213^{rd} Eigenvector

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

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

$$E_{213} = \frac{1}{2}\left(-J + 2t + 3U + 34W - \sqrt{A_4}\right)$$

$$\begin{aligned}
|\Psi_{213}\rangle &= |5, \frac{1}{2}, \frac{1}{2}, \Gamma_{5,3}\rangle \\
&= C_{213,1}\left(|02u2\rangle - |0u22\rangle - |202u\rangle + |220u\rangle - |22u0\rangle + |2u20\rangle + |u022\rangle - |u202\rangle\right) \\
&+ C_{213,2}\left(|2duu\rangle + |2udu\rangle + |d2uu\rangle - |du2u\rangle + |u2ud\rangle - |udu2\rangle - |uu2d\rangle - |uud2\rangle\right) \\
&+ C_{213,3}\left(|2uud\rangle - |duu2\rangle + |u2du\rangle - |ud2u\rangle\right)
\end{aligned}$$

$$\begin{aligned}
C_{213-1} &= -\frac{1}{2}\sqrt{\frac{3}{2}}t \\
C_{213-2} &= -\frac{J - 2t + U - 2W + \sqrt{A_4}}{4\sqrt{6}} \\
C_{213-3} &= \frac{J - 2t + U - 2W + \sqrt{A_4}}{2\sqrt{6}} \\
N_{213} &= 2\sqrt{2C_{213,1}^2 + 2C_{213,2}^2 + C_{213,3}^2}
\end{aligned}$$