* Rank 0 tensor.

$$[T]$$

$$T = T_s^{(1)}$$

* Rank 1 tensor. * Rank 2 tensor (s).

$$\begin{bmatrix} T_{xx} & T_{xy} & T_{xz} \\ T_{xy} & T_{yy} & T_{yz} \\ T_{xz} & T_{yz} & T_{zz} \end{bmatrix}$$

$$T_{xx} = -T_{du}^{(1)} + T_{dv}^{(1)} + T_s^{(1)}$$
$$T_{xy} = T_{dxy}^{(1)}$$
$$T_{xz} = T_{dxz}^{(1)}$$
$$T_{yy} = -T_{du}^{(1)} - T_{dv}^{(1)} + T_s^{(1)}$$
$$T_{yz} = T_{dyz}^{(1)}$$
$$T_{zz} = 2T_{du}^{(1)} + T_s^{(1)}$$

* Rank 2 tensor (a).

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

$$T_{xy} = M_{pz}^{(1)}$$
$$T_{xz} = -M_{py}^{(1)}$$
$$T_{yz} = M_{px}^{(1)}$$

* Rank 3 tensor (s). * Rank 3 tensor (a). * Rank 4 tensor (sss).

$$\begin{bmatrix} T_{xxxx} & T_{xxyy} & T_{xxzz} & T_{xxyz} & T_{xxzx} & T_{xxxy} \\ T_{xxyy} & T_{yyyy} & T_{yyzz} & T_{yyyz} & T_{yyzx} & T_{yyxy} \\ T_{xxzz} & T_{yyzz} & T_{zzzz} & T_{zzyz} & T_{zzzx} & T_{zzxy} \\ T_{xxyz} & T_{yyyz} & T_{zzyz} & T_{yzyz} & T_{yzzx} & T_{yzxy} \\ T_{xxzx} & T_{yyzx} & T_{zzzx} & T_{yzzx} & T_{zxzx} & T_{zxxy} \\ T_{xxxy} & T_{yyxy} & T_{zzxy} & T_{yzxy} & T_{zxxy} & T_{xyxy} \end{bmatrix}$$

$$T_{xxxx} = -2T_{du}^{(1)} - 4T_{du}^{(2)} + 2T_{dv}^{(1)} + 4T_{dv}^{(2)} - T_{gu}^{(1)} + T_{gv}^{(1)} + 2T_{g}^{(1)} + T_{s}^{(1)} + 2T_{s}^{(2)}$$

$$T_{xxyy} = -2T_{du}^{(1)} + 2T_{gu}^{(1)} - T_{g}^{(1)} + T_{s}^{(1)}$$

$$T_{xxzz} = T_{du}^{(1)} + T_{dv}^{(1)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(1)}$$

$$T_{xxyz} = T_{dyz}^{(1)} + 2T_{gbx}^{(1)}$$

$$T_{xxzx} = T_{dxz}^{(1)} + 2T_{dxz}^{(2)} - T_{gay}^{(1)} - T_{gby}^{(1)}$$

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

$$T_{yyyy} = -2T_{du}^{(1)} - 4T_{du}^{(2)} - 2T_{dv}^{(1)} - 4T_{dv}^{(2)} - T_{gu}^{(1)} - T_{gv}^{(1)} + 2T_{g}^{(1)} + T_{s}^{(1)} + 2T_{s}^{(2)}$$

$$T_{yyzz} = T_{du}^{(1)} - T_{dv}^{(1)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(1)}$$

$$T_{yyyz} = T_{dyz}^{(1)} + 2T_{dyz}^{(2)} + T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{yyzx} = T_{dxz}^{(1)} + 2T_{gby}^{(1)}$$

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

$$T_{zzzz} = 4T_{du}^{(1)} + 8T_{du}^{(2)} + 2T_{gu}^{(1)} + 2T_{g}^{(1)} + T_{s}^{(1)} + 2T_{s}^{(2)}$$

$$T_{zzyz} = T_{dyz}^{(1)} + 2T_{dyz}^{(2)} - T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{zzzx} = T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{gay}^{(1)} - T_{gby}^{(1)}$$

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

$$T_{yzyz} = T_{du}^{(2)} - T_{dv}^{(2)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(2)}$$

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

$$T_{yzxy} = T_{dxz}^{(2)} + 2T_{gby}^{(1)}$$

$$T_{zxzx} = T_{du}^{(2)} + T_{dv}^{(2)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(2)}$$

$$T_{zxxy} = T_{dyz}^{(2)} + 2T_{gbx}^{(1)}$$

$$T_{xyxy} = -2T_{du}^{(2)} + 2T_{gu}^{(1)} - T_{g}^{(1)} + T_{s}^{(2)}$$

* Rank 4 tensor (ssa).

