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The Fano effect in the point contact spectroscopy of heavy electron materials[1] YI-FENG YANG, Los Alamos National Laboratory — Recent experiments on $CeCoIn_5$ reveal similar temperture dependence of the conductance asymmetry in the point contact spectroscopy and the Knight shift anomaly. This suggests a common origin of both anomalies and supports a previously proposed phenomenological two-fluid model that predicts the emergence of a heavy fluid, or Kondo liquid, in heavy electron materials. Here we propose a phenomenological formula for the point contact spectroscopy and describe the spectra by a Fano effect of tunneling electrons due to the Kondo liquid emergence. Our formula explains quantitatively the experimental data of several heavy electron materials.

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