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STM Spectroscopic Mapping of Quasiparticle States in the Superconducting State of CeCoIn₅ SHASHANK MISRA, BRIAN ZHOU, EDUARDO H. DA SILVA NETO, PEGOR AYNAJIAN, Princeton University, RYAN BAUMBACH, J.D. THOMPSON, ERIC BAUER, Los Alamos National Laboratory, ALI YAZDANI, Princeton University — The heavy fermion compounds provide an interesting playground to study strongly correlated physics, as a variety of unusual low-temperature states emerge in relatively close proximity to one another in their phase diagrams. However, to date, very little spectroscopic information about these low-temperature phases, including unconventional superconductivity, is known. Recently, at comparatively high temperatures, Aynajian and coworkers¹ used scanning tunneling microscopy (STM) to visualize the formation of heavy quasiparticles in one of the prototype 115 compounds, CeCoIn₅. Here, we use a new home-built STM to extend the spatial mapping of the electronic states of CeCoIn₅ down to its superconducting state at mK temperatures. This work was supported by the DOE and NSF.

¹P. Aynajian, *et al.*, *Nature* **486**, 201-206 (2012).

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