$$
\begin{bmatrix}
0 & T_{xxyy} & T_{xxzz} & T_{xxyz} & T_{xxzx} & T_{xxxy} \\
-T_{xxyy} & 0 & T_{yyzz} & T_{yyyz} & T_{yyzx} & T_{yyxy} \\
-T_{xxzz} & -T_{yyzz} & 0 & T_{zzyz} & T_{zzzx} & T_{zzxy} \\
-T_{xxyz} & -T_{yyyz} & -T_{zzyz} & 0 & T_{yzzx} & T_{yzxy} \\
-T_{xxzx} & -T_{yyzx} & -T_{zzzx} & -T_{yzzx} & 0 & T_{zxxy} \\
-T_{xxxy} & -T_{yyxy} & -T_{zzxy} & -T_{yzxy} & -T_{zxxy} & 0
\end{bmatrix}
$$

$$T_{xxyy} = 4M_{f3}^{(1)} - 2T_{dv}^{(3)}$$

$$T_{xxzz} = -4M_{f3}^{(1)} + 3T_{du}^{(3)} - T_{dv}^{(3)}$$

$$T_{xxyz} = -4M_{fbx}^{(1)} + T_{dyz}^{(3)}$$

$$T_{xxzx} = 2M_{fay}^{(1)} + 2M_{fby}^{(1)} - 2M_{py}^{(1)} + T_{dxz}^{(3)}$$

$$T_{xxxy} = -2M_{faz}^{(1)} + 2M_{fbz}^{(1)} + 2M_{pz}^{(1)} + T_{dxy}^{(3)}$$

$$T_{yyzz} = 4M_{f3}^{(1)} + 3T_{du}^{(3)} + T_{dv}^{(3)}$$

$$T_{yyyz} = -2M_{fax}^{(1)} + 2M_{fbx}^{(1)} + 2M_{px}^{(1)} + T_{dyz}^{(3)}$$

$$T_{yyzx} = -4M_{fby}^{(1)} + T_{dxz}^{(3)}$$

$$T_{yyxy} = 2M_{faz}^{(1)} + 2M_{fbz}^{(1)} - 2M_{pz}^{(1)} + T_{dxy}^{(3)}$$

$$T_{zzyz} = 2M_{fax}^{(1)} + 2M_{fbx}^{(1)} - 2M_{px}^{(1)} + T_{dyz}^{(3)}$$

$$T_{zzzx} = -2M_{fay}^{(1)} + 2M_{fby}^{(1)} + 2M_{py}^{(1)} + T_{dxz}^{(3)}$$

$$T_{zzxy} = -4M_{fbz}^{(1)} + T_{dxy}^{(3)}$$

$$T_{yzzx} = -4M_{faz}^{(1)} - M_{pz}^{(1)}$$

$$T_{yzxy} = 4M_{fay}^{(1)} + M_{py}^{(1)}$$

$$T_{zxxy} = -4M_{fax}^{(1)} - M_{px}^{(1)}$$

* Rank 4 tensor (aas).

$$\begin{bmatrix} T_{yzyz} & T_{yzzx} & T_{yzxy} \\ T_{yzzx} & T_{zxzx} & T_{zxxy} \\ T_{yzxy} & T_{zxxy} & T_{xyxy} \end{bmatrix}$$

$$T_{yzyz} = -2T_{du}^{(4)} + 2T_{dv}^{(4)} + T_{s}^{(3)}$$

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

$$T_{yzxy} = 2T_{dxz}^{(4)}$$

$$T_{zxzx} = -2T_{du}^{(4)} - 2T_{dv}^{(4)} + T_{s}^{(3)}$$

$$T_{zxxy} = 2T_{dyz}^{(4)}$$

$$T_{xyxy} = 4T_{du}^{(4)} + T_{s}^{(3)}$$

* Rank 4 tensor (aaa).

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

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

$$T_{yzxy} = M_{py}^{(2)}$$

$$T_{zxxy} = -M_{px}^{(2)}$$

* Rank 4 tensor (sa).

$$\begin{bmatrix} T_{xxyz} & T_{xxzx} & T_{xxxy} \\ T_{yyyz} & T_{yyzx} & T_{yyxy} \\ T_{zzyz} & T_{zzzx} & T_{zzxy} \\ T_{yzyz} & T_{yzzx} & T_{yzxy} \\ T_{zxyz} & T_{zxzx} & T_{zxxy} \\ T_{xyyz} & T_{xyzx} & T_{xyxy} \end{bmatrix}$$

