Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Transport studies in graphene p-n junctions with Moir superlattices JIUNING HU, NIST - Natl Inst of Stds Tech, JI UNG LEE, The State University of New York, Albany, HSIN-YEN LEE, ALBERT RIGOSI, YANFEI YANG, CHIEH-I LIU, RANDOLPH ELMQUIST, DAVID NEWELL, NIST - Natl Inst of Stds Tech — Graphene p-n junctions can offer unique opportunities for applications such as scalable quantum Hall resistance standards, electron optics and photon detection. In order to study transport properties across the p-n junction, van der Waals assembly technique is employed to fabricate graphene p-n junction samples. Boron nitride (BN)-graphene-BN sandwich heterostuctures are placed on substrates with thin (18 nm) silicon nitride dielectrics and buried tungsten gates (in plane gate separation is $\sim$ 50 150 nm). One of the BN layer is carefully aligned with graphene to produce Moir pattern superlattices of wave length about 10 nm. Multiple satellite peaks are observed in the cross junction resistivity vs. gates voltages. Transport results (particularly across the p-n junction) in high magnetic field will be presented. Numerical simulation of transport based on tight-biding models will be provided to investigate the effect of the p-n junction interface.

Jiuning Hu
NIST - Natl Inst of Stds
Tech

Date submitted: 11 Nov 2016 Electronic form version 1.4