

200th Eigenvector

$$N_e = 5 \quad s = \frac{1}{2} \quad m_s = \frac{1}{2}$$

Irred. Representation : $\Gamma_{4,1}$

$$E_{200} = \frac{1}{3} \left(-J - 3t + 5U + 50W + \left(\cos(\theta_5) - \sqrt{3} \sin(\theta_5) \right) \sqrt{A_6} \right)$$

$$\begin{aligned} |\Psi_{200}\rangle &= \left| 5, \frac{1}{2}, \frac{1}{2}, \Gamma_{4,1} \right\rangle \\ &= C_{200,1} (|022u\rangle + |02u2\rangle + |202u\rangle + |20u2\rangle - |2u02\rangle - |2u20\rangle - |u202\rangle - |u220\rangle) \\ &+ C_{200,2} (|0u22\rangle - |220u\rangle - |22u0\rangle + |u022\rangle) \\ &+ C_{200,3} (|2udu\rangle - |2uud\rangle - |du2u\rangle - |duu2\rangle + |u2du\rangle - |u2ud\rangle + |ud2u\rangle + |udu2\rangle) \end{aligned}$$

$$\begin{aligned} C_{200-1} &= \frac{t(J + 4t + U)}{2\sqrt{2}} \\ &+ \left(\frac{t \left(U - 2W + \left(\sqrt{3} \sin(\theta_5) - \cos(\theta_5) \right) \sqrt{A_6} \right)}{2\sqrt{2}} \right) \end{aligned}$$

$$\begin{aligned} C_{200-2} &= \frac{t(-J + 12t - U)}{3\sqrt{2}} \\ &+ \left(-\frac{t \left(U - 2W + \left(\sqrt{3} \sin(\theta_5) - \cos(\theta_5) \right) \sqrt{A_6} \right)}{3\sqrt{2}} \right) \end{aligned}$$

$$\begin{aligned} C_{200-3} &= \frac{15t^2 - (11U + 98W)t + 8U(U + 21W) + J(t - 4(U + 8W))}{6\sqrt{2}} \\ &+ \left(\frac{-A_{23}^2 + 24W(21U + 104W) + 3(t - 4(U + 8W)) \left(\sqrt{3} \sin(\theta_5) - \cos(\theta_5) \right) \sqrt{A_6}}{18\sqrt{2}} \right) \end{aligned}$$

$$N_{200} = 2\sqrt{2C_{200,1}^2 + C_{200,2}^2 + 2C_{200,3}^2}$$