$$T_{xxyz} = 2M_{fax}^{(2)} + M_{px}^{(3)} + 2M_{px}^{(4)}$$
$$T_{xxzx} = -M_{fay}^{(2)} - M_{fby}^{(2)} + M_{py}^{(3)} + 2T_{dxz}^{(5)}$$
$$T_{xxxy} = -M_{faz}^{(2)} + M_{fbz}^{(2)} + M_{pz}^{(3)} - 2T_{dxy}^{(5)}$$
$$T_{yyyz} = -M_{fax}^{(2)} + M_{fbx}^{(2)} + M_{px}^{(3)} - 2T_{dyz}^{(5)}$$
$$T_{yyzx} = 2M_{fay}^{(2)} + M_{py}^{(3)} + 2M_{py}^{(4)}$$
$$T_{yyxy} = -M_{faz}^{(2)} - M_{fbz}^{(2)} + M_{pz}^{(3)} + 2T_{dxy}^{(5)}$$
$$T_{zzyz} = -M_{fax}^{(2)} - M_{fbx}^{(2)} + M_{px}^{(3)} + 2T_{dyz}^{(5)}$$
$$T_{zzzx} = -M_{fay}^{(2)} + M_{fby}^{(2)} + M_{py}^{(3)} - 2T_{dxz}^{(5)}$$
$$T_{zzxy} = 2M_{faz}^{(2)} + M_{pz}^{(3)} + 2M_{pz}^{(4)}$$
$$T_{yzyz} = M_{f3}^{(2)} - 3T_{du}^{(5)} - T_{dv}^{(5)}$$
$$T_{yzzx} = -M_{faz}^{(2)} - M_{fbz}^{(2)} + M_{pz}^{(4)} - T_{dxy}^{(5)}$$
$$T_{yzxy} = -M_{fay}^{(2)} + M_{fby}^{(2)} + M_{py}^{(4)} + T_{dxz}^{(5)}$$
$$T_{zxyz} = -M_{faz}^{(2)} + M_{fbz}^{(2)} + M_{pz}^{(4)} + T_{dxy}^{(5)}$$
$$T_{zxzx} = M_{f3}^{(2)} + 3T_{du}^{(5)} - T_{dv}^{(5)}$$
$$T_{zxxy} = -M_{fax}^{(2)} - M_{fbx}^{(2)} + M_{px}^{(4)} - T_{dyz}^{(5)}$$
$$T_{xyyz} = -M_{fay}^{(2)} - M_{fby}^{(2)} + M_{py}^{(4)} - T_{dxz}^{(5)}$$
$$T_{xyzx} = -M_{fax}^{(2)} + M_{fbx}^{(2)} + M_{px}^{(4)} + T_{dyz}^{(5)}$$
$$T_{xyxy} = M_{f3}^{(2)} + 2T_{dv}^{(5)}$$

* Rank 4 tensor (as).

$$
\begin{bmatrix}
T_{yzxx} & T_{yzyy} & T_{yzzz} & T_{yzyz} & T_{yzzx} & T_{yzxy} \\
T_{zxxx} & T_{zxyy} & T_{zxzz} & T_{zxyz} & T_{zxzx} & T_{zxxy} \\
T_{xyxx} & T_{xyyy} & T_{xyzz} & T_{xyyz} & T_{xyzx} & T_{xyxy}
\end{bmatrix}
$$

$$T_{yzxx} = 2M_{fax}^{(3)} + M_{px}^{(5)} + 2M_{px}^{(6)}$$
$$T_{yzyy} = -M_{fax}^{(3)} + M_{fbx}^{(3)} + M_{px}^{(5)} - 2T_{dyz}^{(6)}$$
$$T_{yzzz} = -M_{fax}^{(3)} - M_{fbx}^{(3)} + M_{px}^{(5)} + 2T_{dyz}^{(6)}$$
$$T_{yzyz} = M_{f3}^{(3)} - 3T_{du}^{(6)} - T_{dv}^{(6)}$$
$$T_{yzzx} = -M_{faz}^{(3)} + M_{fbz}^{(3)} + M_{pz}^{(6)} + T_{dxy}^{(6)}$$
$$T_{yzxy} = -M_{fay}^{(3)} - M_{fby}^{(3)} + M_{py}^{(6)} - T_{dxz}^{(6)}$$
$$T_{zxxx} = -M_{fay}^{(3)} - M_{fby}^{(3)} + M_{py}^{(5)} + 2T_{dxz}^{(6)}$$
$$T_{zxyy} = 2M_{fay}^{(3)} + M_{py}^{(5)} + 2M_{py}^{(6)}$$
$$T_{zxzz} = -M_{fay}^{(3)} + M_{fby}^{(3)} + M_{py}^{(5)} - 2T_{dxz}^{(6)}$$
$$T_{zxyz} = -M_{faz}^{(3)} - M_{fbz}^{(3)} + M_{pz}^{(6)} - T_{dxy}^{(6)}$$
$$T_{zxzx} = M_{f3}^{(3)} + 3T_{du}^{(6)} - T_{dv}^{(6)}$$
$$T_{zxxy} = -M_{fax}^{(3)} + M_{fbx}^{(3)} + M_{px}^{(6)} + T_{dyz}^{(6)}$$
$$T_{xyxx} = -M_{faz}^{(3)} + M_{fbz}^{(3)} + M_{pz}^{(5)} - 2T_{dxy}^{(6)}$$
$$T_{xyyy} = -M_{faz}^{(3)} - M_{fbz}^{(3)} + M_{pz}^{(5)} + 2T_{dxy}^{(6)}$$
$$T_{xyzz} = 2M_{faz}^{(3)} + M_{pz}^{(5)} + 2M_{pz}^{(6)}$$
$$T_{xyyz} = -M_{fay}^{(3)} + M_{fby}^{(3)} + M_{py}^{(6)} + T_{dxz}^{(6)}$$
$$T_{xyzx} = -M_{fax}^{(3)} - M_{fbx}^{(3)} + M_{px}^{(6)} - T_{dyz}^{(6)}$$
$$T_{xyxy} = M_{f3}^{(3)} + 2T_{dv}^{(6)}$$

