Abstract Submitted
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Kink in the dispersion of f-electrons[1] TOMASZ DURAKIEWICZ, PETER S. RISEBOROUGH, CLIFFORD G. OLSON, JOHN J. JOYCE, PETER M. OPPENEER, SAAD ELGAZZAR, ERIC D. BAUER, JOHN L. SARRAO, ELA GUZIEWICZ, DAVID P. MOORE, MARTIN T. BUTTERFIELD, KEVIN S. GRAHAM, LOS ALAMOS NATIONAL LABORATORY, TEMPLE UNIVERSITY, AMES LAB, UPPSALA UNIVERSITY, PAN, LLNL TEAM — Many-body interactions may result in the formation of long- lived heavy quasi-particles that exhibit kinks in their energy dispersion. Kinks are often seen in d-electron correlated systems and are attributed to many different origins, such as coupling to phonons, extended spin-fluctuations, or electron- electron correlations. We have found that the renormalization of a 5f electron band in USb2 leads to the formation of a kink characterized by two distinct regions with different quasiparticle masses, peak asymmetries, lifetimes and a record- breaking small width of 3meV. The kink energy scale of 17meV originates from renormalization of a point-like Fermi surface, and is a factor of two smaller than previously measured in correlated materials.

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