Abstract Submitted
for the DNP12 Meeting of
The American Physical Society

Studies of the ^{19}O(d, p)^{20}O reaction at RESOLUT D. SANTIAGO-GONZALEZ, I. WIEDENHÖVER, M.L. AVILA, L.T. BABY, J. BACKER, Florida State University, J.C. BLACKMON, Louisiana State University, E. KOSHCHIY, A.N. KUCHERA, S. KUVIN, Florida State University, L.E. LINHARDT, M. MATOS, Louisiana State University, G.V. ROGACHEV, Florida State University — The energetic location of the $d_{3/2}$–orbital in neutron-rich nuclei is of particular interest as it determines the location of the drip-line in the oxygen isotopes. Its behaviour has recently been discussed as a consequence of three-body forces [1]. Manifestations of such forces are traced through the location of the $d_{3/2}$ orbital, which closer to stability leads to highly excited states. In order to study the location and fragmentation of this orbital in ^{20}O , we performed an experiment at the RESOLUT radioactive beam facility of the Florida State University accelerator laboratory. We produced a beam of the short-lived ^{19}O isotope with an intensity of 1×10^5 pps, 65% purity and 4.11 MeV/u. This beam was used to study the spectroscopic factors of bound and unbound states of ^{20}O using the (d, p) reaction in inverse kinematics and components of the new ANASEN detector array. We will present the methods used and compare our results with the ones recently published in [2].

[1] T. Otsuka et al., Phys. Rev. Lett 105, 032501 (2010)
[2] C. R. Hoffman et al., Phys. Rev. C 85, 054318 (2012)

Daniel Santiago-Gonzalez
Florida State University

Date submitted: 02 Jul 2012 Electronic form version 1.4