* Rank 4 tensor (s).

$$
\begin{bmatrix}
T_{xxxx} & T_{xxyy} & T_{xxzz} & T_{xxyz} & T_{xxzx} & T_{xxxy} & T_{xxzy} & T_{xxxz} & T_{xxyx} \\
T_{yyxx} & T_{yyyy} & T_{yyzz} & T_{yyyz} & T_{yyzx} & T_{yyxy} & T_{yyzy} & T_{yyxz} & T_{yyyx} \\
T_{zzxx} & T_{zzyy} & T_{zzzz} & T_{zzyz} & T_{zzzx} & T_{zzxy} & T_{zzzy} & T_{zzxz} & T_{zzyx} \\
T_{yzxx} & T_{yzyy} & T_{yzzz} & T_{yzyz} & T_{yzzx} & T_{yzxy} & T_{yzzy} & T_{yzxz} & T_{yzyx} \\
T_{zxxx} & T_{zxyy} & T_{zxzz} & T_{zxyz} & T_{zxzx} & T_{zxxy} & T_{zxzy} & T_{zxxz} & T_{zxyx} \\
T_{xyxx} & T_{xyyy} & T_{xyzz} & T_{xyyz} & T_{xyzx} & T_{xyxy} & T_{xyzy} & T_{xyxz} & T_{xyyx}
\end{bmatrix}
$$

$$T_{xxxx} = -2T_{du}^{(1)} - 4T_{du}^{(2)} + 2T_{dv}^{(1)} + 4T_{dv}^{(2)} - T_{gu}^{(1)} + T_{gv}^{(1)} + 2T_{g}^{(1)} + T_{s}^{(1)} + 2T_{s}^{(2)}$$

$$T_{xxyy} = 4M_{f3}^{(1)} - 2T_{du}^{(1)} - 2T_{dv}^{(3)} + 2T_{gu}^{(1)} - T_{g}^{(1)} + T_{s}^{(1)}$$

$$T_{xxzz} = -4M_{f3}^{(1)} + T_{du}^{(1)} + 3T_{du}^{(3)} + T_{dv}^{(1)} - T_{dv}^{(3)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(1)}$$

$$T_{xxyz} = 2M_{fax}^{(2)} - 4M_{fbx}^{(1)} + M_{px}^{(3)} + 2M_{px}^{(4)} + T_{dyz}^{(1)} + T_{dyz}^{(3)} + 2T_{gbx}^{(1)}$$

$$T_{xxzx} = 2M_{fay}^{(1)} - M_{fay}^{(2)} + 2M_{fby}^{(1)} - M_{fby}^{(2)} - 2M_{py}^{(1)} + M_{py}^{(3)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} + 2T_{dxz}^{(5)} - T_{gay}^{(1)} - T_{gby}^{(1)}$$

$$T_{xxxy} = -2M_{faz}^{(1)} - M_{faz}^{(2)} + 2M_{fbz}^{(1)} + M_{fbz}^{(2)} + 2M_{pz}^{(1)} + M_{pz}^{(3)} + T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{dxy}^{(3)} - 2T_{dxy}^{(5)} + T_{gaz}^{(1)} - T_{gbz}^{(1)}$$

$$T_{xxzy} = -2M_{fax}^{(2)} - 4M_{fbx}^{(1)} - M_{px}^{(3)} - 2M_{px}^{(4)} + T_{dyz}^{(1)} + T_{dyz}^{(3)} + 2T_{gbx}^{(1)}$$

$$T_{xxxz} = 2M_{fay}^{(1)} + M_{fay}^{(2)} + 2M_{fby}^{(1)} + M_{fby}^{(2)} - 2M_{py}^{(1)} - M_{py}^{(3)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} - 2T_{dxz}^{(5)} - T_{gay}^{(1)} - T_{gby}^{(1)}$$

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

$$T_{yyxx} = -4M_{f3}^{(1)} - 2T_{du}^{(1)} + 2T_{dv}^{(3)} + 2T_{gu}^{(1)} - T_{g}^{(1)} + T_{s}^{(1)}$$

$$T_{yyyy} = -2T_{du}^{(1)} - 4T_{du}^{(2)} - 2T_{dv}^{(1)} - 4T_{dv}^{(2)} - T_{gu}^{(1)} - T_{gv}^{(1)} + 2T_{g}^{(1)} + T_{s}^{(1)} + 2T_{s}^{(2)}$$

$$T_{yyzz} = 4M_{f3}^{(1)} + T_{du}^{(1)} + 3T_{du}^{(3)} - T_{dv}^{(1)} + T_{dv}^{(3)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(1)}$$

