Abstract Submitted
for the DNP11 Meeting of
The American Physical Society

Experimental techniques to use the (d, n) reaction for spectroscopy of low-lying proton-resonances[1] INGO WIEDENHOEVER, ALEXANDER ROJAS, LAGY T. BABY, JESSICA BAKER, SEAN KUVIN, PATRICK PEPLOWSKI, DANIEL SANTIAGO-GONZALEZ, Florida State University, GEORGIOS PERDIKAKIS, National Superconducting Cyclotron Lab, Michigan State University, DENNIS L. GAY, University of North Florida, Jacksonville — Studies of rp-process nucleosynthesis in stellar explosions show that establishing the lowest $l = 0$ and $l = 1$ resonances is the most important step to determine reaction rates in the astrophysical *rp*–process path. At the RESOLUT facility, we have used the (d, n) reaction to populate the lowest p– resonances in ^{26}Si, and demonstrated the usefulness of this approach to populate the resonances of astrophysical interest[1]. In order to establisg the (d, n) reaction as a standard technique for the spectroscopy of astrophysical resonances, we have developed a compact setup of low-energy Neutron-detectors, RESONEUT and tested it with the stable beam reaction ^{12}C(d, n)^{13}N in inverse kinematics. Performance data from this test-experiment and future plans for this setup will be presented.

[1] P.N. Peplowski *et al.* Phys.Rev.**C 79**, 032801 (2009)

[1]This work was supported by the NSF under contract PHY-07-54674 and the U.S. DOE under contract DE-FG02-02ER41220.

Ingo Wiedenhoever
Florida State University

Date submitted: 01 Jul 2011 Electronic form version 1.4