Abstract Submitted
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**Finite-temperature conductance signatures of a quantum-critical transition in a double quantum-dot device**[1] NANCY SANDLER, Ohio University, LUIS DIAS DA SILVA, Oak Ridge Natl. Lab. and U. of Tennessee, KEVIN INGERSENT, U. of Florida, SERGIO ULLOA, Ohio University — We present conductance results for a quantum-dot system containing one dot in the Kondo regime coupled to two leads in parallel with a noninteracting resonant level. The system can be mapped onto a single-impurity Anderson model with a pseudogapped effective density of states [1]. The finite-temperature linear conductance $G(T)$ of this double-dot device is obtained via numerical renormalization-group calculations. The position of the single-particle levels can be controlled with gate voltages so that the effective density of states vanishes in power-law fashion at the Fermi energy of the leads; within this regime, further tuning can drive the system through a quantum critical point separating Kondo and unscreened phases. Signatures of both effects appear in $G(T)$, with a prominent feature at the scale $T^*$ marking the crossover from the high-temperature quantum-critical regime to a low-temperature Fermi liquid. These results open the way for experimental verification of the effect, and in principle allow access to a quantum critical point in a unique tunable system. [1] L.G.G.V. Dias da Silva et al., PRL **97**, 096603 (2006).

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