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The Search for Quantum Criticality in the $URu_{2-x}Re_xSi_2$ Phase Diagram[1] N.P. BUTCH, J.R. JEFFRIES, B.T. YUKICH, T.A. SAYLES, J. PAGLIONE, P.-C. HO, M.B. MAPLE, Dept. of Physics and IPAPS, University of California, San Diego — It has been established that as Re is doped into polycrystalline URu_2Si_2, the hidden order/antiferromagnetic and superconducting phases are suppressed, while at intermediate doping, long range ferromagnetism emerges. To further investigate observations of the persistence of non-Fermi liquid behavior well into the ferromagnetic phase, we have prepared single crystals of $URu_{2-x}Re_xSi_2$ in the Re concentration range of $0 \leq x \leq 0.6$ and performed magnetization, electrical and thermal transport, and calorimetry measurements at low temperatures down to 0.1 K.

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