Abstract Submitted
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Characterization of Noble Gas Ion Beam Fabricated Single Molecule Nanopore Detectors RYAN ROLLINGS, University of Arkansas, BRADLEY LEDDEN, University of Arkansas, JOHN SHULTZ, University of Arkansas, DANIEL FOLOGEA, University of Arkansas, JIALI LI, University of Arkansas, JOHN CHERVINSKY, Harvard University, JENE GOLOVCHENKO, Harvard University — Nanopores fabricated with low energy noble gas ion beams in a silicon nitride membrane can be employed as the fundamental element of single biomolecule detection and characterization devices [1,2]. With the help of X-ray Photoelectron Spectroscopy (XPS) and Rutherford Backscattering (RBS), we demonstrate that the electrical noise properties, and hence ultimate sensitivity of nanopore single molecule detectors depends on ion beam species and nanopore annealing conditions. .1. Li, J., D. Stein, C. McMullan, D. Branton, M.J. Aziz, and J.A. Golovchenko, *Ion-beam sculpting at nanometre length scales.* Nature, 2001. **412**(12 July): p. 166-169. 2. Li, J., M. Gershow, D. Stein, E. Brandin, and J.A. Golovchenko, *DNA Molecules and Configurations in a Solid-state Nanopore Microscope.* Nature Materials, 2003. **2**: p. 611-615.

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