Abstract Submitted
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High Pressure Studies of $CeIn_3$ in High Magnetic Fields[1] KENNETH PURCELL, Florida State Universty, JASON COOLEY, Los Alamos National Laboratory, RONGWEI HU, Brown University, ROSS MCDONALD, National High Magnetic Field Laboratory - LANL, CEDOMIR PETROVIC, Brookhaven National Laboratory, STANLEY TOZER, National High Magnetic Field Laboratory - FSU — High pressure and strong magnetic fields are useful tools for studying the relationship between the antiferromagnetism and unconventional superconductivity observed in the heavy fermion superconductor $CeIn_3$.[1,2] We report high pulsed magnetic field (up to 55 T) pressure studies of single crystal $CeIn_3$ utilizing the change in the resonant frequency of a tunnel diode oscillator (TDO) as a contactless means of measuring the skin depth of the crystal. An anomaly in the skin depth was observed at ∼42 T and was found to be driven to lower fields with increasing pressure. The relationship of the observed anomaly with the nature of the Fermi surface and the formation of a superconducting state at ∼200 mK and 27 kbar will be discussed. 1. N. Harrison et al, preprint arXiv:07062387 2. N. D. Mathur et al, Nature, 394, 39 (1998)

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Kenneth Purcell
Florida State Universty

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