Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

Gamma Ray Spectroscopy of ^{19}Ne near the ^{18}F+p Threshold MATTHEW HALL, DANIEL BARDAYAN, University of Notre Dame, GODDESS COLLABORATION — A direct way to test nova explosion models would be to observe gamma rays created in the decay of radioactive isotopes produced in the nova. One such isotope, ^{18}F, is believed to be the main source of observable 511-keV gamma rays. The main destruction mechanism of ^{18}F is thought to be the ^{18}F(p,α)^{15}O reaction, and uncertainty in the reaction rate is attributed to uncertainties in the energies, spins, and parities of the nuclear levels in ^{19}Ne above the proton threshold. In an effort to understand these levels the ^{19}F(^{3}He,t)^{19}Ne reaction was measured at Argonne National Laboratory using a ^{3}He beam. Gammasphere ORRUBA Dual Detectors for Experimental Structure Studies (GODDESS) was used to measure gamma rays from the de-excitation of ^{19}Ne in coincidence with the reaction tritons. Preliminary data from the experiment will be presented. This work was supported in part by National Science Foundation and U.S. Department of Energy.

Matthew Hall
University of Notre Dame

Date submitted: 27 Jun 2017 Electronic form version 1.4