Abstract Submitted
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Structure of the Transitional Nucleus ^{28}Mg Studied with the ^{26}Mg(t,p)^{28}Mg Reaction[1] DANIEL MCNEEL, ALAN WUOSMAA, SEAN KUVIN, JEREMY SMITH, Univ of Connecticut - Storrs, RODERICK CLARK, AUGUSTO MACCHIAVELLI, Lawrence Berkeley National Laboratory, JIE CHEN, GEMMA WILSON, Argonne National Laboratory — Past studies of the nuclei surrounding ^{32}Mg discovered inversions in the usual ordering of shell-model states. Shell-model interactions that incorporate the evolution toward this "island of inversion" predict low-lying deformed intruder states for nearby nuclei. One such nucleus is ^{28}Mg, which exists in the transition between stability and the inverted region. The two-neutron transfer reaction ^{26}Mg(t,p)^{28}Mg has been used to study the properties of the ground state and excited 0^+ states. This experiment was carried out at Argonne National Laboratory using the HELIcal Orbit Spectrometer (HELIOS). Multi-nucleon transfer is known to be sensitive to the the amplitude and phase of configuration-mixed states, and enhances transfer to those states which are similar to the ground state of the target plus two nucleons in single-particle orbitals. Because multi-nucleon transfers are more complex than single-particle transfers, a shell-model calculation must guide the understanding of which configurations will be strongly populated. A new shell-model calculation using the SDPF-MU interaction provided the structure-related transfer amplitudes, and results comparing the experimental cross sections to those predicted by the transfer amplitudes and DWBA will be presented.

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