Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

The Coherent Interlayer Resistance of a Single, Misoriented Interface between Two Graphite Stacks[1] ROGER K. LAKE, Univ of California - Riverside, K. M. MASUM HABIB, University of Virginia, SOMAIA SYLVIA, SUPENG GE, MAHESH NEUPANE, Univ of California - Riverside — The coherent, interlayer resistance of a misoriented, rotated interface between two stacks of AB graphite is determined for a variety of misorientation angles ranging from 0° to 27.29°. The quantum-resistance of the ideal AB stack is on the order of 1 to 10 $m\Omega\mu m^2$ depending on the Fermi energy. For small rotation angles $\leq 7.34°$, the coherent interlayer resistance exponentially approaches the ideal quantum resistance at energies away from the charge neutrality point. Over a range of intermediate angles, the resistance increases exponentially with primitive cell size for minimum size cells. A change of misorientation angle by one degree can increase the primitive cell size by three orders of magnitude. These large cell sizes may not follow the exponential trend of the minimal cells especially at energies a few hundred meV away from the charge neutrality point. At such energies, their coherent interlayer resistance is likely to coincide with that of a nearby rotation angle with a much smaller primitive cell. The energy dependence of the interlayer transmission is described and analyzed.

[1]This work was supported in part by FAME, one of six centers of STARnet, a Semiconductor Research Corporation program sponsored by MARCO and DARPA.

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Date submitted: 15 Nov 2013 Electronic form version 1.4