175^{th} Eigenvector

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

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

$$
\begin{aligned}
E_{175} &= \frac{1}{3}\left(-J - 3t + 5U + 50W + \left(\cos(\theta_5) + \sqrt{3}\sin(\theta_5)\right)\sqrt{A_6}\right) \\
|\Psi_{175}\rangle &= |5, \frac{1}{2}, -\frac{1}{2}, \Gamma_{4,1}\rangle \\
&= C_{175,1}\left(|022d\rangle + |02d2\rangle + |202d\rangle + |20d2\rangle - |2d02\rangle - |2d20\rangle - |d202\rangle - |d220\rangle\right) \\
&+ C_{175,2}\left(|0d22\rangle - |220d\rangle - |22d0\rangle + |d022\rangle\right) \\
&+ C_{175,3}\left(|2ddu\rangle - |2dud\rangle + |d2du\rangle - |d2ud\rangle - |du2d\rangle - |dud2\rangle + |ud2d\rangle + |udd2\rangle\right) \\
C_{175-1} &= \frac{t(J + 4t + U)}{2\sqrt{2}} \\
&+ \left(\frac{t\left(U - 2W - \left(\cos(\theta_5) + \sqrt{3}\sin(\theta_5)\right)\sqrt{A_6}\right)}{2\sqrt{2}}\right) \\
C_{175-2} &= \frac{t(-J + 12t - U)}{3\sqrt{2}} \\
&+ \left(\frac{t\left(-U + 2W + \left(\cos(\theta_5) + \sqrt{3}\sin(\theta_5)\right)\sqrt{A_6}\right)}{3\sqrt{2}}\right) \\
C_{175-3} &= \frac{15t^2 - (11U + 98W)t + 8U(U + 21W) + J(t - 4(U + 8W))}{6\sqrt{2}} \\
&+ \left(\frac{-A_{24}^2 + 24W(21U + 104W) - 3(t - 4(U + 8W))\left(\cos(\theta_5) + \sqrt{3}\sin(\theta_5)\right)\sqrt{A_6}}{18\sqrt{2}}\right) \\
N_{175} &= 2\sqrt{2C_{175,1}^2 + C_{175,2}^2 + 2C_{175,3}^2}
\end{aligned}
$$