Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Scanning probe microscopy measurements of charge in PbS quantum dot (sub)monolayers JASON P. MOSCATELLO, PAWANA SHRESTHA, QINXIA WANG, KATHERINE E. AIDALA, Mount Holyoke College — Nanocrystal quantum dots (NQDs) are of intense interest because their optical and electronic properties can be tuned by altering the dot size and material. Transport in arrays of NQDs is generally dominated by disorder, and strongly influenced by the immediate environment. Fully understanding transport through arrays of NQDs would allow the design of improved devices, such as LEDs, photodetectors and lasers. The goal of our study is to use electrostatic force microscopy techniques to study charge transport in (sub)monolayers of NQDs. These 2D PbS NQD arrays are achieved by spin-coating the NQDs between lithographically patterned electrodes, and the measurements take place in a custom-built nitrogen environment cell for our AFM.

Jason Moscatello
Mount Holyoke College

Date submitted: 08 Nov 2012 Electronic form version 1.4