001} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 31 | $\{-4^-_{001} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 32 | $\{m_{100} 0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | 1 |
| 33 | $\{m_{010} 0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | 1 |
| 34 | $\{m_{001} 0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | 1 |
| 35 | $\{m_{110} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 36 | $\{m_{1-10} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 37 | $\{m_{011} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 38 | $\{m_{01-1} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 39 | $\{m_{101} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 40 | $\{m_{-101} \frac{1}{2} \frac{1}{2} \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 41 | $\{-3^+_{111} 0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---------------------------------|---|-----|----|
| 42 | $\{-3_{111}^- 0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 43 | $\{-3_{1-1-1}^- 0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 44 | $\{-3_{1-1-1}^+ 0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 45 | $\{-3_{-11-1}^- 0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 46 | $\{-3_{-11-1}^+ 0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 47 | $\{-3_{-1-11}^- 0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 48 | $\{-3_{-1-11}^+ 0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 49 | $\{1 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 50 | $\{4_{100}^+ \frac{1}{2}00\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 51 | $\{4_{100}^- \frac{1}{2}00\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 52 | $\{4_{010}^+ \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 53 | $\{4_{010}^- \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 54 | $\{4_{001}^+ \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | 1 |
| 55 | $\{4_{001}^- \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|---|-----|----|
| 56 | $\{2_{100} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 57 | $\{2_{010} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 58 | $\{2_{001} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 59 | $\{2_{110} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | 1 |
| 60 | $\{2_{1-10} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | 1 |
| 61 | $\{2_{011} \frac{1}{2}00\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 62 | $\{2_{01-1} \frac{1}{2}00\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 63 | $\{2_{101} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 64 | $\{2_{-101} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 65 | $\{3^+_{111} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 66 | $\{3^-_{111} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 67 | $\{3^-_{1-1-1} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 68 | $\{3^+_{1-1-1} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 69 | $\{3^-_{-11-1} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|--|-----|----|
| 70 | $\{3^+_{-11-1} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 71 | $\{3^-_{-1-11} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 72 | $\{3^+_{-1-11} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 73 | $\{-1 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 74 | $\{-4^+_{100} \frac{1}{2}00\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 75 | $\{-4^-_{100} \frac{1}{2}00\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 76 | $\{-4^+_{010} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 77 | $\{-4^-_{010} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 78 | $\{-4^+_{001} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | 1 |
| 79 | $\{-4^-_{001} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | 1 |
| 80 | $\{\text{m}_{100} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 81 | $\{\text{m}_{010} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 82 | $\{\text{m}_{001} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 83 | $\{\text{m}_{110} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|--|-----|----|
| 84 | $\{m_{1-10} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | 1 |
| 85 | $\{m_{011} \frac{1}{2}00\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 86 | $\{m_{01-1} \frac{1}{2}00\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 87 | $\{m_{101} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 88 | $\{m_{-101} \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 89 | $\{-3^+_{111} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 90 | $\{-3^-_{111} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 91 | $\{-3^-_{1-1-1} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 92 | $\{-3^+_{1-1-1} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 93 | $\{-3^-_{-11-1} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 94 | $\{-3^+_{-11-1} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 95 | $\{-3^-_{-1-11} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 96 | $\{-3^+_{-1-11} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 97 | $\{1 \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---------------------------------------|---|-----|----|
| 98 | $\{4_{100}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 99 | $\{4_{100}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 100 | $\{4_{010}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 101 | $\{4_{010}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 102 | $\{4_{001}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | 1 |
| 103 | $\{4_{001}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | 1 |
| 104 | $\{2_{100} \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 105 | $\{2_{010} \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 106 | $\{2_{001} \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 107 | $\{2_{110} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | 1 |
| 108 | $\{2_{1-10} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | 1 |
| 109 | $\{2_{011} 0\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 110 | $\{2_{01-1} 0\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 111 | $\{2_{101} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|--|-----|----|
| 112 | $\{2_{-101} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 113 | $\{3^+_{111} 1\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 114 | $\{3^-_{111} 1\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 115 | $\{3^-_{1-1-1} 1\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 116 | $\{3^+_{1-1-1} 1\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 117 | $\{3^-_{-11-1} 1\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 118 | $\{3^+_{-11-1} 1\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 119 | $\{3^-_{-1-11} 1\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 120 | $\{3^+_{-1-11} 1\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 121 | $\{-1 1\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 122 | $\{-4^+_{100} 0\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 123 | $\{-4^-_{100} 0\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 124 | $\{-4^+_{010} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 125 | $\{-4^-_{010} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|--|-----|----|
