

⬆ Spins $S_i = \pm 1$ Interaction $U S_i(\hat{n}_i - 1/2)$

◐ Fermions $\hat{n}_i = \{0, 1\}$ — Hopping $-t \hat{c}_i^\dagger \hat{c}_{i+1}$

----- Long Range Interaction $J_{ij} S_i S_j$

