Abstract Submitted
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First (d,p) experiment using active target detector ANASEN DANIEL SANTIAGO-GONZALEZ, I. WIEDENHÖVER, L.T. BABY, E. KOSHCHIY, 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 behavior 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 4.4 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 the new ANASEN active-target detector. 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)

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