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Phase Diagram of Valence Transition below 14T and above 2K for $Ce_{1-x}Pr_xOs_4Sb_{12}$, x=0.1 and 0.2[1] LETICIA RAMOS, XINGYU ZHAO, ZACHARY CARRENDER, California State University, Fresno, TATSUYA YANAGISAWA, Hokkaido University, Sapporo, M. BRIAN MAPLE, University of California, San Diego, PEI-CHUN HO, California State University, Fresno — Filled skutterudite compounds are described by the chemical formula: LnT_4Pn_{12} where Ln is a rare-earth metal, T is a transition metal, and Pn is a pnictogen. $CeOs_4Sb_{12}$ is a Kondo insulator that exhibits antiferromagnetism due to spin-density wave formation below 1 K. Based on the band-structure calculation, $CeOs_4Sb_{12}$ is suggested to be a candidate for topological insulators, which may have a hole Fermi surface and an electron Fermi surface coexisting at low temperatures. Through our previous studies of $CeOs_4Sb_{12}$, we found that a valence transition occurs in this compound, and we have established an intriguing temperature, T-, magnetic field, H, phase diagram in its normal state. Nevertheless, the neighboring isostructural compound $PrOs_4Sb_{12}$ is a heavy-fermion superconductor with a transition temperature at 1.85 K. When Pr substitutes Ce in $CeOs_4Sb_{12}$, a hole-doping is introduced. We plan to study the series of $Ce_{1-x}Pr_xOs_4Sb_{12}$ to investigate the influence of hole-doping to the valence transition. In this report, we will show the preliminary results of normal state resistivity of two concentrations: x=0.1 and x=0.2 from 300 K to 2 K in magnetic fields ranging from 0 to 14 Tesla as well as the $T-H$ phase diagram updated with the doped samples' resistance data.

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