

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**BEEM Study of Interface Properties in PVDF-graphite Heterojunctions**<sup>1</sup> LE ZHANG, CLAY UPTON, ANDREI SOKOLOV, University of Nebraska - Lincoln — Since the prediction of giant electroresistance, tunnel junctions with ferroelectric (FE) barrier attract significant experimental and theoretical attention due to potential application as non-volatile data storage devices. The ferroelectric polymer, polyvinylidene fluoride (PVDF), is of particular interest thanks to its outstanding electromechanical, dielectric, and mechanical properties. However, direct experimental study of organic FE interface properties as a function of its polarization is extremely challenging. We employ ballistic electron emission microscope (BEEM) technique for nanometer size characterization of P(VDF-TrFE)/HOPG heterostructure. This method offers STM scale of spatial resolution and is immune to the contact quality of top electrode. By comparing the voltage dependence of ballistic current for different polarization states, we observe the change in tunnel barrier properties as the sign of FE polarization reverses. High-quality thin films of PVDF were fabricated using a Langmuir-Blodgett (LB) technique. Results will be also compared with thermally evaporated PVDF film and its isomorphic analog, polyethylene.

<sup>1</sup>Support from NSF MRSEC

Le Zhang  
University of Nebraska - Lincoln

Date submitted: 19 Nov 2010

Electronic form version 1.4