

Abstract Submitted  
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**“0.7” Conductance Anomaly in quantum point contacts**<sup>1</sup> J. SHABANI, R.N. BHATT, Department of Electrical Engineering, Princeton University — We demonstrate that an anomaly close to  $0.7(2e^2/h)$  [rather than  $0.5(2e^2/h)$  as in a Kondo-type model<sup>1</sup>] in the conductance plot of quantum point contacts<sup>2</sup> arises naturally in a model with a quasi-bound state *at the Fermi level* within an Anderson impurity model framework. The same model yields good agreement with the observed dependence<sup>3</sup> of conductance with gate voltage, magnetic field, temperature and also with the observed zero bias anomaly. Further implications within this model are explored and contrasted with other proposed explanations of the anomaly<sup>1</sup>.

1. Y. Meir, K. Hirose and N. S. Wingreen, Phys. Rev. Lett. **89**, 196802 (2002).
2. K. J. Thomas *et al.*, Phys. Rev. Lett. **77**, 135 (1996).
3. S. M. Cronenwett *et al.*, Phys. Rev. Lett. **88**, 226805 (2002).

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