Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Study of the Nuclear Structure of ^{39}P Using Beta-Delayed Gamma Spectroscopy[1] BRITTANY ABROMEIT, Florida State Univ, NSCL EXPERIMENT E14063 TEAM TEAM — Investigation of nuclei with neutron and proton imbalance is at the forefront of nuclear physics research today. This is driven by the fact that the structure in these regimes may vary with that seen near the valley of stability. With eight neutrons more than the stable isotope of phosphorous, ^{39}P is a neutron-rich exotic nucleus that has very limited information on it: previous studies of ^{39}P produce only three known energy levels and gamma rays. The fragmentation of a ^{48}Ca primary beam on a 564mg/cm^2 thick Be target at the National Superconducting Cyclotron Laboratory (NSCL) was used to produce exotic ^{39}Si. Using the NSCL Beta Counting System (BCS), consisting of a thick planner germanium double-sided strip detector (GeDSSD) and 16 High-purity germanium detectors in an array, SeGA, the beta-gamma coincidences from the decay of ^{39}Si to ^{39}P were analyzed. The resulting level scheme of ^{39}P, including over 12 new gamma rays and energy states, confirmation of the previously measured half-life, and first-time logft values will be presented.

[1]This work was supported by the NSF under Grant No. 1401574

Brittany Abromeit
Florida State Univ

Date submitted: 11 Dec 2015 Electronic form version 1.4