

\* Rank 0 tensor. \* Rank 1 tensor.

$$\begin{bmatrix} 0 & 0 & T_z \end{bmatrix}$$

$$T_z = T_{pz}^{(1)}$$

\* Rank 2 tensor (s).

$$\begin{bmatrix} 0 & T_{xy} & 0 \\ T_{xy} & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$T_{xy} = T_{dxy}^{(1)}$$

\* Rank 2 tensor (a).

$$\begin{bmatrix} 0 & T_{xy} & 0 \\ -T_{xy} & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$T_{xy} = M_{pz}^{(1)}$$

\* Rank 3 tensor (s).

$$\begin{bmatrix} 0 & 0 & T_{xxz} \\ 0 & 0 & T_{yyz} \\ 0 & 0 & T_{zzz} \\ 0 & T_{yzy} & 0 \\ T_{zxx} & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$T_{xxz} = -2M_{dxy}^{(1)} - T_{faz}^{(1)} + T_{fbz}^{(1)} + T_{pz}^{(1)}$$

$$T_{yyz} = 2M_{dxy}^{(1)} - T_{faz}^{(1)} - T_{fbz}^{(1)} + T_{pz}^{(1)}$$

$$T_{zzz} = 2T_{faz}^{(1)} + T_{pz}^{(1)} + 2T_{pz}^{(2)}$$

$$T_{yzy} = -M_{dxy}^{(1)} - T_{faz}^{(1)} - T_{fbz}^{(1)} + T_{pz}^{(2)}$$

$$T_{zxx} = M_{dxy}^{(1)} - T_{faz}^{(1)} + T_{fbz}^{(1)} + T_{pz}^{(2)}$$

\* Rank 3 tensor (a).

$$\begin{bmatrix} 0 & T_{yzy} & 0 \\ T_{zxx} & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$T_{yzy} = M_{dxy}^{(2)} + T_{pz}^{(3)}$$

$$T_{zxx} = M_{dxy}^{(2)} - T_{pz}^{(3)}$$

\* Rank 4 tensor (sss).

$$\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & T_{xxxx} \\ 0 & 0 & 0 & 0 & 0 & T_{yyxy} \\ 0 & 0 & 0 & 0 & 0 & T_{zzxy} \\ 0 & 0 & 0 & 0 & T_{yzzx} & 0 \\ 0 & 0 & 0 & T_{yzzx} & 0 & 0 \\ T_{xxxx} & T_{yyxy} & T_{zzxy} & 0 & 0 & 0 \end{bmatrix}$$

$$\begin{aligned}
T_{xxxy} &= T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{gaz}^{(1)} - T_{gbz}^{(1)} \\
T_{yyxy} &= T_{dxy}^{(1)} + 2T_{dxy}^{(2)} - T_{gaz}^{(1)} - T_{gbz}^{(1)} \\
T_{zzxy} &= T_{dxy}^{(1)} + 2T_{gbz}^{(1)} \\
T_{yzzx} &= T_{dxy}^{(2)} + 2T_{gbz}^{(1)}
\end{aligned}$$

\* Rank 4 tensor (ssa).

$$\begin{bmatrix}
0 & 0 & 0 & 0 & 0 & T_{xxxy} \\
0 & 0 & 0 & 0 & 0 & T_{yyxy} \\
0 & 0 & 0 & 0 & 0 & T_{zzxy} \\
0 & 0 & 0 & 0 & T_{yzzx} & 0 \\
0 & 0 & 0 & -T_{yzzx} & 0 & 0 \\
-T_{xxxy} & -T_{yyxy} & -T_{zzxy} & 0 & 0 & 0
\end{bmatrix}$$

$$\begin{aligned}
T_{xxxy} &= -2M_{faz}^{(1)} + 2M_{fbz}^{(1)} + 2M_{pz}^{(1)} + T_{dxy}^{(3)} \\
T_{yyxy} &= 2M_{faz}^{(1)} + 2M_{fbz}^{(1)} - 2M_{pz}^{(1)} + T_{dxy}^{(3)} \\
T_{zzxy} &= -4M_{fbz}^{(1)} + T_{dxy}^{(3)} \\
T_{yzzx} &= -4M_{faz}^{(1)} - M_{pz}^{(1)}
\end{aligned}$$