| 126 | $\{-4_{001}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | 1 |
| 127 | $\{-4_{001}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | 1 |
| 128 | $\{m_{100} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 129 | $\{m_{010} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 130 | $\{m_{001} 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 131 | $\{m_{110} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | 1 |
| 132 | $\{m_{1-10} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | 1 |
| 133 | $\{m_{011} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 134 | $\{m_{01-1} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 135 | $\{m_{101} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 136 | $\{m_{-101} 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 137 | $\{-3_{111}^+ 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 138 | $\{-3_{111}^- 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 139 | $\{-3_{1-1-1}^- 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|---|-----|----|
| 140 | $\{-3_{-1-1}^+ \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 141 | $\{-3_{-11-1}^- \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 142 | $\{-3_{-11-1}^+ \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 143 | $\{-3_{-1-11}^- \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 144 | $\{-3_{-1-11}^+ \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 145 | $\{1 \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | 1 |
| 146 | $\{4_{100}^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 147 | $\{4_{100}^- 00\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 148 | $\{4_{010}^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 149 | $\{4_{010}^- 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 150 | $\{4_{001}^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 151 | $\{4_{001}^- 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 152 | $\{2_{100} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | 1 |
| 153 | $\{2_{010} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|---|-----|----|
| 154 | $\{2_{001} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | 1 |
| 155 | $\{2_{110} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 156 | $\{2_{1-10} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 157 | $\{2_{011} 00\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 158 | $\{2_{01-1} 00\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 159 | $\{2_{101} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 160 | $\{2_{-101} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | 1 |
| 161 | $\{3^+_{111} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 162 | $\{3^-_{111} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 163 | $\{3^-_{1-1-1} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 164 | $\{3^+_{1-1-1} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 165 | $\{3^-_{-11-1} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 166 | $\{3^+_{-11-1} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 167 | $\{3^-_{-1-11} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|--|-----|----|
| 168 | $\{3^+_{-1-11} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | 1 |
| 169 | $\{-1 \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | 1 |
| 170 | $\{-4^+_{100} 00\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 171 | $\{-4^-_{100} 00\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 172 | $\{-4^+_{010} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 173 | $\{-4^-_{010} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 174 | $\{-4^+_{001} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 175 | $\{-4^-_{001} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 176 | $\{\text{m}_{100} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | 1 |
| 177 | $\{\text{m}_{010} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | 1 |
| 178 | $\{\text{m}_{001} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | 1 |
| 179 | $\{\text{m}_{110} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 180 | $\{\text{m}_{1-10} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 181 | $\{\text{m}_{011} 00\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|--|-----|----|
| 182 | $\{m_{01-1} 00\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 183 | $\{m_{101} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 184 | $\{m_{-101} 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | 1 |
| 185 | $\{-3^+_{111} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 186 | $\{-3^-_{111} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 187 | $\{-3^-_{-1-1-1} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 188 | $\{-3^+_{1-1-1} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 189 | $\{-3^-_{-11-1} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 190 | $\{-3^+_{-11-1} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 191 | $\{-3^-_{-1-11} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 192 | $\{-3^+_{-1-11} \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | 1 |
| 193 | $\{1' 00\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 194 | $\{4^+_{100}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 195 | $\{4^-_{100}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|--|-----|----|
| 196 | $\{4_{010}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 197 | $\{4_{010}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 198 | $\{4_{001}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | -1 |
| 199 | $\{4_{001}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | -1 |
| 200 | $\{2_{100}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 201 | $\{2_{010}' 00\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 202 | $\{2_{001}' 00\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 203 | $\{2_{110}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | -1 |
| 204 | $\{2_{1-10}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | -1 |
| 205 | $\{2_{011}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 206 | $\{2_{01-1}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 207 | $\{2_{101}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 208 | $\{2_{-101}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 209 | $\{3_{111}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|----------------------------------|---|-----|----|
