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Resistivity of Doped Filled Skutterudite Compounds: $Ce_{1-x}Pr_x$ Os_4Sb_{12}[1] LETICIA RAMOS, California State University, Fresno, XINGYU ZHAO, University High School (Fresno), ZACHARY CARRENDER, 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 [1], which may have a hole Fermi surface and an electron Fermi surface coexisting at low temperatures. Through our previous study of $CeOs_4Sb_{12}$ [2,3], we found that the valence transition may occur 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 $Ce_{1-x}Pr_x$ Os_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 12 K at zero magnetic field. [1] B. Yan, et al., PRB 85, 165125 (2012). [2] K. Gotze, et al., PRB 101, 075102 (2020). [3] P.-C. Ho, et al., PRB 94, 205140 (2016).

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