Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Fabrication of graphene nanogaps by electrical breakdown BRIAN STANDLEY, EMMA SCHMIDGALL, MARC BOCKRATH, California Institute of Technology — We have fabricated n-graphene nanogaps which may be useful as an alternative to the metallic contacts used in current single molecule transistors. The nanogaps are formed by electrical breakdown of two-terminal n-graphene devices. We have characterized the gaps by atomic force microscopy and electrical transport measurements, both of which suggest that the gaps are narrow enough to capture a single molecule. The n-graphene contacts' two dimensional nature is expected to improve gate control by reducing charge screening. Additionally, the contacts' atomic flatness may allow in situ scanning tunneling microscopy imaging of the transistor molecule.

Brian Standley
California Institute of Technology

Date submitted: 20 Nov 2006 Electronic form version 1.4