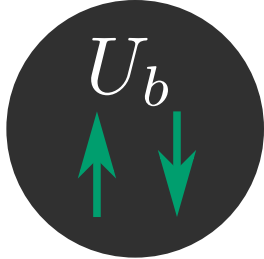


impurity site

$$\begin{array}{c} V c_d^\dagger c_0 + \text{h.c.} \\ \longleftrightarrow \\ J \vec{S}_d \cdot \vec{S}_0 \end{array}$$



zeroth site