

Abstract Submitted  
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**Single electron transistors in GaN/AlGaN heterostructures.**<sup>1</sup> H.T. CHOU, D. GOLDHABER-GORDON, Stanford Univeristy, M.J. MANFRA, Bell labs, R.J. MOLNAR, MIT — We study transport properties of two single-electron transistors (SETs) in a GaN/AlGaN heterostructure. The first SET accidentally formed in a quantum point contact near pinchoff. Its small size produces large energy scales: a charging energy of 7.5 meV, and well-resolved excited states. The second, intentionally-fabricated SET is much larger. Hundreds of consecutive, uniformly-spaced Coulomb oscillations yield a charging energy of 0.85 meV. Excited states are not resolvable in Coulomb diamonds, and Coulomb blockade peak height remains constant with increasing temperature, indicating that transport is through multiple quantum levels even at the 450 mK base electron temperature of our measurements.

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