

Abstract Submitted
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Study of the $^{19}\text{O}(d,p)$ reaction in inverse kinematics with HELIOS¹ C.R. HOFFMAN, M. ALCORTA, B.B. BACK, S.I. BAKER, P.F. BERTONE, J.A. CLARK, B. DIGIOVINE, B.P. KAY, R.C. PARDO, K.E. REHM, J.P. SCHIFFER, ANL, C.M. DEIBEL, ANL/JINA, S.T. MARLEY, J.C. LIGHTHALL, ANL/WMU, S. BEDOOR, D.V. SHETTY, A.H. WUOSMAA, WMU, S.J. FREEMAN, D.K. SHARP, J.S. THOMAS, U of Manchester, A. ROJAS, D. SANTIAGO-GONZALEZ, I. WIEDENHÖVER, FSU — The neutron single-particle components of states in ^{20}O have been probed through the (d,p) reaction in inverse kinematics. The experiment consisted of a 125 MeV radioactive ^{19}O beam, produced by the ATLAS In-Flight facility at Argonne National Laboratory, impinging on a $[(\text{C}_2\text{D}_4)_n]$ target located inside the HELICAL Orbit Spectrometer (HELIOS). A Q-value resolution of ~ 150 KeV was achieved for states in ^{20}O . Absolute cross sections and angular distributions have been determined for a number of levels in ^{20}O up to 7 MeV in excitation energy. A strong candidate for the previously unobserved $\ell = 0$ 3^+ level at 5.2 MeV has been identified. The extracted spectroscopic factors for $\ell = 2$ (presumably $\nu 0d_{5/2}$) and $\ell = 0$ ($\nu 1s_{1/2}$) transitions will be compared to those along the $Z = 8$ isotopic chain and to microscopic calculations.

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