Abstract Submitted
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Superconductivity and non-Fermi-liquid behavior in $Ce_{1-x}Yb_xCoIn_5$[1] L. SHU, E. GONZALES, K. HUANG, T.A. SAYLES, R.E. BAUMBACH, J.J. HAMLIN, D.A. ZOCCO, C.A. MCELROY, M.B. MAPLE, Phys. Dept., Univ. California, San Diego, La Jplla, Ca 92093, J. PAGLIONE, Phys. Dept., Univ. Maryland, College Park, Md 20742, J. O'BRIEN, Quantum Design, San Diego Ca 92121, P.-C. HO, Phys. Dept., Cal. State Univ., Fresno, Ca 937340
— Single-crystals of $Ce_{1-x}Yb_xCoIn_5$ were investigated by specific heat $C_P(T)$, electrical resistivity $\rho(T)$, and magnetic susceptibility $\chi(T)$ measurements as a function of x. As Yb is substituted for Ce, $T_c(x)$ is gradually suppressed to 0.9 K at $x = 0.8$. In the low Yb concentration region near $x = 0.1$, there is a feature in the lattice constants and residual resistivity, a crossover in the anisotropy of $\chi(T)$, the development of NFL T-dependences of $\chi(T)$ and $C_P(T)$ in the normal state,indicating the existence of a quantum critical point, and a plateau in $T_c(x)$. In the high Yb concentration region near $x = 0.8$, there is an abrupt drop in the lattice parameters that is accompanied by a precipitous drop in $T_c(x)$. The features in the physical properties at $x = 0.1$ and 0.8 indicate the occurrence of some incipient electronic phase transitions, possibly involving the Ce and Yb valences at these compositions.

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