

Abstract Submitted
for the DAMOP11 Meeting of
The American Physical Society

Enabling Nanotechnology with Focused Ion Beams from Laser Cooled Atoms A.V. STEELE, B. KNUFFMAN, National Institute of Standards and Technology, J. ORLOFF, M. MAAZOUZ, FEI Company, J.J. MCCLELLAND, National Institute of Standards and Technology — The Magneto-Optical Trap Ion Source (MOTIS) being developed at NIST has the potential to enable numerous advances in nanoscale science. In a MOTIS, atoms are captured into a MOT, photoionized, and accelerated to an energy of a few hundred eV to a few tens of keV. A beam formed in this way can be brought to a tight focus, competitive with the commercial focused ion beam machines deployed widely today. Additionally, the unique characteristics of this source, coupled with the user's choice of ion from the long and growing list of laser-coolable atomic species suggest that the MOTIS has the potential to advance the state of the art in applications such as imaging, nanofabrication, secondary ion mass spectrometry, and others. I will present high-resolution images from our lithium and chromium MOTIS-based focused ion beams and discuss applications which we will pursue with these new tools.

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Date submitted: 09 Feb 2011

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