

where $\Psi \propto n_1 + in_2$, $\Phi_x \propto n_3 + in_4$, $\Phi_y \propto n_5 + in_6$.

Describes $O(6) \Rightarrow O(2) \times O(2) \times O(2) \rtimes \mathbb{Z}_2$. The coupling g determines the anisotropy between superconductivity and charge order.

Solve by cluster Monte Carlo and $1/N$ expansion.