

68th Eigenvector

$$N_e = 3 \quad s = \frac{1}{2} \quad m_s = \frac{1}{2}$$

Irred. Representation : $\Gamma_{3,1}$

$$E_{68} = \frac{1}{2} (-J - 2t + U + 10W - \sqrt{A_4})$$

$$\begin{aligned} |\Psi_{68}\rangle &= |3, \frac{1}{2}, \frac{1}{2}, \Gamma_{3,1}\rangle \\ &= C_{68,1} (|002u\rangle + |00u2\rangle + |02u0\rangle + |0u20\rangle + |200u\rangle + |2u00\rangle + |u002\rangle + |u200\rangle) \\ &+ C_{68,2} (|020u\rangle + |0u02\rangle + |20u0\rangle + |u020\rangle) \\ &+ C_{68,3} (|0duu\rangle - |0uud\rangle - |d0uu\rangle + |duu0\rangle + |u0du\rangle - |ud0u\rangle + |uu0d\rangle - |uud0\rangle) \end{aligned}$$

$$C_{68-1} = -\frac{t}{2\sqrt{2}}$$

$$C_{68-2} = \frac{t}{\sqrt{2}}$$

$$C_{68-3} = \frac{J - 2t + U - 2W + \sqrt{A_4}}{4\sqrt{2}}$$

$$N_{68} = 2\sqrt{2C_{68,1}^2 + C_{68,2}^2 + 2C_{68,3}^2}$$