

Abstract Submitted
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Beam Cooling and Laser Spectroscopy (BECOLA) Project at NSCL¹ K. MINAMISONO, B.R. BARQUEST, G. BOLLEN, P.F. MANTICA, D.J. MORRISSEY, R. RINGLE, S. SCHWARZ, NSCL/MSU — A new beam line for beam cooling and laser spectroscopy (BECOLA) has been designed and is being installed at the National Superconducting Cyclotron Laboratory (NSCL) at Michigan State University. The BECOLA beam line will be capable of accepting ions of energy up to 60 keV. A linear Radio Frequency Quadrupole (RFQ) ion trap [1] will be used to cool and bunch the beam upstream of the BECOLA beam line. This beam line will have two dedicated experimental legs, one for collinear-laser spectroscopy with the bunched beam and another for polarization by optical pumping of low energy atoms/ions for β -NMR experiments. Initial studies at NSCL will include the measurement of μ , Q and $\langle r^2 \rangle$ of light- and medium-mass refractory isotopes, using both the laser spectroscopy and the β -NMR technique. A frequency doubled light of Ti:Sapphire ring laser pumped by diode-pumped solid state laser will be used for spectroscopy and optical pumping for polarization. The present status of BECOLA beam line as well as the laser system will be presented.

[1] G. Bollen et al., Nucl. Instr. and Meth. A 532, 203 (2004).

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