

Abstract Submitted  
for the DNP13 Meeting of  
The American Physical Society

**In-beam gamma spectroscopy of neutron-rich exotic Cu isotopes at NSCL CALEB BANCROFT, KATHRIN WIMMER, Central Michigan University** — The area of the nuclear chart around Ni-68 has attracted much attention recently due to the sub-shell closure at  $N=40$ . The odd-even and odd-odd Cu isotopes near Ni provide similar characteristics and are a good testing ground for nuclear structure calculations around the shell closure at  $N=40$ . This experiment was performed at the National Superconducting Cyclotron Laboratory using the S800 spectrometer and the Germanium array, GRETINA. This highly efficient setup allows for unambiguous identification of the reaction products as well as precise measurements of the gamma ray emission angle and energy needed for Doppler reconstruction at intermediate gamma energies. The Cu isotopes were produced at the center of GRETINA by neutron removal reactions from a radioactive Cu-69 beam. Prompt gamma ray transitions were detected in coincidence with the heavy residue nucleus. Using known transitions as well as newly observed gamma transitions and gamma-gamma coincidences, the level schemes of Cu-67, Cu-68, and Cu-69 have been determined. The present status of the analysis and comparison to the shell-model calculations will be presented.

Caleb Bancroft  
Central Michigan University

Date submitted: 01 Jul 2013

Electronic form version 1.4