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**Type-I Superconductivity in Ytterbium Diantimonide**

LIANG L. ZHAO, Rice University, STEFAN LAUSBERG, MANUEL BRANDO, Max Planck Institute for Chemical Physics of Solids, H. KIM, M.A. TANATAR, R. PROZOROV, Ames Laboratory, E. MOROSAN, Rice University — The layered antimonide compound YbSb<sub>2</sub> crystallizes with a ZrSi<sub>2</sub>-type orthorhombic structure, different from other rare earth diantimonides. Unusual for a binary compound, Type-I superconductivity has been observed in YbSb<sub>2</sub>. In this talk, we present the results from anisotropic magnetization, resistivity, heat capacity and magneto-optical Faraday effect measurements on YbSb<sub>2</sub> single crystals, showing a clear superconducting transition at  $T_c = 1.25$  K. The estimated electron-phonon coupling  $\lambda = 0.51$ , together with the jump in electronic specific heat  $\Delta C_{es}/\gamma T_c = 1.36$ , indicate the system to be a weak-coupling BCS superconductor. Magnetization, as well as heat capacity measured under field, clearly suggest a Type-I behavior, which is confirmed by the estimated Ginzburg-Landau parameter  $\kappa = 0.13$ . According to the  $H$ - $T$  phase diagram, the critical field  $H_c$  is around 60 Oe.

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