$$T_{yyyz} = -2M_{fax}^{(1)} - M_{fax}^{(2)} + 2M_{fbx}^{(1)} + M_{fbx}^{(2)} + 2M_{px}^{(1)} + M_{px}^{(3)} + T_{dyz}^{(1)} + 2T_{dyz}^{(2)} + T_{dyz}^{(3)} - 2T_{dyz}^{(5)} + T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{yyzx} = 2M_{fay}^{(2)} - 4M_{fby}^{(1)} + M_{py}^{(3)} + 2M_{py}^{(4)} + T_{dxz}^{(1)} + T_{dxz}^{(3)} + 2T_{gby}^{(1)}$$

$$T_{yyxy} = 2M_{faz}^{(1)} - M_{faz}^{(2)} + 2M_{fbz}^{(1)} - M_{fbz}^{(2)} - 2M_{pz}^{(1)} + M_{pz}^{(3)} + T_{dxy}^{(1)} + 2T_{dxy}^{(2)} + T_{dxy}^{(3)} + 2T_{dxy}^{(5)} - T_{gaz}^{(1)} - T_{gbz}^{(1)}$$

$$T_{yyzy} = -2M_{fax}^{(1)} + M_{fax}^{(2)} + 2M_{fbx}^{(1)} - M_{fbx}^{(2)} + 2M_{px}^{(1)} - M_{px}^{(3)} + T_{dyz}^{(1)} + 2T_{dyz}^{(2)} + T_{dyz}^{(3)} + 2T_{dyz}^{(5)} + T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{yyxz} = -2M_{fay}^{(2)} - 4M_{fby}^{(1)} - M_{py}^{(3)} - 2M_{py}^{(4)} + T_{dxz}^{(1)} + T_{dxz}^{(3)} + 2T_{gby}^{(1)}$$

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

$$T_{zzxx} = 4M_{f3}^{(1)} + T_{du}^{(1)} - 3T_{du}^{(3)} + T_{dv}^{(1)} + T_{dv}^{(3)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(1)}$$

$$T_{zzyy} = -4M_{f3}^{(1)} + T_{du}^{(1)} - 3T_{du}^{(3)} - T_{dv}^{(1)} - T_{dv}^{(3)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(1)}$$

$$T_{zzzz} = 4T_{du}^{(1)} + 8T_{du}^{(2)} + 2T_{gu}^{(1)} + 2T_{g}^{(1)} + T_{s}^{(1)} + 2T_{s}^{(2)}$$

$$T_{zzyz} = 2M_{fax}^{(1)} - M_{fax}^{(2)} + 2M_{fbx}^{(1)} - M_{fbx}^{(2)} - 2M_{px}^{(1)} + M_{px}^{(3)} + T_{dyz}^{(1)} + 2T_{dyz}^{(2)} + T_{dyz}^{(3)} + 2T_{dyz}^{(5)} - T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{zzzx} = -2M_{fay}^{(1)} - M_{fay}^{(2)} + 2M_{fby}^{(1)} + M_{fby}^{(2)} + 2M_{py}^{(1)} + M_{py}^{(3)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} - 2T_{dxz}^{(5)} + T_{gay}^{(1)} - T_{gby}^{(1)}$$

$$T_{zzxy} = 2M_{faz}^{(2)} - 4M_{fbz}^{(1)} + M_{pz}^{(3)} + 2M_{pz}^{(4)} + T_{dxy}^{(1)} + T_{dxy}^{(3)} + 2T_{gbz}^{(1)}$$

$$T_{zzzy} = 2M_{fax}^{(1)} + M_{fax}^{(2)} + 2M_{fbx}^{(1)} + M_{fbx}^{(2)} - 2M_{px}^{(1)} - M_{px}^{(3)} + T_{dyz}^{(1)} + 2T_{dyz}^{(2)} + T_{dyz}^{(3)} - 2T_{dyz}^{(5)} - T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{zzxz} = -2M_{fay}^{(1)} + M_{fay}^{(2)} + 2M_{fby}^{(1)} - M_{fby}^{(2)} + 2M_{py}^{(1)} - M_{py}^{(3)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} + 2T_{dxz}^{(5)} + T_{gay}^{(1)} - T_{gby}^{(1)}$$

$$T_{zzyx} = -2M_{faz}^{(2)} - 4M_{fbz}^{(1)} - M_{pz}^{(3)} - 2M_{pz}^{(4)} + T_{dxy}^{(1)} + T_{dxy}^{(3)} + 2T_{gbz}^{(1)}$$

$$T_{yzxx} = 4M_{fbx}^{(1)} + T_{dyz}^{(1)} - T_{dyz}^{(3)} + 2T_{gbx}^{(1)}$$

$$T_{yzyy} = 2M_{fax}^{(1)} - 2M_{fbx}^{(1)} - 2M_{px}^{(1)} + T_{dyz}^{(1)} + 2T_{dyz}^{(2)} - T_{dyz}^{(3)} + T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{yzzz} = -2M_{fax}^{(1)} - 2M_{fbx}^{(1)} + 2M_{px}^{(1)} + T_{dyz}^{(1)} + 2T_{dyz}^{(2)} - T_{dyz}^{(3)} - T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{yzyz} = M_{f3}^{(2)} + T_{du}^{(2)} - 3T_{du}^{(5)} - T_{dv}^{(2)} - T_{dv}^{(5)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(2)}$$