\* Rank 4 tensor (aas).

$$\begin{bmatrix}
0 & T_{yzzx} & 0 \\
T_{yzzx} & 0 & 0 \\
0 & 0 & 0
\end{bmatrix}$$

$$T_{yzzx} = 2T_{dxy}^{(4)}$$

\* Rank 4 tensor (aaa).

$$\begin{bmatrix}
0 & T_{yzzx} & 0 \\
-T_{yzzx} & 0 & 0 \\
0 & 0 & 0
\end{bmatrix}$$

$$T_{yzzx} = -M_{pz}^{(2)}$$

\* Rank 4 tensor (sa).

$$\begin{bmatrix}
0 & 0 & T_{xxxy} \\
0 & 0 & T_{yyxy} \\
0 & 0 & T_{zzxy} \\
0 & T_{yzzx} & 0 \\
T_{zxyz} & 0 & 0 \\
0 & 0 & 0
\end{bmatrix}$$

$$\begin{aligned}
T_{xxxy} &= -M_{faz}^{(2)} + M_{fbz}^{(2)} + M_{pz}^{(3)} - 2T_{dxy}^{(5)} \\
T_{yyxy} &= -M_{faz}^{(2)} - M_{fbz}^{(2)} + M_{pz}^{(3)} + 2T_{dxy}^{(5)} \\
T_{zzxy} &= 2M_{faz}^{(2)} + M_{pz}^{(3)} + 2M_{pz}^{(4)} \\
T_{yzzx} &= -M_{faz}^{(2)} - M_{fbz}^{(2)} + M_{pz}^{(4)} - T_{dxy}^{(5)} \\
T_{zxyz} &= -M_{faz}^{(2)} + M_{fbz}^{(2)} + M_{pz}^{(4)} + T_{dxy}^{(5)}
\end{aligned}$$

\* Rank 4 tensor (as).

$$\begin{bmatrix}
0 & 0 & 0 & 0 & T_{yzzx} & 0 \\
0 & 0 & 0 & T_{zxyz} & 0 & 0 \\
T_{xyxx} & T_{xyyy} & T_{xyzx} & 0 & 0 & 0
\end{bmatrix}$$

$$\begin{aligned}
T_{yzzx} &= -M_{faz}^{(3)} + M_{fbz}^{(3)} + M_{pz}^{(6)} + T_{dxy}^{(6)} \\
T_{zxyz} &= -M_{faz}^{(3)} - M_{fbz}^{(3)} + M_{pz}^{(6)} - T_{dxy}^{(6)} \\
T_{xyxx} &= -M_{faz}^{(3)} + M_{fbz}^{(3)} + M_{pz}^{(5)} - 2T_{dxy}^{(6)} \\
T_{xyyy} &= -M_{faz}^{(3)} - M_{fbz}^{(3)} + M_{pz}^{(5)} + 2T_{dxy}^{(6)} \\
T_{xyzz} &= 2M_{faz}^{(3)} + M_{pz}^{(5)} + 2M_{pz}^{(6)}
\end{aligned}$$

\* Rank 4 tensor (s).

$$\begin{bmatrix}
0 & 0 & 0 & 0 & 0 & T_{xxxy} & 0 & 0 & T_{xxyx} \\
0 & 0 & 0 & 0 & 0 & T_{yyxy} & 0 & 0 & T_{yyyx} \\
0 & 0 & 0 & 0 & 0 & T_{zzxy} & 0 & 0 & T_{zzyx} \\
0 & 0 & 0 & 0 & T_{yzxz} & 0 & 0 & T_{yzxz} & 0 \\
0 & 0 & 0 & T_{zxyz} & 0 & 0 & T_{zxzy} & 0 & 0 \\
T_{xyxx} & T_{xyyy} & T_{xyzz} & 0 & 0 & 0 & 0 & 0 & 0
\end{bmatrix}$$

