57^{th} Eigenvector

$$\boldsymbol{N_e = 3 \qquad s = \frac{1}{2} \qquad m_s = -\frac{1}{2}}$$

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

$$E_{57} = \frac{1}{2}\left(-J - 2t + U + 10W - \sqrt{A_7}\right)$$

$$\begin{aligned}
|\Psi_{57}\rangle &= |3, \frac{1}{2}, -\frac{1}{2}, \Gamma_{5,1}\rangle \\
&= C_{57,1}\left(|002d\rangle - |00d2\rangle + |02d0\rangle - |0d20\rangle - |200d\rangle + |2d00\rangle + |d002\rangle - |d200\rangle\right) \\
&+ C_{57,2}\left(|0ddu\rangle + |0udd\rangle + |d0ud\rangle + |dd0u\rangle + |ddu0\rangle + |du0d\rangle + |u0dd\rangle + |udd0\rangle\right) \\
&+ C_{57,3}\left(|0dud\rangle + |d0du\rangle + |dud0\rangle + |ud0d\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{57-1} &= -\frac{1}{2}\sqrt{\frac{3}{2}}t \\
C_{57-2} &= \frac{J + 2t + U - 2W + \sqrt{A_7}}{4\sqrt{6}} \\
C_{57-3} &= -\frac{J + 2t + U - 2W + \sqrt{A_7}}{2\sqrt{6}} \\
N_{57} &= 2\sqrt{2C_{57,1}^2 + 2C_{57,2}^2 + C_{57,3}^2}
\end{aligned}$$