Abstract Submitted
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Conductance asymmetry in point-contact junctions on the heavy-fermion compounds $CeMIn_5$ (M=Co, Rh, Ir)[1] L.H. GREENE, W.K. PARK, University of Illinois at Urbana-Champaign, E.D. BAUER, J.L. SARRAO, J.D. THOMPSON, Los Alamos National Laboratory — The Ce-based 1-1-5 heavy-fermion compounds, $CeMIn_5$ (M=Co, Rh, Ir), continue to draw much attention from the community. One of the key questions is how the localized discrete states acquire itinerancy over the conduction electron continuum. As a probe of the evolutionary behavior of the Kondo lattice, we take differential conductance spectra from nanoscale metallic junctions on $CeMIn_5$ single crystals over wide temperature ranges. A striking common feature is the systematic development of an asymmetry in the background conductance [1]. Conventional models including the heating model with large Seebeck coefficients of heavy fermions do not account for this behavior. We propose a phenomenological model based on a possible Fano interference effect [2] between two conductance channels, one into the heavy electron liquid (hybridized f-band) and the other into the conduction electrons without hybridization. [1] W. K. Park et al., Phys. Rev. Lett. **100**, 177001 (2008). [2] U. Fano, Phys. Rev. **124**, 1866 (1961).

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Laura Greene
University of Illinois at Urbana-Champaign

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