Abstract Submitted
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Measurement of the fusion excitation functions for ^{41,45}K + ^{28}Si and ^{36,44}Ar + ^{28}Si at near-barrier energies[1] JAMES JOHNSTONE, REKAM GIRI, SYLVIE HUDAN, ROMUALDO DESOUZA, Indiana University Bloomington, DIETER ACKERMANN, ABDOU CHBIHI, QUENTIN HOURDILLE, GANIL, AUSTIN ABBOTT, CATHERINE BALHOFF, ANDY HANNAMAN, ALAN MCINTOSH, MAXWELL SORENSEN, ZACHARY TOBIN, ADITYA WAKHLE, SHERRY YENNELLO, Texas AM University — Fusion in neutron-rich environments is presently a topic of considerable interest. Experiments for an isotopic chain allow systematic exploration of the dependence of fusion on neutron number. Recent measurement of the near-barrier fusion excitation functions for ^{39,47}K + ^{28}Si revealed a 7-fold enhancement in the cross-section for the radioactive isotope relative to the stable isotope. To expand the study of this system away from the closed N=20 and N=28 shells and to explore the role of proton pairing, Experiment 17002 was conducted at NSCL's ReA3 facility with low-intensity (approximately 10^4 ions/s) beams. The experiment measured the fusion cross section for ^{41,45}K + ^{28}Si and ^{36,44}Ar + ^{28}Si for E/A = 2-3 MeV by detecting and identifying fusion products using E-TOF with high efficiency. Details of the experimental setup as well as the measured experimental fusion excitation functions will be presented. Cross-sections will be compared to the previous ^{39,47}K + ^{28}Si measurements as well as to coupled channels calculations.

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