

58th Eigenvector

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

Irred. Representation : $\Gamma_{5,1}$

$$E_{58} = \frac{1}{2} \left(-J - 2t + U + 10W + \sqrt{A_7} \right)$$

$$\begin{aligned} |\Psi_{58}\rangle &= |3, \frac{1}{2}, -\frac{1}{2}, \Gamma_{5,1}\rangle \\ &= C_{58,1} (|002d\rangle - |00d2\rangle + |02d0\rangle - |0d20\rangle - |200d\rangle + |2d00\rangle + |d002\rangle - |d200\rangle) \\ &+ C_{58,2} (|0ddu\rangle + |0udd\rangle + |d0ud\rangle + |dd0u\rangle + |ddu0\rangle + |du0d\rangle + |u0dd\rangle + |udd0\rangle) \\ &+ C_{58,3} (|0dud\rangle + |d0du\rangle + |dud0\rangle + |ud0d\rangle) \end{aligned}$$

$$C_{58-1} = -\frac{1}{2} \sqrt{\frac{3}{2}} t$$

$$C_{58-2} = \frac{J + 2t + U - 2W - \sqrt{A_7}}{4\sqrt{6}}$$

$$C_{58-3} = -\frac{J + 2t + U - 2W - \sqrt{A_7}}{2\sqrt{6}}$$

$$N_{58} = 2\sqrt{2C_{58,1}^2 + 2C_{58,2}^2 + C_{58,3}^2}$$