Abstract Submitted
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Nearly-free electron superconductor $Ag_5Pb_2O_6$[1]
SHINGO YONEZAWA, Department of Physics, Graduate School of Science, Kyoto University, Japan, MIKE SUTHERLAND, PETER D. A. MANN, CHRISTOPH BERGEMANN, Cavendish Laboratory, University of Cambridge, United Kingdom, YOSHITERU MAENO, Department of Physics, Graduate School of Science, Kyoto University, Japan — Superconductivity in the silver lead oxide $Ag_5Pb_2O_6$ has been discovered below 52 mK [1,2]. Although its T_c is one of the lowest among the known oxide superconductors, this oxide is interesting from the viewpoint that it is the first superconductor with a nearly-free-electron Fermi surface. This fact is revealed by our quantum oscillation study [3] as well as recent band-calculation studies, which concluded that the system possesses one near-spherical Fermi surface with a small electron- mass enhancement. We will present its type-I superconducting properties, as well as the properties of the normal state where the resistivity varies nearly as T^2 up to room temperature [1].
[1] S. Yonezawa and Y. Maeno, Phys. Rev. B 70, 184523 (2004). [2] S. Yonezawa and Y. Maeno, Phys. Rev. B 72, 180504(R) (2005). [3] M. Sutherland et al., Phys. Rev. Lett. 96, 097008 (2006).

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