

Abstract Submitted  
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**APRES lineshape analysis of the Fermi liquid  $\text{Sr}_2\text{RuO}_4$**  NICHOLAS INGLE, Univeristy of British Columbia, KYLE SHEN, Stanford University, FELIX BAUMBERGER, Stanford University, WOROWAT MEEVASANA, Stanford University, DONGHUI LU, Stanford University, Z.-X. SHEN, Stanford University — ARPES spectra of correlated materials, shown by other measurements to be Fermi liquids, have yet to show a linewidth that is narrower than the binding energy of the quasiparticle – a key prediction of Fermi liquid theory. We show that although the effects of energy and momentum resolution can be a significant factor in the quantitative description of the scattering rates from APRES, it is possible to effectively account for them. We find that the ARPES linewidth in  $\text{Sr}_2\text{RuO}_4$ , a correlated 2-dimensional Fermi liquid, is narrower than its binding energy, and decreases with the expected functional form as the Fermi energy is approached. In combination with the previously determined Fermi surface, these results give the first complete picture of a Fermi liquid via ARPES.

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