$$T_{yzzx} = -4M_{faz}^{(1)} - M_{faz}^{(2)} - M_{fbz}^{(1)} - M_{pz}^{(1)} + M_{pz}^{(4)} + T_{dxy}^{(2)} - T_{dxy}^{(5)} + 2T_{gbz}^{(1)}$$

$$T_{yzxy} = 4M_{fay}^{(1)} - M_{fay}^{(2)} + M_{fby}^{(2)} + M_{py}^{(1)} + M_{py}^{(4)} + T_{dxz}^{(2)} + T_{dxz}^{(5)} + 2T_{gby}^{(1)}$$

$$T_{yzzy} = -M_{f3}^{(2)} + T_{du}^{(2)} + 3T_{du}^{(5)} - T_{dv}^{(2)} + T_{dv}^{(5)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(2)}$$

$$T_{yzxz} = -4M_{faz}^{(1)} + M_{faz}^{(2)} + M_{fbz}^{(2)} - M_{pz}^{(1)} - M_{pz}^{(4)} + T_{dxy}^{(2)} + T_{dxy}^{(5)} + 2T_{gbz}^{(1)}$$

$$T_{yzyx} = 4M_{fay}^{(1)} + M_{fay}^{(2)} - M_{fby}^{(2)} + M_{py}^{(1)} - M_{py}^{(4)} + T_{dxz}^{(2)} - T_{dxz}^{(5)} + 2T_{gby}^{(1)}$$

$$T_{zxxx} = -2M_{fay}^{(1)} - 2M_{fby}^{(1)} + 2M_{py}^{(1)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} - T_{dxz}^{(3)} - T_{gay}^{(1)} - T_{gby}^{(1)}$$

$$T_{zxyy} = 4M_{fby}^{(1)} + T_{dxz}^{(1)} - T_{dxz}^{(3)} + 2T_{gby}^{(1)}$$

$$T_{zxzz} = 2M_{fay}^{(1)} - 2M_{fby}^{(1)} - 2M_{py}^{(1)} + T_{dxz}^{(1)} + 2T_{dxz}^{(2)} - T_{dxz}^{(3)} + T_{gay}^{(1)} - T_{gby}^{(1)}$$

$$T_{zxyz} = 4M_{faz}^{(1)} - M_{faz}^{(2)} + M_{fbz}^{(2)} + M_{pz}^{(1)} + M_{pz}^{(4)} + T_{dxy}^{(2)} + T_{dxy}^{(5)} + 2T_{gbz}^{(1)}$$

$$T_{zxzx} = M_{f3}^{(2)} + T_{du}^{(2)} + 3T_{du}^{(5)} + T_{dv}^{(2)} - T_{dv}^{(5)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(2)}$$

$$T_{zxxy} = -4M_{fax}^{(1)} - M_{fax}^{(2)} - M_{fbx}^{(2)} - M_{px}^{(1)} + M_{px}^{(4)} + T_{dyz}^{(2)} - T_{dyz}^{(5)} + 2T_{gbx}^{(1)}$$

$$T_{zxzy} = 4M_{faz}^{(1)} + M_{faz}^{(2)} - M_{fbz}^{(2)} + M_{pz}^{(1)} - M_{pz}^{(4)} + T_{dxy}^{(2)} - T_{dxy}^{(5)} + 2T_{gbz}^{(1)}$$

$$T_{zxxz} = -M_{f3}^{(2)} + T_{du}^{(2)} - 3T_{du}^{(5)} + T_{dv}^{(2)} + T_{dv}^{(5)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_{g}^{(1)} + T_{s}^{(2)}$$

* Rank 4 tensor (a).

$$\begin{bmatrix} T_{yzxx} & T_{yzyy} & T_{yzzz} & T_{yzyz} & T_{yzzx} & T_{yzxy} & T_{yzzy} & T_{yzxz} & T_{yzyx} \\ T_{zxxx} & T_{zxyy} & T_{zxzz} & T_{zxyz} & T_{zxzx} & T_{zxxy} & T_{zxzy} & T_{zxxz} & T_{zxyx} \\ T_{xyxx} & T_{xyyy} & T_{xyzz} & T_{xyyz} & T_{xyzx} & T_{xyxy} & T_{xyzy} & T_{xyxz} & T_{xyyx} \end{bmatrix}$$

