

\* Rank 0 tensor.

$$[G]$$

$$G = G_s^{(1)}$$

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

$$\begin{bmatrix} G_{xx} & 0 & 0 \\ 0 & G_{xx} & 0 \\ 0 & 0 & G_{zz} \end{bmatrix}$$

$$G_{xx} = -G_{du}^{(1)} + G_s^{(1)}$$

$$G_{zz} = 2G_{du}^{(1)} + G_s^{(1)}$$

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

$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ G_{yzx} & 0 & 0 \\ 0 & -G_{yzx} & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

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

\* Rank 3 tensor (a).

$$\begin{bmatrix} G_{yzx} & 0 & 0 \\ 0 & G_{yzx} & 0 \\ 0 & 0 & G_{xyz} \end{bmatrix}$$

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

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

\* Rank 4 tensor (sss).

$$\begin{bmatrix} G_{xxxx} & G_{xxyy} & G_{xxzz} & 0 & 0 & 0 \\ G_{xxyy} & G_{xxxx} & G_{xxzz} & 0 & 0 & 0 \\ G_{xxzz} & G_{xxzz} & G_{zzzz} & 0 & 0 & 0 \\ 0 & 0 & 0 & G_{yzyz} & 0 & 0 \\ 0 & 0 & 0 & 0 & G_{yzyz} & 0 \\ 0 & 0 & 0 & 0 & 0 & G_{xyxy} \end{bmatrix}$$

$$G_{xxxx} = -2G_{du}^{(1)} - 4G_{du}^{(2)} - G_{gu}^{(1)} + 2G_g^{(1)} + G_s^{(1)} + 2G_s^{(2)}$$

$$G_{xxyy} = -2G_{du}^{(1)} + 2G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$

$$G_{xxzz} = G_{du}^{(1)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$

$$G_{zzzz} = 4G_{du}^{(1)} + 8G_{du}^{(2)} + 2G_{gu}^{(1)} + 2G_g^{(1)} + G_s^{(1)} + 2G_s^{(2)}$$

$$G_{yzyz} = G_{du}^{(2)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(2)}$$

$$G_{xyxy} = -2G_{du}^{(2)} + 2G_{gu}^{(1)} - G_g^{(1)} + G_s^{(2)}$$

\* Rank 4 tensor (ssa).

$$\begin{bmatrix} 0 & 0 & G_{xxzz} & 0 & 0 & 0 \\ 0 & 0 & G_{xxzz} & 0 & 0 & 0 \\ -G_{xxzz} & -G_{xxzz} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$G_{xxxx} = 3G_{du}^{(3)}$$

\* Rank 4 tensor (aas).

$$\begin{bmatrix} G_{yzyz} & 0 & 0 \\ 0 & G_{yzyz} & 0 \\ 0 & 0 & G_{xyxy} \end{bmatrix}$$

$$G_{yzyz} = -2G_{du}^{(4)} + G_s^{(3)}$$

$$G_{xyxy} = 4G_{du}^{(4)} + G_s^{(3)}$$

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

$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ G_{yzyz} & 0 & 0 \\ 0 & -G_{yzyz} & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$G_{yzyz} = -3G_{du}^{(5)}$$

\* Rank 4 tensor (as).

$$\begin{bmatrix} 0 & 0 & 0 & G_{yzyz} & 0 & 0 \\ 0 & 0 & 0 & 0 & -G_{yzyz} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$G_{yzyz} = -3G_{du}^{(6)}$$

\* Rank 4 tensor (s).

$$\begin{bmatrix} G_{xxxx} & G_{xxyy} & G_{xxzz} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ G_{xxyy} & G_{xxxx} & G_{xxzz} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ G_{zzxx} & G_{zzxx} & G_{zzzz} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & G_{yzyz} & 0 & 0 & G_{yzzy} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & G_{yzzy} & 0 & 0 & G_{yzyz} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & G_{xyxy} & 0 & 0 & 0 & G_{xyxy} \end{bmatrix}$$

$$G_{xxxx} = -2G_{du}^{(1)} - 4G_{du}^{(2)} - G_{gu}^{(1)} + 2G_g^{(1)} + G_s^{(1)} + 2G_s^{(2)}$$

$$G_{xxyy} = -2G_{du}^{(1)} + 2G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$

$$G_{xxzz} = G_{du}^{(1)} + 3G_{du}^{(3)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$

$$G_{zzxx} = G_{du}^{(1)} - 3G_{du}^{(3)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$

$$G_{zzzz} = 4G_{du}^{(1)} + 8G_{du}^{(2)} + 2G_{gu}^{(1)} + 2G_g^{(1)} + G_s^{(1)} + 2G_s^{(2)}$$

$$G_{yzyz} = G_{du}^{(2)} - 3G_{du}^{(5)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(2)}$$

$$G_{yzzy} = G_{du}^{(2)} + 3G_{du}^{(5)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(2)}$$

$$G_{xyxy} = -2G_{du}^{(2)} + 2G_{gu}^{(1)} - G_g^{(1)} + G_s^{(2)}$$

\* Rank 4 tensor (a).

$$\begin{bmatrix} 0 & 0 & 0 & G_{yzyz} & 0 & 0 & G_{yzzy} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -G_{yzzy} & 0 & 0 & -G_{yzyz} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & G_{xyxy} & 0 & 0 & -G_{xyxy} & 0 \end{bmatrix}$$

$$G_{yzyz} = -2G_{du}^{(4)} - 3G_{du}^{(6)} + G_s^{(3)}$$

$$G_{yzzy} = 2G_{du}^{(4)} - 3G_{du}^{(6)} - G_s^{(3)}$$

$$G_{xyxy} = 4G_{du}^{(4)} + G_s^{(3)}$$

\* Rank 4 tensor (t).

$$\begin{bmatrix} G_{xxxx} & 0 & 0 \\ 0 & G_{xxxx} & 0 \\ 0 & 0 & G_{zzzz} \\ 0 & 0 & G_{yyzz} \\ G_{zzxx} & 0 & 0 \\ 0 & G_{xxyy} & 0 \\ 0 & G_{yzzz} & 0 \\ 0 & 0 & G_{zzxz} \\ G_{xxyy} + G_{yyzz} - G_{yzzz} - G_{zzxz} + G_{zzxx} & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$G_{xxxx} = -2G_{du}^{(1)} - 4G_{du}^{(2)} - G_{gu}^{(1)} + 2G_g^{(1)} + 3G_s^{(1)}$$

$$G_{zzzz} = 4G_{du}^{(1)} + 8G_{du}^{(2)} + 2G_{gu}^{(1)} + 2G_g^{(1)} + 3G_s^{(1)}$$

$$G_{yyzz} = G_{du}^{(1)} + 3G_{du}^{(3)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$

$$G_{zzxx} = G_{du}^{(1)} - 3G_{du}^{(3)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$

$$G_{xxyy} = -2G_{du}^{(1)} + 2G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$

$$G_{yzzz} = G_{du}^{(2)} + 3G_{du}^{(5)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$

$$G_{zzxz} = G_{du}^{(2)} - 3G_{du}^{(5)} - G_{gu}^{(1)} - G_g^{(1)} + G_s^{(1)}$$