162^{nd} Eigenvector

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

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

$$E_{162} = \frac{A_{16}}{3}$$

$$\begin{aligned}
|\Psi_{162}\rangle &= |4,1,1,\Gamma_{5,3}\rangle \\
&= C_{162,1}\left(|02uu\rangle - |0u2u\rangle + |20uu\rangle - |2u0u\rangle + |u0u2\rangle + |u2u0\rangle - |uu02\rangle - |uu20\rangle\right) \\
&+ C_{162,2}\left(|0uu2\rangle - |2uu0\rangle - |u02u\rangle + |u20u\rangle\right) \\
&+ C_{162,3}\left(|duuu\rangle - |uduu\rangle - |uudu\rangle + |uuud\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{162-1} &= \frac{1}{6}t\left(3J + 6U + 60W - 2A_{16}\right) \\
C_{162-2} &= -4t^2 \\
C_{162-3} &= \frac{1}{8}\left(J^2 + 4(U+10W)J + 4\left(U^2 - 8t^2\right)\right) \\
&\quad + \left(\frac{1}{18}\left(30W - A_{16}\right)\left(3J + 6U + 30W - A_{16}\right)\right) \\
N_{162} &= 2\sqrt{2C_{162,1}^2 + C_{162,2}^2 + C_{162,3}^2}
\end{aligned}$$