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Physical properties of single crystalline $SrSn_4$ and $BaSn_5$ superconductors[1] XIAO LIN, SERGEY BUD'KO, Department of Physics and Astronomy, Iowa State University and Ames Laboratory, GERMAN SAMOLYUK, Materials Science & Technology Division, Oak Ridge National Laboratory, MILTON TORIKACHVILI, Department of Physics, San Diego State University, PAUL CANFIELD, Department of Physics and Astronomy, Iowa State University and Ames Laboratory — We present the growths and detailed thermodynamic and transport measurements on single crystals of the recently discovered binary intermetallic superconductors, $SrSn_4$ and $BaSn_5$. Their superconducting transition temperatures T_c are found to be 4.8 K and 4.4 K respectively. Both materials are strongly-coupled, possibly multi-band superconductors. Hydrostatic pressure causes a decrease in the superconducting transition temperature at the rate of ≈ -0.068 K/kbar for $SrSn_4$, and ≈ -0.053 K/kbar for $BaSn_5$. Band structure and upper superconducting critical field anisotropy of $SrSn_4$ suggest complex, multi-sheet Fermi surface formed by four bands. De Hass-van Alphen oscillations are observed in $BaSn_5$, which indicates a more complex topology of Fermi surface.

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