Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

First-principles study of graphene - carbon nanotube contacts
BRANDON COOK, KALMAN VARGA, Vanderbilt University — The electron transport properties of carbon nanotube – graphene junctions are investigated with first-principles total energy and electron transport calculations. By combining the advantageous material properties of graphene and nanotubes one can create all carbon hybrid architectures with properties that are particularly well suited to applications. The p-type Schottky barrier height is calculated in model junctions with (8,0) and (10,0) nanotubes in a top-contact configuration. Results indicate a lower barrier in carbon nanotube – graphene junctions than in other carbon nanotue – metal systems.

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Date submitted: 11 Nov 2011 Electronic form version 1.4