$146^{\rm th}$ Eigenvector

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

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

$$E_{146} = \frac{A_{15}}{3}$$

$$\begin{aligned}
|\Psi_{146}\rangle &= |4,1,0,\Gamma_{5,3}\rangle \\
&= C_{146,1}\left(|02du\rangle + |02ud\rangle - |0d2u\rangle - |0u2d\rangle + |20du\rangle + |20ud\rangle - |2d0u\rangle - |2u0d\rangle\right.\\
&\qquad \left. + |d0u2\rangle + |d2u0\rangle - |du02\rangle - |du20\rangle + |u0d2\rangle + |u2d0\rangle - |ud02\rangle - |ud20\rangle\right)\\
&+ C_{146,2}\left(|0du2\rangle + |0ud2\rangle - |2du0\rangle - |2ud0\rangle - |d02u\rangle + |d20u\rangle - |u02d\rangle + |u20d\rangle\right)\\
&+ C_{146,3}\left(|duud\rangle - |uddu\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{146-1} &= -\frac{t(J+U)}{3\sqrt{2}} \\
&\quad + \left(-\frac{t\left(U-2W+\left(\sqrt{3}\sin(\theta_3)-\cos(\theta_3)\right)\sqrt{A_2}\right)}{3\sqrt{2}}\right)\\
C_{146-2} &= 2\sqrt{2}t^2\\
C_{146-3} &= -\frac{-8t^2+(U+10W)^2+\frac{A_{15}^2}{9}-\frac{2}{3}(U+10W)A_{15}}{\sqrt{2}}\\
N_{146} &= \sqrt{16C_{146,1}^2+8C_{146,2}^2+2C_{146,3}^2}
\end{aligned}$$