

Abstract Submitted  
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**Visualizing the Emergence of Heavy Fermions in a Kondo Lattice (Part II)** PEGOR AYNANIAN, EDUARDO DA SILVA NETO, Princeton University, RYAN BAUMBACH, JOE THOMPSON, Los Alamos National Laboratory, ZACHARY FISK, University of California Irvine, ERIC BAUER, Los Alamos National Laboratory, ALI YAZDANI, Princeton University — The development of low energy fermionic excitations with heavy mass in compounds with  $f$ -orbitals is one of the key concepts in the physics of correlated electronic states and fundamental to the mechanism of unconventional superconductivity in such systems. We use spectroscopic mapping with the scanning tunneling microscope (STM) to detect the emergence of these heavy excitations in the Ce-115 heavy fermion compounds. Scattering and interference of the heavy quasiparticles is used to resolve their energy-momentum structure and to extract their mass enhancement, which develops near the Fermi energy with decreasing temperature. This work is funded by a DOE-BES grant. Infrastructure at the Princeton Nanoscale Microscopy Laboratory are also supported by grants from NSF-DMR, Keck Foundation, and NSF-MRSEC. PA also acknowledges support of a fellowship through the PCCM funded by NSF MERSEC.

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