

Abstract Submitted  
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**High magnetic field thermal-expansion and magnetostriction of URu<sub>2</sub>Si<sub>2</sub>** VÍCTOR CORREA, TIMOTHY MURPHY, ERIC PALM, STANLEY TOZER, National High Magnetic Field Laboratory, Florida State University, PETER SHARMA, NEIL HARRISON, MARCELO JAIME, National High Magnetic Field Laboratory, Los Alamos National Laboratory, GEORGE SCHMIEDESHOFF, Occidental College, JOHN MYDOSH, II Physikalisches Institut, Universität zu Köln — We present high magnetic field (up to 45 T) thermal-expansion and magnetostriction results on URu<sub>2</sub>Si<sub>2</sub> single crystals. The volume change associated with the transition to the “hidden” order phase becomes increasingly discontinuous as the magnetic field is raised above 30 T. This confirms recent thermal conductivity and specific heat experiments indicating a strong coupling between the “hidden” order parameter and the lattice which suggest some sort of charge ordered state. Several other transitions are observed at higher fields, many of them showing hysteresis, while a change in the sign of the magnetostriction coefficient is observed at the metamagnetic transition ( $B_M \sim 38$  T).

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