

159th Eigenvector

$$N_e = 4 \quad s = 1 \quad m_s = 1$$

Irred. Representation : $\Gamma_{5,2}$

$$E_{159} = \frac{A_{16}}{3}$$

$$\begin{aligned} |\Psi_{159}\rangle &= |4, 1, 1, \Gamma_{5,2}\rangle \\ &= C_{159,1} (|02uu\rangle - |20uu\rangle - |uu02\rangle + |uu20\rangle) \\ &+ C_{159,2} (|0u2u\rangle - |0uu2\rangle + |2u0u\rangle - |2uu0\rangle - |u02u\rangle + |u0u2\rangle - |u20u\rangle + |u2u0\rangle) \\ &+ C_{159,3} (|duuu\rangle + |uduu\rangle - |uudu\rangle - |uud\rangle) \end{aligned}$$

$$C_{159-1} = 4t^2$$

$$C_{159-2} = \frac{1}{6}t (3J + 6U + 60W - 2A_{16})$$

$$\begin{aligned} C_{159-3} &= \frac{1}{8} (-J^2 - 4UJ - 40WJ + 32t^2 - 4U^2) \\ &+ \left(-\frac{1}{18} (30W - A_{16}) (3J + 6U + 30W - A_{16}) \right) \end{aligned}$$

$$N_{159} = 2\sqrt{C_{159,1}^2 + 2C_{159,2}^2 + C_{159,3}^2}$$