

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

$$[G_x \quad G_y \quad G_z]$$

$$G_x = G_{px}^{(1)}$$

$$G_y = G_{py}^{(1)}$$

$$G_z = G_{pz}^{(1)}$$

\* Rank 2 tensor (s). \* Rank 2 tensor (a). \* Rank 3 tensor (s).

$$\begin{bmatrix} G_{xxx} & G_{xxy} & G_{xxz} \\ G_{yyx} & G_{yyy} & G_{yyz} \\ G_{zxx} & G_{zzy} & G_{zzz} \\ G_{yzx} & G_{yzy} & G_{yzz} \\ G_{zxx} & G_{zxy} & G_{zxz} \\ G_{xyx} & G_{xyy} & G_{xyz} \end{bmatrix}$$

$$G_{xxx} = 2G_{fax}^{(1)} + G_{px}^{(1)} + 2G_{pz}^{(2)}$$

$$G_{xxy} = -G_{fay}^{(1)} - G_{fby}^{(1)} + G_{py}^{(1)} + 2Q_{dxz}^{(1)}$$

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

$$G_{yyx} = -G_{fax}^{(1)} + G_{fbx}^{(1)} + G_{px}^{(1)} - 2Q_{dyz}^{(1)}$$

$$G_{yyy} = 2G_{fay}^{(1)} + G_{py}^{(1)} + 2G_{py}^{(2)}$$

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

$$G_{zxx} = -G_{fax}^{(1)} - G_{fbx}^{(1)} + G_{px}^{(1)} + 2Q_{dyz}^{(1)}$$

$$G_{zzy} = -G_{fay}^{(1)} + G_{fby}^{(1)} + G_{py}^{(1)} - 2Q_{dxz}^{(1)}$$

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

$$G_{yzx} = G_{f3}^{(1)} - 3Q_{du}^{(1)} - Q_{dv}^{(1)}$$

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

$$G_{yzz} = -G_{fay}^{(1)} + G_{fby}^{(1)} + G_{py}^{(2)} + Q_{dxz}^{(1)}$$

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

$$G_{zxy} = G_{f3}^{(1)} + 3Q_{du}^{(1)} - Q_{dv}^{(1)}$$

$$G_{zxz} = -G_{fax}^{(1)} - G_{fbx}^{(1)} + G_{px}^{(2)} - Q_{dyz}^{(1)}$$

$$G_{xyx} = -G_{fay}^{(1)} - G_{fby}^{(1)} + G_{py}^{(2)} - Q_{dxz}^{(1)}$$

$$G_{xyy} = -G_{fax}^{(1)} + G_{fbx}^{(1)} + G_{px}^{(2)} + Q_{dxy}^{(1)}$$

$$G_{xyz} = G_{f3}^{(1)} + 2Q_{dv}^{(1)}$$

\* Rank 3 tensor (a).

$$\begin{bmatrix} G_{yzx} & G_{yzy} & G_{yzz} \\ G_{zxx} & G_{zxy} & G_{zxz} \\ G_{xyx} & G_{xyy} & G_{xyz} \end{bmatrix}$$

$$G_{yzx} = -Q_{du}^{(2)} + Q_{dv}^{(2)} + Q_s^{(1)}$$

$$G_{yyz} = G_{pz}^{(3)} + Q_{dxy}^{(2)}$$

$$G_{yzz} = -G_{py}^{(3)} + Q_{dxz}^{(2)}$$

$$G_{zxx} = -G_{pz}^{(3)} + Q_{dxy}^{(2)}$$

$$G_{zxy} = -Q_{du}^{(2)} - Q_{dv}^{(2)} + Q_s^{(1)}$$

$$G_{zxx} = G_{px}^{(3)} + Q_{dyz}^{(2)}$$

$$G_{xyx} = G_{py}^{(3)} + Q_{dxz}^{(2)}$$

$$G_{xyy} = -G_{px}^{(3)} + Q_{dyz}^{(2)}$$

$$G_{xyz} = 2Q_{du}^{(2)} + Q_s^{(1)}$$

\* Rank 4 tensor (sss). \* Rank 4 tensor (ssa). \* Rank 4 tensor (aas). \* Rank 4 tensor (aaa). \* Rank 4 tensor (sa). \* Rank 4 tensor (as). \* Rank 4 tensor (s). \* Rank 4 tensor (a). \* Rank 4 tensor (t).