107^{th} Eigenvector

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

Irred. Representation : $\boldsymbol{\Gamma_{5,2}}$

$$E_{107} = \frac{A_{16}}{3}$$

$$\begin{aligned}
|\Psi_{107}\rangle &= |4,1,-1,\Gamma_{5,2}\rangle \\
&= C_{107,1}\left(|02dd\rangle - |20dd\rangle - |dd02\rangle + |dd20\rangle\right) \\
&+ C_{107,2}\left(|0d2d\rangle - |0dd2\rangle + |2d0d\rangle - |2dd0\rangle - |d02d\rangle + |d0d2\rangle - |d20d\rangle + |d2d0\rangle\right) \\
&+ C_{107,3}\left(|dddu\rangle + |ddud\rangle - |dudd\rangle - |uddd\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{107-1} &= 4t^2 \\
C_{107-2} &= \frac{1}{6}t\left(3J + 6U + 60W - 2A_{16}\right) \\
C_{107-3} &= \frac{1}{8}\left(-J^2 - 4UJ - 40WJ + 32t^2 - 4U^2\right) \\
&\quad + \left(-\frac{1}{18}\left(30W - A_{16}\right)\left(3J + 6U + 30W - A_{16}\right)\right) \\
N_{107} &= 2\sqrt{C_{107,1}^2 + 2C_{107,2}^2 + C_{107,3}^2}
\end{aligned}$$