

## 102<sup>nd</sup> Eigenvector

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

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

$$E_{102} = \frac{A_{11}}{6}$$

$$\begin{aligned} |\Psi_{102}\rangle &= |4, 1, -1, \Gamma_{5,1}\rangle \\ &= C_{102,1} (|02dd\rangle + |0dd2\rangle + |20dd\rangle + |2dd0\rangle - |d02d\rangle - |d20d\rangle + |dd02\rangle + |dd20\rangle) \\ &+ C_{102,2} (|0d2d\rangle - |2d0d\rangle - |d0d2\rangle + |d2d0\rangle) \\ &+ C_{102,3} (|dddu\rangle - |ddud\rangle + |dudd\rangle - |uddd\rangle) \end{aligned}$$

$$C_{102-1} = -\frac{1}{3}t (J + U - 2W + 2 \cos(\theta_3) \sqrt{A_2})$$

$$C_{102-2} = -4t^2$$

$$\begin{aligned} C_{102-3} &= \frac{1}{8} (-J^2 - 4UJ - 40WJ + 32t^2 - 4U^2) \\ &+ \left( -\frac{1}{72} (60W - A_{11}) (6(J + 2(U + 5W)) - A_{11}) \right) \end{aligned}$$

$$N_{102} = 2\sqrt{2C_{102,1}^2 + C_{102,2}^2 + C_{102,3}^2}$$