

Abstract Submitted  
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**Fano resonance and hybridization gap in the Kondo lattice URu<sub>2</sub>Si<sub>2</sub><sup>\*1</sup>** WAN KYU PARK, University of Illinois at Urbana-Champaign, P.H. TOBASH, F. RONNING, E.D. BAUER, J.L. SARRAO, J.D. THOMPSON, Los Alamos National Laboratory, L.H. GREENE, University of Illinois at Urbana-Champaign — The nature of the ‘hidden’ order transition in URu<sub>2</sub>Si<sub>2</sub> remains puzzling despite intensive research over the past two and half decades. A key question under debate is whether a hybridization gap between the renormalized bands can be identified as the long-sought hidden order parameter. We report on the measurement of a hybridization gap in URu<sub>2</sub>Si<sub>2</sub> employing a spectroscopic technique based on quasiparticle scattering across a ballistic metallic junction [1]. The differential conductance data exhibit an asymmetric double-peak structure, a signature for a Fano resonance in a Kondo lattice [2]. The extracted hybridization gap opens well above the hidden order transition temperature, indicating that it is not the order parameter for the hidden order phase. Our results place constraints on the origin of the hidden order transition in URu<sub>2</sub>Si<sub>2</sub>.

[1] W. K. Park *et al.*, arXiv:1110.5541.

[2] M. Maltseva, M. Dzero, P. Coleman, PRL 103, 206402 (2009).

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