$$T_{yzxx} = 2M_{fax}^{(3)} + M_{px}^{(5)} + 2M_{px}^{(6)}$$
$$T_{yzyy} = -M_{fax}^{(3)} + M_{fbx}^{(3)} + M_{px}^{(5)} - 2T_{dyz}^{(6)}$$
$$T_{yzzz} = -M_{fax}^{(3)} - M_{fbx}^{(3)} + M_{px}^{(5)} + 2T_{dyz}^{(6)}$$
$$T_{yzyz} = M_{f3}^{(3)} - 2T_{du}^{(4)} - 3T_{du}^{(6)} + 2T_{dv}^{(4)} - T_{dv}^{(6)} + T_{s}^{(3)}$$
$$T_{yzzx} = -M_{faz}^{(3)} + M_{fbz}^{(3)} - M_{pz}^{(2)} + M_{pz}^{(6)} + 2T_{dxy}^{(4)} + T_{dxy}^{(6)}$$
$$T_{yzxy} = -M_{fay}^{(3)} - M_{fby}^{(3)} + M_{py}^{(2)} + M_{py}^{(6)} + 2T_{dxz}^{(4)} - T_{dxz}^{(6)}$$
$$T_{yzzy} = M_{f3}^{(3)} + 2T_{du}^{(4)} - 3T_{du}^{(6)} - 2T_{dv}^{(4)} - T_{dv}^{(6)} - T_{s}^{(3)}$$
$$T_{yzxz} = -M_{faz}^{(3)} + M_{fbz}^{(3)} + M_{pz}^{(2)} + M_{pz}^{(6)} - 2T_{dxy}^{(4)} + T_{dxy}^{(6)}$$
$$T_{yzyx} = -M_{fay}^{(3)} - M_{fby}^{(3)} - M_{py}^{(2)} + M_{py}^{(6)} - 2T_{dxz}^{(4)} - T_{dxz}^{(6)}$$
$$T_{zxxx} = -M_{fay}^{(3)} - M_{fby}^{(3)} + M_{py}^{(5)} + 2T_{dxz}^{(6)}$$
$$T_{zxyy} = 2M_{fay}^{(3)} + M_{py}^{(5)} + 2M_{py}^{(6)}$$
$$T_{zxzz} = -M_{fay}^{(3)} + M_{fby}^{(3)} + M_{py}^{(5)} - 2T_{dxz}^{(6)}$$
$$T_{zxyz} = -M_{faz}^{(3)} - M_{fbz}^{(3)} + M_{pz}^{(2)} + M_{pz}^{(6)} + 2T_{dxy}^{(4)} - T_{dxy}^{(6)}$$
$$T_{zxzx} = M_{f3}^{(3)} - 2T_{du}^{(4)} + 3T_{du}^{(6)} - 2T_{dv}^{(4)} - T_{dv}^{(6)} + T_{s}^{(3)}$$
$$T_{zxxy} = -M_{fax}^{(3)} + M_{fbx}^{(3)} - M_{px}^{(2)} + M_{px}^{(6)} + 2T_{dyz}^{(4)} + T_{dyz}^{(6)}$$
$$T_{zxzy} = -M_{faz}^{(3)} - M_{fbz}^{(3)} - M_{pz}^{(2)} + M_{pz}^{(6)} - 2T_{dxy}^{(4)} - T_{dxy}^{(6)}$$
$$T_{zxxz} = M_{f3}^{(3)} + 2T_{du}^{(4)} + 3T_{du}^{(6)} + 2T_{dv}^{(4)} - T_{dv}^{(6)} - T_{s}^{(3)}$$
$$T_{zxyx} = -M_{fax}^{(3)} + M_{fbx}^{(3)} + M_{px}^{(2)} + M_{px}^{(6)} - 2T_{dyz}^{(4)} + T_{dyz}^{(6)}$$
$$T_{xyxx} = -M_{faz}^{(3)} + M_{fbz}^{(3)} + M_{pz}^{(5)} - 2T_{dxy}^{(6)}$$
$$T_{xyyy} = -M_{faz}^{(3)} - M_{fbz}^{(3)} + M_{pz}^{(5)} + 2T_{dxy}^{(6)}$$
$$T_{xyzz} = 2M_{faz}^{(3)} + M_{pz}^{(5)} + 2M_{pz}^{(6)}$$
$$T_{xyyz} = -M_{fay}^{(3)} + M_{fby}^{(3)} - M_{py}^{(2)} + M_{py}^{(6)} + 2T_{dxz}^{(4)} + T_{dxz}^{(6)}$$
$$T_{xyzx} = -M_{fax}^{(3)} - M_{fbx}^{(3)} + M_{px}^{(2)} + M_{px}^{(6)} + 2T_{dyz}^{(4)} - T_{dyz}^{(6)}$$
$$T_{xyxy} = M_{f3}^{(3)} + 4T_{du}^{(4)} + 2T_{dv}^{(6)} + T_{s}^{(3)}$$
$$T_{xyzy} = -M_{fay}^{(3)} + M_{fby}^{(3)} + M_{py}^{(2)} + M_{py}^{(6)} - 2T_{dxz}^{(4)} + T_{dxz}^{(6)}$$
$$T_{xyxz} = -M_{fax}^{(3)} - M_{fbx}^{(3)} - M_{px}^{(2)} + M_{px}^{(6)} - 2T_{dyz}^{(4)} - T_{dyz}^{(6)}$$
$$T_{xyyx} = M_{f3}^{(3)} - 4T_{du}^{(4)} + 2T_{dv}^{(6)} - T_{s}^{(3)}$$

* Rank 4 tensor (t).

