137^{th} Eigenvector

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

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

$$E_{137} = \frac{A_{17}}{3}$$

$$\begin{aligned}
|\Psi_{137}\rangle &= |4,1,0,\Gamma_{5,1}\rangle \\
&= C_{137,1}\left(|02du\rangle + |02ud\rangle + |0du2\rangle + |0ud2\rangle + |20du\rangle + |20ud\rangle + |2du0\rangle + |2ud0\rangle\right. \\
&\qquad \left. -|d02u\rangle - |d20u\rangle + |du02\rangle + |du20\rangle - |u02d\rangle - |u20d\rangle + |ud02\rangle + |ud20\rangle\right) \\
&+ C_{137,2}\left(|0d2u\rangle + |0u2d\rangle - |2d0u\rangle - |2u0d\rangle - |d0u2\rangle + |d2u0\rangle - |u0d2\rangle + |u2d0\rangle\right) \\
&+ C_{137,3}\left(|dudu\rangle - |udud\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{137-1} &= -\frac{t(J+U)}{3\sqrt{2}} \\
&\quad + \left(\frac{t\left(-U+2W+\left(\cos(\theta_3)+\sqrt{3}\sin(\theta_3)\right)\sqrt{A_2}\right)}{3\sqrt{2}}\right) \\
C_{137-2} &= -2\sqrt{2}t^2 \\
C_{137-3} &= -\frac{-8t^2+(U+10W)^2+\frac{A_{17}^2}{9}-\frac{2}{3}(U+10W)A_{17}}{\sqrt{2}} \\
N_{137} &= \sqrt{16C_{137,1}^2+8C_{137,2}^2+2C_{137,3}^2}
\end{aligned}$$