144^{th} Eigenvector

$N_e = 4 \qquad s = 1 \qquad m_s = 0$

Irred. Representation : $\mathbf{\Gamma_{5,3}}$

$$E_{144} = \frac{1}{3}\left(-J + 2U + 32W - 2\cos(\theta_3)\sqrt{A_2}\right)$$

$$\begin{aligned}
|\Psi_{144}\rangle &= |4,1,0,\Gamma_{5,3}\rangle \\
&= C_{144,1}\left(|02du\rangle + |02ud\rangle - |0d2u\rangle - |0u2d\rangle + |20du\rangle + |20ud\rangle - |2d0u\rangle - |2u0d\rangle\right. \\
&\qquad \left. + |d0u2\rangle + |d2u0\rangle - |du02\rangle - |du20\rangle + |u0d2\rangle + |u2d0\rangle - |ud02\rangle - |ud20\rangle\right) \\
&+ C_{144,2}\left(|0du2\rangle + |0ud2\rangle - |2du0\rangle - |2ud0\rangle - |d02u\rangle + |d20u\rangle - |u02d\rangle + |u20d\rangle\right) \\
&+ C_{144,3}\left(|duud\rangle - |uddu\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{144-1} &= -\frac{t\left(J + U - 2W + 2\cos(\theta_3)\sqrt{A_2}\right)}{3\sqrt{2}} \\
C_{144-2} &= 2\sqrt{2}t^2 \\
C_{144-3} &= \frac{24t^2 + U^2 - 2J(U + 10W)}{3\sqrt{2}} \\
&\quad + \left(\frac{-A_{12}^2 + 12W(-5J + 11U + 85W) - 12(U + 10W)\cos(\theta_3)\sqrt{A_2}}{9\sqrt{2}}\right) \\
N_{144} &= \sqrt{16C_{144,1}^2 + 8C_{144,2}^2 + 2C_{144,3}^2}
\end{aligned}$$