$$\begin{aligned}
T_{xxxy} &= -2M_{faz}^{(1)} - M_{faz}^{(2)} + 2M_{fbz}^{(1)} + M_{fbz}^{(2)} + 2M_{pz}^{(1)} + M_{pz}^{(3)} + T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{dxy}^{(3)} - 2T_{dxy}^{(5)} + T_{gaz}^{(1)} - T_{gbz}^{(1)} \\
T_{xxyx} &= -2M_{faz}^{(1)} + M_{faz}^{(2)} + 2M_{fbz}^{(1)} - M_{fbz}^{(2)} + 2M_{pz}^{(1)} - M_{pz}^{(3)} + T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{dxy}^{(3)} + 2T_{dxy}^{(5)} + T_{gaz}^{(1)} - T_{gbz}^{(1)} \\
T_{yyxy} &= 2M_{faz}^{(1)} - M_{faz}^{(2)} + 2M_{fbz}^{(1)} - M_{fbz}^{(2)} - 2M_{pz}^{(1)} + M_{pz}^{(3)} + T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{dxy}^{(3)} + 2T_{dxy}^{(5)} - T_{gaz}^{(1)} - T_{gbz}^{(1)} \\
T_{yyyx} &= 2M_{faz}^{(1)} + M_{faz}^{(2)} + 2M_{fbz}^{(1)} + M_{fbz}^{(2)} - 2M_{pz}^{(1)} - M_{pz}^{(3)} + T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{dxy}^{(3)} - 2T_{dxy}^{(5)} - T_{gaz}^{(1)} - T_{gbz}^{(1)} \\
T_{zzxy} &= 2M_{faz}^{(2)} - 4M_{fbz}^{(1)} + M_{pz}^{(3)} + 2M_{pz}^{(4)} + T_{dxy}^{(1)} + T_{dxy}^{(3)} + 2T_{gbz}^{(1)} \\
T_{zzyx} &= -2M_{faz}^{(2)} - 4M_{fbz}^{(1)} - M_{pz}^{(3)} - 2M_{pz}^{(4)} + T_{dxy}^{(1)} + T_{dxy}^{(3)} + 2T_{gbz}^{(1)} \\
T_{yzxz} &= -4M_{faz}^{(1)} - M_{faz}^{(2)} - M_{fbz}^{(2)} - M_{pz}^{(1)} + M_{pz}^{(4)} + T_{dxy}^{(2)} - T_{dxy}^{(5)} + 2T_{gbz}^{(1)} \\
T_{yzxz} &= -4M_{faz}^{(1)} + M_{faz}^{(2)} + M_{fbz}^{(2)} - M_{pz}^{(1)} - M_{pz}^{(4)} + T_{dxy}^{(2)} + T_{dxy}^{(5)} + 2T_{gbz}^{(1)} \\
T_{zxyx} &= 4M_{faz}^{(1)} - M_{faz}^{(2)} + M_{fbz}^{(2)} + M_{pz}^{(1)} + M_{pz}^{(4)} + T_{dxy}^{(2)} + T_{dxy}^{(5)} + 2T_{gbz}^{(1)} \\
T_{zxzy} &= 4M_{faz}^{(1)} + M_{faz}^{(2)} - M_{fbz}^{(2)} + M_{pz}^{(1)} - M_{pz}^{(4)} + T_{dxy}^{(2)} - T_{dxy}^{(5)} + 2T_{gbz}^{(1)} \\
T_{xyxx} &= 2M_{faz}^{(1)} - 2M_{fbz}^{(1)} - 2M_{pz}^{(1)} + T_{dxy}^{(1)} + 2T_{dxy}^{(2)} - T_{dxy}^{(3)} + T_{gaz}^{(1)} - T_{gbz}^{(1)} \\
T_{xyyy} &= -2M_{faz}^{(1)} - 2M_{fbz}^{(1)} + 2M_{pz}^{(1)} + T_{dxy}^{(1)} + 2T_{dxy}^{(2)} - T_{dxy}^{(3)} - T_{gaz}^{(1)} - T_{gbz}^{(1)} \\
T_{xyzz} &= 4M_{fbz}^{(1)} + T_{dxy}^{(1)} - T_{dxy}^{(3)} + 2T_{gbz}^{(1)}
\end{aligned}$$

