

## 172<sup>nd</sup> Eigenvector

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

Irred. Representation :  $\Gamma_{3,2}$

$$E_{172} = \frac{1}{2} (-J + 2t + 3U + 34W - \sqrt{A_7})$$

$$\begin{aligned} |\Psi_{172}\rangle &= |5, \frac{1}{2}, -\frac{1}{2}, \Gamma_{3,2}\rangle \\ &= C_{172,1} (|022d\rangle - |0d22\rangle + |20d2\rangle - |220d\rangle - |22d0\rangle + |2d02\rangle - |d022\rangle + |d220\rangle) \\ &+ C_{172,2} (|2ddu\rangle + |2udd\rangle - |d2ud\rangle + |dd2u\rangle - |ddu2\rangle + |du2d\rangle - |u2dd\rangle - |udd2\rangle) \\ &+ C_{172,3} (|2dud\rangle - |d2du\rangle - |dud2\rangle + |ud2d\rangle) \end{aligned}$$

$$\begin{aligned} C_{172-1} &= -\frac{1}{2} \sqrt{\frac{3}{2}} t \\ C_{172-2} &= -\frac{J + 2t + U - 2W + \sqrt{A_7}}{4\sqrt{6}} \\ C_{172-3} &= \frac{J + 2t + U - 2W + \sqrt{A_7}}{2\sqrt{6}} \\ N_{172} &= 2\sqrt{2C_{172,1}^2 + 2C_{172,2}^2 + C_{172,3}^2} \end{aligned}$$