

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Tunneling and Josephson coupling studies of n-layer graphene

CONOR PULS, NEAL STALEY, HAOHUA WANG, JEREMY FORSTER, KELLY MCCARTHY, BEN CLOUSER, YING LIU, Department of Physics, The Pennsylvania State University — We investigate planar tunnel and superconductor-graphene-superconductor (SGS) junctions involving n-layer graphene. We fabricate our devices using an ultrathin quartz filament as a shadow mask over mechanically exfoliated graphene as an alternative to lithographic procedures so as to avoid possible contamination in a wet lithography process. Our tunnel junctions use Al_2O_3 as the tunnel barrier and Pb or Au as the counter-electrode. We observed a reduction of density of states in the n-layer graphene and the superconducting energy gap of Pb when Pb was an electrode. Results from work on SGS junctions and other atomically thin materials such as NbSe_2 will also be presented.

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Date submitted: 20 Nov 2006

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