

Abstract Submitted
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Quantum oscillations in the parent magnetic phase of an iron arsenide high temperature superconductor¹ NEIL HARRISON, Los Alamos National Laboratory, SUCHITRA SEBASTIAN, J. GILLET, P. LAU, Cavendish Laboratory, Cambridge, DAVID SINGH, Oak Ridge National Laboratory, CHARLES MIELKE, Los Alamos National Laboratory, GILBERT LONZARICH, Cavendish Laboratory, Cambridge — We report quantum oscillation measurements in SrFe₂As₂, which is known to become superconducting under doping and pressure. The magnetic field and temperature dependences of the oscillations between 20 and 55 T suggest that the electronic excitations are those of a Fermi liquid. We show that the observed Fermi surface comprising small pockets is consistent with the formation of a spin-density wave. Our measurements thus demonstrate that high T_c superconductivity can occur on doping or pressurizing a conventional metallic spin-density wave state.

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