

MPG No. 23.5.86 $6'/m'$ [Type III, hexagonal] [T tensor]

* Rank 0 tensor. * Rank 1 tensor. * Rank 2 tensor (s). * Rank 2 tensor (a). * Rank 3 tensor (s). * Rank 3 tensor (a). * Rank 4 tensor (sss).

$$\begin{bmatrix} 0 & 0 & 0 & T_{xyz} & T_{xxz} & 0 \\ 0 & 0 & 0 & -T_{xyz} & -T_{xxz} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ T_{xyz} & -T_{xyz} & 0 & 0 & 0 & -T_{xxz} \\ T_{xxz} & -T_{xxz} & 0 & 0 & 0 & T_{xyz} \\ 0 & 0 & 0 & -T_{xxz} & T_{xyz} & 0 \end{bmatrix}$$

$$T_{xyz} = T_{gb}^{(1)}$$

$$T_{xxz} = T_{ga}^{(1)}$$

* Rank 4 tensor (ssa).

$$\begin{bmatrix} 0 & 0 & 0 & T_{xyz} & T_{xxz} & 0 \\ 0 & 0 & 0 & -T_{xyz} & -T_{xxz} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -T_{xyz} & T_{xyz} & 0 & 0 & 0 & T_{xxz} \\ -T_{xxz} & T_{xxz} & 0 & 0 & 0 & -T_{xyz} \\ 0 & 0 & 0 & -T_{xxz} & T_{xyz} & 0 \end{bmatrix}$$

$$T_{xyz} = 2M_{f2}^{(1)}$$

$$T_{xxz} = -2M_{f1}^{(1)}$$

* Rank 4 tensor (aas). * Rank 4 tensor (aaa). * Rank 4 tensor (sa).

$$\begin{bmatrix} T_{xyz} & T_{xxz} & 0 \\ -T_{xyz} & -T_{xxz} & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ T_{xxz} & -T_{xyz} & 0 \end{bmatrix}$$

$$T_{xyz} = M_{f2}^{(2)}$$

$$T_{xxz} = M_{f1}^{(2)}$$

* Rank 4 tensor (as).

$$\begin{bmatrix} T_{yzxx} & -T_{yzxx} & 0 & 0 & 0 & T_{yzxy} \\ T_{yzxy} & -T_{yzxy} & 0 & 0 & 0 & -T_{yzxx} \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$T_{yzxx} = M_{f2}^{(3)}$$

$$T_{yzxy} = M_{f1}^{(3)}$$

* Rank 4 tensor (s).

$$\begin{bmatrix} 0 & 0 & 0 & T_{xyz} & T_{xxz} & 0 & T_{xxzy} & T_{xxzx} & 0 \\ 0 & 0 & 0 & -T_{xyz} & -T_{xxz} & 0 & -T_{xxzy} & -T_{xxzx} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ T_{yzxx} & -T_{yzxx} & 0 & 0 & 0 & T_{yzxy} & 0 & 0 & T_{yzxy} \\ -T_{yzxy} & T_{yzxy} & 0 & 0 & 0 & T_{yzxx} & 0 & 0 & T_{yzxx} \\ 0 & 0 & 0 & -T_{xxz} & T_{xxzy} & 0 & -T_{xxzx} & T_{xxyz} & 0 \end{bmatrix}$$

$$\begin{aligned}
T_{xxyz} &= 2M_{f2}^{(1)} + M_{f2}^{(2)} + T_{gb}^{(1)} \\
T_{xxzx} &= -2M_{f1}^{(1)} + M_{f1}^{(2)} + T_{ga}^{(1)} \\
T_{xxzy} &= 2M_{f2}^{(1)} - M_{f2}^{(2)} + T_{gb}^{(1)} \\
T_{xxxz} &= -2M_{f1}^{(1)} - M_{f1}^{(2)} + T_{ga}^{(1)} \\
T_{yzxx} &= -2M_{f2}^{(1)} + T_{gb}^{(1)} \\
T_{yzxy} &= -2M_{f1}^{(1)} - T_{ga}^{(1)}
\end{aligned}$$

* Rank 4 tensor (a).

$$\begin{bmatrix}
T_{yzxx} & -T_{yzxx} & 0 & 0 & 0 & T_{yzxy} & 0 & 0 & T_{yzxy} \\
T_{yzxy} & -T_{yzxy} & 0 & 0 & 0 & -T_{yzxx} & 0 & 0 & -T_{yzxx} \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0
\end{bmatrix}$$

$$\begin{aligned}
T_{yzxx} &= M_{f2}^{(3)} \\
T_{yzxy} &= M_{f1}^{(3)}
\end{aligned}$$

* Rank 4 tensor (t).

$$\begin{bmatrix}
0 & 0 & T_{xxxz} \\
0 & 0 & T_{yyyz} \\
0 & 0 & 0 \\
-T_{xxxz} & T_{yyyz} & 0 \\
0 & 0 & 0 \\
0 & 0 & -T_{yyyz} \\
0 & 0 & 0 \\
T_{xxxz} & -T_{yyyz} & 0 \\
0 & 0 & -T_{xxxz} \\
-T_{yyyz} & -T_{xxxz} & 0
\end{bmatrix}$$

$$\begin{aligned}
T_{xxxz} &= T_{ga}^{(1)} \\
T_{yyyz} &= -T_{gb}^{(1)}
\end{aligned}$$