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ضمیمه

مودول وُیت و رئوس برای همسانگردی عرضی و تقارن ارسوتروپیک در زیر ارائه شده است:

همسانگردی عرضی وُیت

$$K^{V} = \frac{2(C_{11} + C_{12}) + 4(C_{13} + C_{33})}{9}$$

$$G^{V} = \frac{(C_{11} + C_{12}) - 4C_{13} + 2C_{33} + 12(C_{44} + C_{66})}{30}$$

همسانگردی عرضی رئوس

$$K_R = \frac{C_{33}(C_{11}+C_{12}) - 2C_{13}^2}{(C_{11}+C_{12}-4C_{13}+2C_{33})}$$

$$G_R = \frac{5\left[C_{33}(C_{11}+C_{12}) - 2C_{13}^2\right]C_{44}C_{66}}{2\left\{\left[C_{33}(C_{11}+C_{12}) - 2C_{13}^2\right](C_{44}+C_{66}) + \left[C_{44}C_{66}(2C_{11}+C_{12}) + 4C_{13} + C_{33}\right]/3\right\}}$$

اورسوتروپیک وُیت

$$K^V = \frac{C_{11}+C_{22}+C_{33}+2(C_{12}+C_{13}+C_{23})}{9}$$

$$G^V = \frac{[C_{11}+C_{22}+C_{33}+3(C_{44}+C_{55}+C_{66}) - (C_{12}+C_{13}+C_{23})]}{15}$$

اورسوتروپیک رئوس

$$\begin{aligned} K_R = {} & \frac{\Delta}{C_{11}C_{22}+C_{22}C_{33}+C_{33}C_{11}} - 2(C_{11}C_{23}+C_{22}C_{13}+C_{33}C_{12}) \\ & + 2(C_{12}C_{23}+C_{23}C_{13}+C_{13}C_{12}) - \left(C_{12}^2+C_{13}^2+C_{23}^2\right) \\ G_R = {} & 15/(4\{(C_{11}C_{22}+C_{22}C_{33}+C_{33}C_{11}+C_{11}C_{23}+C_{22}C_{13}+C_{33}C_{22}) \\ & - [C_{12}(C_{12}+C_{23}) + C_{23}(C_{23}+C_{13}) + C_{13}(C_{13}+C_{12})]\}/\Delta \\ & + 3(1/C_{44}+1/C_{55}+1/C_{66})) \end{aligned}$$

در اینجا Δ بیشتر ارائه شده است

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