$198^{\rm th}$ Eigenvector

$$N_e \;=\; 5 \qquad s = \frac{1}{2} \qquad m_s = \frac{1}{2}$$

Irred. Representation : $\mathbf{\Gamma_{4,1}}$

$$E_{198} = \frac{1}{3}\left(-J - 3t + 5U + 50W - 2\cos(\theta_5)\sqrt{A_6}\right)$$

$$\begin{aligned}
|\Psi_{198}\rangle &= |5, \frac{1}{2}, \frac{1}{2}, \Gamma_{4,1}\rangle \\
&= C_{198,1}\left(|022u\rangle + |02u2\rangle + |202u\rangle + |20u2\rangle - |2u02\rangle - |2u20\rangle - |u202\rangle - |u220\rangle\right) \\
&+ C_{198,2}\left(|0u22\rangle - |220u\rangle - |22u0\rangle + |u022\rangle\right) \\
&+ C_{198,3}\left(|2udu\rangle - |2uud\rangle - |du2u\rangle - |duu2\rangle + |u2du\rangle - |u2ud\rangle + |ud2u\rangle + |udu2\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{198-1} &= \frac{t\left(J + 4t + U - 2W + 2\cos(\theta_5)\sqrt{A_6}\right)}{2\sqrt{2}} \\
C_{198-2} &= \frac{t\left(-J + 12t - U + 2W - 2\cos(\theta_5)\sqrt{A_6}\right)}{3\sqrt{2}} \\
C_{198-3} &= \frac{-A_{22}^2 + 3(t - 4(U + 8W))A_{22} + 18\left(2t^2 + (U + 8W)t - 2(U + 8W)^2\right)}{18\sqrt{2}} \\
N_{198} &= 2\sqrt{2C_{198,1}^2 + C_{198,2}^2 + 2C_{198,3}^2}
\end{aligned}$$