

# Slave-rotor Theory of Magnetic Impurity in Superconductors

Mahn-Soo Choi and Jong Soo Lim

*Department of Physics, Korea University, 136-713 Seoul, Korea*

We consider an Anderson-type magnetic impurity in a superconductor (or equivalently, a quantum dot coupled to superconducting leads) and investigate the Andreev bound states. We extend the recently proposed slave-rotor theory to include the superconducting effect and the one-loop correction. We compare the results with the numerical renormalization group calculations as well as the non-crossing approximation results.