136^{th} Eigenvector

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

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

$$E_{136} = \frac{1}{3}\left(-J+2U+32W-2\cos\left(\theta_3\right)\sqrt{A_2}\right)$$

$$\begin{aligned}
|\Psi_{136}\rangle &= |4,1,0,\Gamma_{5,1}\rangle \\
&= C_{136,1}\left(|02du\rangle+|02ud\rangle+|0du2\rangle+|0ud2\rangle+|20du\rangle+|20ud\rangle+|2du0\rangle+|2ud0\rangle\right. \\
&\qquad \left.-|d02u\rangle-|d20u\rangle+|du02\rangle+|du20\rangle-|u02d\rangle-|u20d\rangle+|ud02\rangle+|ud20\rangle\right) \\
&+ C_{136,2}\left(|0d2u\rangle+|0u2d\rangle-|2d0u\rangle-|2u0d\rangle-|d0u2\rangle+|d2u0\rangle-|u0d2\rangle+|u2d0\rangle\right) \\
&+ C_{136,3}\left(|dudu\rangle-|udud\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{136-1} &= -\frac{t\left(J+U-2W+2\cos\left(\theta_3\right)\sqrt{A_2}\right)}{3\sqrt{2}} \\
C_{136-2} &= -2\sqrt{2}t^2 \\
C_{136-3} &= \frac{24t^2+U^2-2J(U+10W)}{3\sqrt{2}} \\
&\quad +\left(\frac{-A_{12}^2+12W(-5J+11U+85W)-12(U+10W)\cos\left(\theta_3\right)\sqrt{A_2}}{9\sqrt{2}}\right) \\
N_{136} &= \sqrt{16C_{136,1}^2+8C_{136,2}^2+2C_{136,3}^2}
\end{aligned}$$