

76th Eigenvector

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

Irred. Representation : $\Gamma_{4,2}$

$$E_{76} = \frac{A_{21}}{3}$$

$$\begin{aligned} |\Psi_{76}\rangle &= |3, \frac{1}{2}, \frac{1}{2}, \Gamma_{4,2}\rangle \\ &= C_{76,1} (|002u\rangle - |00u2\rangle + |020u\rangle - |0u02\rangle - |20u0\rangle - |2u00\rangle + |u020\rangle + |u200\rangle) \\ &+ C_{76,2} (|02u0\rangle + |0u20\rangle - |200u\rangle - |u002\rangle) \\ &+ C_{76,3} (|0duu\rangle - |0udu\rangle + |d0uu\rangle + |du0u\rangle - |u0ud\rangle + |udu0\rangle - |uu0d\rangle - |uud0\rangle) \end{aligned}$$

$$\begin{aligned} C_{76-1} &= \frac{t(-J + 4t - U)}{2\sqrt{2}} \\ &+ \left(\frac{t(-U + 2W + (\cos(\theta_4) + \sqrt{3}\sin(\theta_4))\sqrt{A_5})}{2\sqrt{2}} \right) \end{aligned}$$

$$\begin{aligned} C_{76-2} &= \frac{t(J + 12t + U)}{3\sqrt{2}} \\ &+ \left(\frac{t(U - 2W - (\cos(\theta_4) + \sqrt{3}\sin(\theta_4))\sqrt{A_5})}{3\sqrt{2}} \right) \end{aligned}$$

$$C_{76-3} = -\frac{-4t^2 + (U + 4W)t + (U + 4W)^2 + \frac{A_{21}^2}{9} - \frac{1}{3}(t + 2U + 8W)A_{21}}{2\sqrt{2}}$$

$$N_{76} = 2\sqrt{2C_{76,1}^2 + C_{76,2}^2 + 2C_{76,3}^2}$$