| 210 | $\{3_{-111}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 211 | $\{3_{-1-1-1}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 212 | $\{3_{1-1-1}'^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 213 | $\{3_{-11-1}'^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 214 | $\{3_{-11-1}'^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 215 | $\{3_{-1-11}'^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 216 | $\{3_{-1-11}'^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 217 | $\{-1' 00\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 218 | $\{-4_{100}^+ 1\frac{1}{2}10\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 219 | $\{-4_{100}^- 1\frac{1}{2}10\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 220 | $\{-4_{010}^+ 1\frac{1}{2}10\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 221 | $\{-4_{010}^- 1\frac{1}{2}10\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 222 | $\{-4_{001}^+ 1\frac{1}{2}10\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | -1 |
| 223 | $\{-4_{001}^- 1\frac{1}{2}10\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|---|-----|----|
| 224 | $\{m_{100}' 00\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 225 | $\{m_{010}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 226 | $\{m_{001}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 227 | $\{m_{110}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | -1 |
| 228 | $\{m_{1-10}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | -1 |
| 229 | $\{m_{011}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 230 | $\{m_{01-1}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 231 | $\{m_{101}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 232 | $\{m_{-101}' \frac{1}{2}\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 233 | $\{-3^+_{111}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 234 | $\{-3^-_{111}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 235 | $\{-3^-_{1-1-1}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 236 | $\{-3^+_{1-1-1}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 237 | $\{-3^-_{-11-1}' 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|--|-----|----|
| 238 | $\{-3_{-11-1}^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 239 | $\{-3_{-1-11}^- 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 240 | $\{-3_{-1-11}^+ 00\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 241 | $\{1' 0\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | -1 |
| 242 | $\{4_{100}^+ 0\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 243 | $\{4_{-100}^- 0\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 244 | $\{4_{010}^+ 0\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 245 | $\{4_{-010}^- 0\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 246 | $\{4_{001}^+ 0\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 247 | $\{4_{-001}^- 0\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 248 | $\{2_{100}' 0\frac{1}{2}0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | -1 |
| 249 | $\{2_{010}' 0\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | -1 |
| 250 | $\{2_{001}' 0\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | -1 |
| 251 | $\{2_{110}' 0\frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|--|-----|----|
| 252 | $\{2_{1-10}' \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 253 | $\{2_{011}' \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 254 | $\{2_{01-1}' \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 255 | $\{2_{101}' \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 256 | $\{2_{-101}' \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 257 | $\{3_{111}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 258 | $\{3_{111}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 259 | $\{3_{-1-1-1}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 260 | $\{3_{1-1-1}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 261 | $\{3_{-11-1}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 262 | $\{3_{-11-1}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 263 | $\{3_{-1-11}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 264 | $\{3_{-1-11}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 265 | $\{-1' 0\frac{1}{2}0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|---|-----|----|
| 266 | $\{-4_{100}^+ \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 267 | $\{-4_{100}^- \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 268 | $\{-4_{010}^+ \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 269 | $\{-4_{010}^- \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 270 | $\{-4_{001}^+ \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 271 | $\{-4_{001}^- \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 272 | $\{\text{m}_{100}' 0 \frac{1}{2} 0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | -1 |
| 273 | $\{\text{m}_{010}' 0 \frac{1}{2} 0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | -1 |
| 274 | $\{\text{m}_{001}' 0 \frac{1}{2} 0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | -1 |
| 275 | $\{\text{m}_{110}' \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 276 | $\{\text{m}_{1-10}' \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 277 | $\{\text{m}_{011}' \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 278 | $\{\text{m}_{01-1}' \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 279 | $\{\text{m}_{101}' \frac{1}{2} 0 \frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|--|-----|----|
| 280 | $\{m_{-101}' \frac{1}{2}0\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 281 | $\{-3_{111}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 282 | $\{-3_{111}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 283 | $\{-3_{-1-1-1}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 284 | $\{-3_{1-1-1}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 285 | $\{-3_{-11-1}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 286 | $\{-3_{-11-1}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 287 | $\{-3_{-1-11}^- 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 288 | $\{-3_{-1-11}^+ 0\frac{1}{2}0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 289 | $\{1' \frac{1}{2}00\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | -1 |
| 290 | $\{4_{100}^+ 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 291 | $\{4_{100}^- 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 292 | $\{4_{010}^+ 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 293 | $\{4_{010}^- 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|--|-----|----|
| 294 | $\{4_{001}^+ 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 295 | $\{4_{001}^- 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 296 | $\{2_{100}' \frac{1}{2}00\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | -1 |
| 297 | $\{2_{010}' \frac{1}{2}00\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | -1 |
| 298 | $\{2_{001}' \frac{1}{2}00\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | -1 |
