

## 206<sup>th</sup> Eigenvector

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

Irred. Representation :  $\Gamma_{4,3}$

$$E_{206} = \frac{1}{3} \left( -J - 3t + 5U + 50W + \left( \cos(\theta_5) - \sqrt{3} \sin(\theta_5) \right) \sqrt{A_6} \right)$$

$$\begin{aligned} |\Psi_{206}\rangle &= \left| 5, \frac{1}{2}, \frac{1}{2}, \Gamma_{4,3} \right\rangle \\ &= C_{206,1} (|022u\rangle + |0u22\rangle - |20u2\rangle + |220u\rangle - |22u0\rangle + |2u02\rangle - |u022\rangle - |u220\rangle) \\ &+ C_{206,2} (|02u2\rangle - |202u\rangle - |2u20\rangle + |u202\rangle) \\ &+ C_{206,3} (|2duu\rangle - |2uud\rangle + |d2uu\rangle - |duu2\rangle - |u2du\rangle - |ud2u\rangle + |uu2d\rangle + |uud2\rangle) \end{aligned}$$

$$\begin{aligned} C_{206-1} &= -\frac{t(J + 4t + U)}{2\sqrt{2}} \\ &+ \left( -\frac{t(U - 2W + (\sqrt{3} \sin(\theta_5) - \cos(\theta_5)) \sqrt{A_6})}{2\sqrt{2}} \right) \end{aligned}$$

$$\begin{aligned} C_{206-2} &= \frac{t(J - 12t + U)}{3\sqrt{2}} \\ &+ \left( \frac{t(U - 2W + (\sqrt{3} \sin(\theta_5) - \cos(\theta_5)) \sqrt{A_6})}{3\sqrt{2}} \right) \end{aligned}$$

$$\begin{aligned} C_{206-3} &= \frac{15t^2 - (11U + 98W)t + 8U(U + 21W) + J(t - 4(U + 8W))}{6\sqrt{2}} \\ &+ \left( \frac{-A_{23}^2 + 24W(21U + 104W) + 3(t - 4(U + 8W)) (\sqrt{3} \sin(\theta_5) - \cos(\theta_5)) \sqrt{A_6}}{18\sqrt{2}} \right) \end{aligned}$$

$$N_{206} = 2\sqrt{2C_{206,1}^2 + C_{206,2}^2 + 2C_{206,3}^2}$$