140^{th} Eigenvector

$\boldsymbol{N_e \;=\; 4 \qquad s = 1 \qquad m_s = 0}$

Irred. Representation : $\boldsymbol{\Gamma_{5,2}}$

$$E_{140} \;=\; \frac{1}{3}\left(-J + 2U + 32W - 2\cos(\theta_3)\sqrt{A_2}\right)$$

$$\begin{aligned}
|\Psi_{140}\rangle \;&=\; |4,1,0,\Gamma_{5,2}\rangle \\
&=\; C_{140,1}\left(|02du\rangle + |02ud\rangle - |20du\rangle - |20ud\rangle - |du02\rangle + |du20\rangle - |ud02\rangle + |ud20\rangle\right) \\
&+\; C_{140,2}\left(|0d2u\rangle - |0du2\rangle + |0u2d\rangle - |0ud2\rangle + |2d0u\rangle - |2du0\rangle + |2u0d\rangle - |2ud0\rangle\right. \\
&\qquad \left. - |d02u\rangle + |d0u2\rangle - |d20u\rangle + |d2u0\rangle - |u02d\rangle + |u0d2\rangle - |u20d\rangle + |u2d0\rangle\right) \\
&+\; C_{140,3}\left(|dduu\rangle - |uudd\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{140-1} \;&=\; 2\sqrt{2}t^2 \\
C_{140-2} \;&=\; \frac{t\left(J + U - 2W + 2\cos(\theta_3)\sqrt{A_2}\right)}{3\sqrt{2}} \\
C_{140-3} \;&=\; \frac{24t^2 + U^2 - 2J(U + 10W)}{3\sqrt{2}} \\
&\quad + \left(\frac{-A_{12}^2 + 12W(-5J + 11U + 85W) - 12(U + 10W)\cos(\theta_3)\sqrt{A_2}}{9\sqrt{2}}\right) \\
N_{140} \;&=\; \sqrt{8C_{140,1}^2 + 16C_{140,2}^2 + 2C_{140,3}^2}
\end{aligned}$$