$$\begin{bmatrix} T_{xxxx} & T_{xxxy} & T_{xxxz} \\ T_{yyyx} & T_{yyyy} & T_{yyyz} \\ T_{zzzx} & T_{zzzy} & T_{zzzz} \\ T_{yyzx} & T_{yyzy} & T_{yyzz} \\ T_{zzxx} & T_{zzxy} & T_{zzxz} \\ T_{xxyx} & T_{xxyy} & T_{xxyz} \\ T_{yzzx} & T_{yzzy} & T_{yzzz} \\ T_{zxxx} & T_{zxxy} & T_{zxxz} \\ T_{xxyy} + T_{yyzz} - T_{yzzy} - T_{zxxz} + T_{zzxx} & T_{xyyy} & T_{xyyz} \\ -\frac{T_{yyyz}}{2} + \frac{T_{yyzy}}{2} + T_{zxxy} & T_{xyyz} + \frac{T_{zzxz}}{2} - \frac{T_{zzzx}}{2} & \frac{T_{xxxy}}{2} - \frac{T_{xxyx}}{2} + T_{xyyy} - T_{yyyx} + T_{zzxy} \end{bmatrix}$$

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$$T_{xxxx} = -2T_{du}^{(1)} - 4T_{du}^{(2)} + 2T_{dv}^{(1)} + 4T_{dv}^{(2)} - T_{gu}^{(1)} + T_{gv}^{(1)} + 2T_g^{(1)} + 3T_s^{(1)}$$

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

$$T_{xxxz} = T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} - 2T_{dxz}^{(5)} - T_{gay}^{(1)} - T_{gby}^{(1)}$$

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

$$T_{yyyy} = -2T_{du}^{(1)} - 4T_{du}^{(2)} - 2T_{dv}^{(1)} - 4T_{dv}^{(2)} - T_{gu}^{(1)} - T_{gv}^{(1)} + 2T_g^{(1)} + 3T_s^{(1)}$$

$$T_{yyyz} = T_{dyz}^{(1)} + 2T_{dyz}^{(2)} + T_{dyz}^{(3)} - 2T_{dyz}^{(5)} + T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{zzzx} = T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} - 2T_{dxz}^{(5)} + T_{gay}^{(1)} - T_{gby}^{(1)}$$

$$T_{zzzy} = T_{dyz}^{(1)} + 2T_{dyz}^{(2)} + T_{dyz}^{(3)} - 2T_{dyz}^{(5)} - T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{zzzz} = 4T_{du}^{(1)} + 8T_{du}^{(2)} + 2T_{gu}^{(1)} + 2T_g^{(1)} + 3T_s^{(1)}$$

$$T_{yyzx} = T_{dxz}^{(1)} + T_{dxz}^{(3)} + 2T_{gby}^{(1)}$$

$$T_{yyzy} = T_{dyz}^{(1)} + 2T_{dyz}^{(2)} + T_{dyz}^{(3)} + 2T_{dyz}^{(5)} + T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{yyzz} = T_{du}^{(1)} + 3T_{du}^{(3)} - T_{dv}^{(1)} + T_{dv}^{(3)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)}$$

$$T_{zzxx} = T_{du}^{(1)} - 3T_{du}^{(3)} + T_{dv}^{(1)} + T_{dv}^{(3)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)}$$

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

$$T_{zzxz} = T_{dxz}^{(1)} + 2T_{dxz}^{(2)} + T_{dxz}^{(3)} + 2T_{dxz}^{(5)} + T_{gay}^{(1)} - T_{gby}^{(1)}$$

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

$$T_{xxyy} = -2T_{du}^{(1)} - 2T_{dv}^{(3)} + 2T_{gu}^{(1)} - T_g^{(1)} + T_s^{(1)}$$

$$T_{xxyz} = T_{dyz}^{(1)} + T_{dyz}^{(3)} + 2T_{gbx}^{(1)}$$

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

$$T_{yzzy} = T_{du}^{(2)} + 3T_{du}^{(5)} - T_{dv}^{(2)} + T_{dv}^{(5)} - T_{gu}^{(1)} + T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)}$$

$$T_{yzzz} = T_{dyz}^{(1)} + 2T_{dyz}^{(2)} - T_{dyz}^{(3)} - T_{gax}^{(1)} - T_{gbx}^{(1)}$$

$$T_{zxxx} = T_{dxz}^{(1)} + 2T_{dxz}^{(2)} - T_{dxz}^{(3)} - T_{gay}^{(1)} - T_{gby}^{(1)}$$

$$T_{zxxy} = T_{dyz}^{(2)} - T_{dyz}^{(5)} + 2T_{gbx}^{(1)}$$

$$T_{zxxz} = T_{du}^{(2)} - 3T_{du}^{(5)} + T_{dv}^{(2)} + T_{dv}^{(5)} - T_{gu}^{(1)} - T_{gv}^{(1)} - T_g^{(1)} + T_s^{(1)}$$

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

$$T_{xyyz} = T_{dxz}^{(2)} - T_{dxz}^{(5)} + 2T_{gby}^{(1)}$$