\* Rank 4 tensor (a).

$$\begin{bmatrix}
0 & 0 & 0 & 0 & T_{yzxz} & 0 & 0 & T_{yzxz} & 0 \\
0 & 0 & 0 & T_{zxyz} & 0 & 0 & T_{zxzy} & 0 & 0 \\
T_{xyxx} & T_{xyyy} & T_{xyzz} & 0 & 0 & 0 & 0 & 0 & 0
\end{bmatrix}$$

$$\begin{aligned}
T_{yzzx} &= -M_{faz}^{(3)} + M_{fbz}^{(3)} - M_{pz}^{(2)} + M_{pz}^{(6)} + 2T_{dxy}^{(4)} + T_{dxy}^{(6)} \\
T_{yzxz} &= -M_{faz}^{(3)} + M_{fbz}^{(3)} + M_{pz}^{(2)} + M_{pz}^{(6)} - 2T_{dxy}^{(4)} + T_{dxy}^{(6)} \\
T_{zxyz} &= -M_{faz}^{(3)} - M_{fbz}^{(3)} + M_{pz}^{(2)} + M_{pz}^{(6)} + 2T_{dxy}^{(4)} - T_{dxy}^{(6)} \\
T_{zxzy} &= -M_{faz}^{(3)} - M_{fbz}^{(3)} - M_{pz}^{(2)} + M_{pz}^{(6)} - 2T_{dxy}^{(4)} - T_{dxy}^{(6)} \\
T_{xyxx} &= -M_{faz}^{(3)} + M_{fbz}^{(3)} + M_{pz}^{(5)} - 2T_{dxy}^{(6)} \\
T_{xyyy} &= -M_{faz}^{(3)} - M_{fbz}^{(3)} + M_{pz}^{(5)} + 2T_{dxy}^{(6)} \\
T_{xyzz} &= 2M_{faz}^{(3)} + M_{pz}^{(5)} + 2M_{pz}^{(6)}
\end{aligned}$$

\* Rank 4 tensor (t).

$$\begin{bmatrix} 0 & T_{xxy} & 0 \\ T_{yyyx} & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & T_{zzy} & 0 \\ T_{xxyx} & 0 & 0 \\ T_{yzzx} & 0 & 0 \\ 0 & 0 & 0 \\ 0 & T_{xyyy} & 0 \\ 0 & 0 & \frac{T_{xxx}y}{2} - \frac{T_{xxyx}}{2} + T_{xyyy} - T_{yyyx} + T_{zzxy} \end{bmatrix}$$

$$T_{xxy} = T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{dxy}^{(3)} - 2T_{dxy}^{(5)} + T_{gaz}^{(1)} - T_{gbz}^{(1)}$$

$$T_{yyyx} = T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{dxy}^{(3)} - 2T_{dxy}^{(5)} - T_{gaz}^{(1)} - T_{gbz}^{(1)}$$

$$T_{zzxy} = T_{dxy}^{(1)} + T_{dxy}^{(3)} + 2T_{gbz}^{(1)}$$

$$T_{xxyx} = T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{dxy}^{(3)} + 2T_{dxy}^{(5)} + T_{gaz}^{(1)} - T_{gbz}^{(1)}$$

$$T_{yzzx} = T_{dxy}^{(2)} - T_{dxy}^{(5)} + 2T_{gbz}^{(1)}$$

$$T_{xyyy} = T_{dxy}^{(1)} + 2T_{dxy}^{(2)} - T_{dxy}^{(3)} - T_{gaz}^{(1)} - T_{gbz}^{(1)}$$