Abstract Submitted
for the DNP16 Meeting of
The American Physical Society

Toward charge radii measurements of neutron-deficient Ca[1] A. J. MILLER, K. MINAMISONO, NSCL/Dep. of Phys. and Astron., MSU, A. KLOSE, Dep. of Chem., Augustana Univ., E. P. ABEL, NSCL/Dep. Chem., MSU, D. GARAND, G. GIVEN, C. SUMITHRARACHCHI, NSCL/Dep. of Phys. and Astron., MSU, J. KRÄMER, B. MAAß, W. NÖRTERSHÄUSER, D. M. ROSSI, Insti. für Kernphysik, TU Darmstadt, Y. LIU, Phys. Div., Oak Ridge National Lab., P. F. MANTICA, FRIB/Dep. of Chem., MSU, M. R. PEARSON, TRIUMF — The charge radii, $\langle r^2 \rangle$, of $_{20}$Ca isotopes serve as an important reference for the size and shape of neighboring nuclides, since this element has two naturally-occurring isotopes at the $N = 20$ and 28 neutron shell closures. An experiment has been approved to measure $\langle r^2 \rangle$ of Ca for neutron-deficient isotopes across $N = 20$. The $\langle r^2 \rangle$ of $_{18}$Ar and $_{19}$K isotopes show a disappearance of the shell-closure signature at $N = 20$. The aim of this measurement is to gain a microscopic understanding of this abnormal behavior. Current developments at the BEam COoling and LAser spectroscopy (BECOLA) facility at NSCL/MSU in preparation for this measurement include offline production and spectroscopy of stable Ca^+ and simulations of a new photon detection system.

[1]Work supported in part by NSF grant PHY-11-02511 and U.S. DOE grant DE-NA0002924.

Andrew Miller
NSCL/Dept. of Phys. and Astron., MSU

Date submitted: 30 Jun 2016 Electronic form version 1.4