

Abstract Submitted  
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**Temperature dependence of the Tunneling Density of states in  $\text{URu}_2\text{Si}_2$** <sup>1</sup> PEGOR AYNANIAN, EDUARDO DA SILVA NETO, COLIN PARKER, AAKASH PUSHP, Princeton University, ABHAY PASUPATHY, Columbia University, JOHN MYDOSH, Leiden University, ALI YAZDANI, Princeton University — The heavy Fermion  $\text{URu}_2\text{Si}_2$  has fascinated physicists for decades because of the presence of superconductivity, antiferromagnetism and a hidden order phase, the origin of which remains poorly understood. In addition, the interaction between U's  $f$  electrons and the  $spd$  electrons is expected to give rise to Kondo screening of the  $f$  electron's spin at temperatures above the onset of the various forms of ordering. Recently, the interplay between the Kondo effect, the crystal field splitting, and the hidden order has been explored theoretically to predict the local density of states of this material [1,2]. We present an experimental study of the heavy Fermion  $\text{URu}_2\text{Si}_2$  by variable temperature scanning tunneling spectroscopy. Our spectra reveal an asymmetric Fano lineshape at the Fermi energy that develops upon cooling. This feature is reminiscent of those observed for single Kondo impurities on metal surfaces. We will describe the temperature evolution of these results and compare them with those predicted by various models. [1] K. Haule and G. Kotliar, Nature Phys. **5**, 796 (2009). [2] M. Maltseva *et al.* arXiv:0910.1138v1 (2009).

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