| 299 | $\{2_{110}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 300 | $\{2_{1-10}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 301 | $\{2_{011}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 302 | $\{2_{01-1}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 303 | $\{2_{101}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 304 | $\{2_{-101}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 305 | $\{3_{111}^+ \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 306 | $\{3_{111}^- \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 307 | $\{3_{-1-1-1}^- \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|---|-----|----|
| 308 | $\{3_{1-1-1}^+ \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 309 | $\{3_{-11-1}^- \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 310 | $\{3_{-11-1}^+ \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 311 | $\{3_{-1-11}^- \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 312 | $\{3_{-1-11}^+ \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 313 | $\{-1' \frac{1}{2}00\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | -1 |
| 314 | $\{-4_{100}^+ 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 315 | $\{-4_{100}^- 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 316 | $\{-4_{010}^+ 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 317 | $\{-4_{010}^- 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 318 | $\{-4_{001}^+ 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 319 | $\{-4_{001}^- 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 320 | $\{\text{m}_{100}' \frac{1}{2}00\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | -1 |
| 321 | $\{\text{m}_{010}' \frac{1}{2}00\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|---|-----|----|
| 322 | $\{m_{001}' \frac{1}{2}00\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | -1 |
| 323 | $\{m_{110}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 324 | $\{m_{1-10}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 325 | $\{m_{011}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 326 | $\{m_{01-1}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 327 | $\{m_{101}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 328 | $\{m_{-101}' 0\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 329 | $\{-3^+_{111}' \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 330 | $\{-3^-_{111}' \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 331 | $\{-3^-_{1-1-1}' \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 332 | $\{-3^+_{1-1-1}' \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 333 | $\{-3^-_{-11-1}' \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 334 | $\{-3^+_{-11-1}' \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 335 | $\{-3^-_{-1-11}' \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|---|-----|----|
| 336 | $\{-3^+_{-1-11}' \frac{1}{2}00\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 337 | $\{1' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 338 | $\{4^+_{100}' 0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 339 | $\{4^-_{100}' 0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 340 | $\{4^+_{010}' 0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 341 | $\{4^-_{010}' 0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 342 | $\{4^+_{001}' 0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | -1 |
| 343 | $\{4^-_{001}' 0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | 1 | -1 |
| 344 | $\{2_{100}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 345 | $\{2_{010}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 346 | $\{2_{001}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 347 | $\{2_{110}' 0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | -1 |
| 348 | $\{2_{1-10}' 0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | 1 | -1 |
| 349 | $\{2_{011}' 0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|---|--|-----|----|
| 350 | $\{2_{01-1'} 0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 351 | $\{2_{101}' 0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 352 | $\{2_{-101}' 0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | 1 | -1 |
| 353 | $\{3_{111}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 354 | $\{3_{111}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 355 | $\{3_{-1-1-1}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 356 | $\{3_{-1-1-1}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 357 | $\{3_{-11-1}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 358 | $\{3_{-11-1}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 359 | $\{3_{-1-11}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 360 | $\{3_{-1-11}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | 1 | -1 |
| 361 | $\{-1' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 362 | $\{-4_{100}' 0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 363 | $\{-4_{100}' 0\}$ | $\begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|--|-----|----|
| 364 | $\{-4_{010}^+ 0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 365 | $\{-4_{010}^- 0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 366 | $\{-4_{001}^+ 0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | -1 |
| 367 | $\{-4_{001}^- 0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$ | -1 | -1 |
| 368 | $\{m_{100}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 369 | $\{m_{010}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 370 | $\{m_{001}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 371 | $\{m_{110}' 0\}$ | $\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | -1 |
| 372 | $\{m_{1-10}' 0\}$ | $\begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$ | -1 | -1 |
| 373 | $\{m_{011}' 0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & -1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 374 | $\{m_{01-1}' 0\}$ | $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 375 | $\{m_{101}' 0\}$ | $\begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 376 | $\{m_{-101}' 0\}$ | $\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 0 & 0 \end{bmatrix}$ | -1 | -1 |
| 377 | $\{-3_{111}^+ \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |

continued ...

Table 1

| No. | tag | matrix (polar) | det | TR |
|-----|--|--|-----|----|
| 378 | $\{-3_{111}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 379 | $\{-3_{-1-1-1}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 380 | $\{-3_{1-1-1}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & -1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 381 | $\{-3_{-11-1}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 382 | $\{-3_{-11-1}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & -1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 383 | $\{-3_{-1-11}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & -1 & 0 & \frac{1}{2} \\ 0 & 0 & 1 & \frac{1}{2} \\ 1 & 0 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |
| 384 | $\{-3_{-1-11}' \frac{1}{2}\frac{1}{2}\frac{1}{2}\}$ | $\begin{bmatrix} 0 & 0 & 1 & \frac{1}{2} \\ -1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & \frac{1}{2} \end{bmatrix}$ | -1 | -1 |