Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Inscribing rewriteable graphene pn junctions under ambient conditions EBERTH QUEZADA, JOHN DAVENPORT, HECHIN CHEN, Univ of California-Santa Cruz, KENJI WATANABE, TAKASHI TANIGUCHI, National Institute for Materials Science, JAIRO VELASCO, Univ of California-Santa Cruz, JAIRO VELASCO JR. LAB TEAM — Heterostructures of graphene and hexagonal boron nitride (BN) are highly tunable platforms that enable the study of novel physical phenomena and technologically promising nanoelectronic devices. Recently, for such graphene/BN heterostructures, it has been shown that electric field excitation can be used to control charge-defect ensembles in the underlying BN. This enables nanoscale control of rewriteable graphene pn junctions. Notably, the fabrication of these pn junctions requires highly specialized conditions, such as ultra-high vacuum and cryogenic temperatures, thus limiting further exploration of these pn junctions. To address this issue, we have developed a new technique that uses an ambient atomic force microscope to inscribe rewriteable graphene pn junctions. We will discuss our latest experimental progress on the development of this technique.

Eberth Quezada
Univ of California-Santa Cruz

Date submitted: 11 Nov 2016 Electronic form version 1.4