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Electronic and Magnetic Properties of Cd-Doped PuRhIn5[1] JIAN-XIN ZHU, Los Alamos National Laboratory — Since their discovery nearly a decade ago, plutonium-based superconductors have attracted considerable interest, which is now heightened by the latest discovery of superconductivity in other Pu-115 compounds. Within the generalized gradient approximation (GGA) of density functional theory and its combination with the dynamical mean-field theory, we present a study of electronic structure in the paramagnetic state of Cd-doped $PuRhIn_5$. A doping-induced delocalization-localization transition is identified. In addition, the spin-polarized GGA-based total energy calculations are performed to determine the magnetic exchange interactions in the pristine $PuRhIn_5$. The implication to the nature of quantum criticality is discussed.

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