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Magnetization at 1 Mbar Near the Tricritical Point in the Ce(0.9-x)La(x)Th(0.10) System[1] J.L. SMITH, K. GOFRYK, R.D. TAYLOR, J.C. LASHLEY, Los Alamos National Lab, M.P. PASTERNAK, Tel Aviv University, D.J. POLANCIC, Quantum Design, Inc. — The gamma to alpha isostructural transition in the Ce(0.9-x)La(x)Th(0.10) system is measured as a function of La alloying and external pressure up to 1 Mbar using magnetic susceptibility. We probe a line of discontinuous transitions, as indicated by the change in volume, decreasing exponentially from 118 K to close to 0 K with increasing La doping, and the transition changes from being first order to continuous at a critical concentration close to $x = 0.14$. At the tricritical point, the magnetic susceptibility increase rapidly near the critical concentration and approaches large values at x= 0.35 signifying that a heavy Fermi-liquid state evolves at large doping near the critical concentration. The Wilson ratio reaches a value above two for a narrow range of concentrations where the specific heat and susceptibility vary most rapidly with the doping concentration.

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