44^{th} Eigenvector

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

Irred. Representation : $\boldsymbol{\Gamma_{3,1}}$

$$
\begin{aligned}
E_{44} &= \frac{J}{2} - t + U + 5W \\
|\Psi_{44}\rangle &= |4, 1, -1, \Gamma_{3,1}\rangle \\
&= C_{44,1}\left(|2dd\rangle\right) \\
&+ C_{44,2}\left(|d2d\rangle - |dd2\rangle\right)
\end{aligned}
$$

$$
\begin{aligned}
C_{44-1} &= \sqrt{\frac{2}{3}} \\
C_{44-2} &= \frac{1}{\sqrt{6}} \\
N_{44} &= \sqrt{C_{44,1}^2 + 2C_{44,2}^2}
\end{aligned}
$$