

Abstract Submitted
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Fully gapped superconducting state in Au₂Pb: a natural candidate for topological superconductor YUNJIE YU, YANG XU, Fudan University, YING XING, Peking University, JUN ZHANG, TIANPING YING, XIAOCHEN HONG, MINXIANG WANG, Fudan University, XIAO ZHANG, SHUANG JIA, JIAN WANG, Peking University, SHIYAN LI, Fudan University — We measured the ultra-low-temperature specific heat and thermal conductivity of Au₂Pb single crystal, a possible three-dimensional Dirac semimetal with a superconducting transition temperature $T_c \approx 1.05$ K. The electronic specific heat can be fitted by a two-band *s*-wave model, which gives the gap amplitudes $\Delta_1(0)/k_B T_c = 1.41$ and $\Delta_2(0)/k_B T_c = 5.25$. From the thermal conductivity measurements, a negligible residual linear term κ_0/T in zero field and a slow field dependence of κ_0/T at low field are obtained. These results suggest that Au₂Pb has a fully gapped superconducting state in the bulk, which is a necessary condition for topological superconductors if Au₂Pb is indeed one.

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