Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Optimization of Ion Beam Extraction[1] JACOB MCLAUGHLIN, DAVID CARON, EARL SCIME, West Virginia Univ — Ion beams are used in the fabrication of semiconductor devices to dope silicon structures, etch multilayer memory devices, and to initiate self-assembly of semiconductor nanostructures. To overcome the increasingly small size ratio of semiconductor devices compared to a silicon atom, industry is pursuing a transition from 2D devices to devices with three dimensional features. Using planar laser induced fluorescence and scanning single beam laser induced fluorescence (LIF), we will study the behavior and characteristics of a ribbon ion beam. Here we present a description of the parameters and first results from a new experimental facility designed to provide exceptional optical access for these ion beam experiments. We will describe the vacuum chamber design, the LIF optics, and initial LIF measurements of argon plasma.

[1]This work was supported by U.S. National Science Foundation Grant No. PHY-1617880

Jacob McLaughlin
West Virginia Univ

Date submitted: 14 Jul 2017 Electronic form version 1.4