

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Detection of SPM tip-attached DNA molecules with solid state nanopores¹ CHANGBAE HYUN, ZHEXUE LU, BRADLEY LEDDEN, JIALI LI, University of Arkansas — Using an apparatus that combines solid-state nanopores with a scanning probe microscope (SPM), we studied ionic current reduction due to the SPM tip. The experiment was performed at different KCl concentrations, SPM tip probing heights, and several bias voltages. The same experiment was also performed with DNA molecules attached to the SPM tip. The current blockage signal through solid-state nanopores with and without luDNA molecules attached to the SPM tip was analyzed. We also present the current blockage and electrical field profile simulation using finite element analysis software (Multiphysics, COMSOL Inc).

¹We acknowledge the funding support provided by NHGRI/NIH R21HG00477 and NSF/MRSEC 080054

Changbae Hyun
University of Arkansas

Date submitted: 19 Nov 2010

Electronic form version 1.4