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BECOLA Beam Line Construction and Laser System EOWYN PEDICINI, NSCL, Michigan State University; US Naval Academy, KEI MINAMISONO, BRAD BARQUEST, GEORG BOLLEN, ANDREW KLOSE, PAUL MANTICA, DAVE MORRISSEY, RYAN RINGLE, STEFAN SCHWARZ, SOPHIA VINNIKOVA, NSCL, Michigan State University — The BECOLA (BEam COoler and LAser spectroscopy) facility is being installed at NSCL for experiments on radioactive nuclides.[1] Low energy ion beams will be cooled/bunched in an RFQ ion trap and then extracted to a max of 60 kV. The ion beam will be neutralized through a charge exchange cell (CEC), and remaining ions will be removed by a deflector and collected in a Faraday cup. Collinear laser spectroscopy will be used to measure the atomic hyperfine structure, and nuclear properties will be extracted. The assembly, vacuum testing, and optical alignment of the CEC have been completed and the ion deflector and Faraday cup were also assembled. Stabilization of the Ti:sapphire laser to be used for spectroscopy is achieved through a feedback loop using a precision wavelength meter that is calibrated by a stabilized He-Ne laser. Coupling the He-Ne laser into a single-mode optical fiber was optimized for stable operation of the feedback loop. Finally, a wall chart of nuclear moments was prepared to view trends in μ and Q for nuclear ground states for planning future measurements.

[1]K. Minamisono *et al*, Proc. Inst. Nucl. Theory **16**, 180 (2009).

Eowyn Pedicini
NSCL, Michigan State University; US Naval Academy

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