

Abstract Submitted
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High-magnetic field magnetostriction and thermal expansion in URu₂Si₂ V.F. CORREA, CAB-CNEA, Bariloche, Río Negro, Argentina, S. FRANCOUAL, M. JAIME, N. HARRISON, A. LACERDA, MPA-CMMS, LANL, Los Alamos, New Mexico 87545, USA, T.P. MURPHY, E.C. PALM, S.W. TOZER, NHMFL, FSU, Tallahassee, Florida 32310, USA, P.A. SHARMA, MPA-CMMS, LANL, Los Alamos, New Mexico 87545, USA, J.A. MYDOSH, Kamerlingh Onnes Laboratory, Leiden University, NL-2300 RA Leiden, The Netherlands — We report high magnetic field (up to $\mu_0 H = 45$ T) *c*-axis thermal expansion and magnetostriction experiments on URu₂Si₂ single crystals. The sample length change $\Delta L_c(T_{HO})/L_c$ associated with the transition to the “hidden order” phase becomes increasingly discontinuous as the magnetic field is raised above 25 T. The re-entrant ordered phase III is clearly observed in both the thermal expansion $\Delta L_c(T)/L_c$ and magnetostriction $\Delta L_c(B)/L_c$ above 36 T, in good agreement with previous results. The sample length is also discontinuous at the boundaries of this phase, mainly at the upper boundary. A change in the sign of the coefficient of thermal-expansion is observed at the metamagnetic transition ($B_M \approx 38$ T) which is likely related to the existence of a quantum critical end point. See V.F. Correa et al., Phys. Rev. Lett. (in the press).

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