Abstract Submitted
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Excitation energies of the unbound states in ^{32}Cl studied via the ^{32}S(^{3}He,t)^{32}Cl charge exchange reaction M. MATOŠ, LSU, D.W. BARDAYAN, ORNL, J.C. BLACKMON, LSU, J.A. CLARK, ANL, C.M. DEIBEL, ANL, JINA, L. LINHARDT, LSU, C.D. NESARAJA, ORNL, P.D. O'MALLEY, Rutgers, S.D. PAIN, ORNL, P.D. PARKER, Yale, K.T. SCHMITT, UTK — Time scales of explosive hydrogen burning processes are influenced by the duration of reaction cycles closed by (p,α) reactions, with breakouts occurring due to competing (p,γ) reactions. In the SiP cycle ^{31}S(p,γ)^{32}Cl is one such breakout reaction [1]. At novae temperatures 0.1-0.4 GK, the rate for this reaction is dominated by resonances, and thus the properties of these resonances are important in determining the reaction rate. To determine the excitation energies of the proton unbound states in ^{32}Cl we use the Enge Spectrograph at the Yale University Wright Nuclear Structure Laboratory to measure the ^{32}S(^{3}He,t)^{32}Cl charge exchange reaction. We are attempting to resolve discrepancies in the resonance energies that have been reported in previous measurements [1,2] and to measure the proton decays from these resonances. [1] S.Vouzoukas, PRC 50 (1994) 1185. [2] C. Jeanperrin, NPA 503 (1989) 77.

Milan Matoš
Louisiana State University

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