

Abstract Submitted
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The effect of Yb substitution in the heavy-fermion superconductor CeCoIn₅¹ LEI SHU, E. GONZALES, K. HUANG, T.A. SAYLES, U. Calif. San Diego, California 920931 U.S.A., J. PAGLIONE, U. Maryland, Maryland 20742, U.S.A., M.B. MAPLE, U. Calif. San Diego, California 920931 U.S.A. — The discovery of a new family of heavy-fermion superconductors with the formula CeMIn₅ (M=Co, Rh, Ir) provides an interesting playground to understand the relation between unconventional superconductivity and quantum criticality. CeCoIn₅, with the highest ambient pressure superconducting transition temperature of all heavy-fermion compounds, exhibits a magnetic field-tuned quantum critical point. The peculiar magnetic properties of CeCoIn₅ are determined by the interaction between the magnetic moments of the Ce³⁺ ions and the spins of conduction electrons. Through systematic studies of Ce_{1-x}Yb_xCoIn₅ alloys, where the magnetic Ce ions (4f¹ configuration) are diluted by Yb (hole analogue; 4f¹³ configuration), it allows us to study the nature of intersite interactions. Lattice constant, magnetic susceptibility, and electrical resistivity data of Ce_{1-x}Yb_xCoIn₅ alloys throughout the range $0 \leq x \leq 1$ will be reported.

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