

REACTION STUDIES ON NEUTRON-DEFICIENT NUCLEI

Dr. Milan Matos
Louisiana State University
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Resonance properties of the neutron-deficient nuclides are crucial for the understanding of novae and X-ray burst explosions. Direct studies of the important (p,g) and (a,p) are difficult, but much information can be obtained from indirect approaches using both stable and radioactive ion beams. We have probed the proton-unbound states in ^{32}Cl , important for the $^{31}\text{S}(p,g)^{32}\text{Cl}$ reaction rate in novae, using the $^{32}\text{S}(^3\text{He},t)^{32}\text{Cl}$ reaction at the Yale WNSL facility. New level energies and proton-branching ratios were determined and used for the $^{31}\text{S}(p,g)^{32}\text{Cl}$ reaction rate calculation. More reaction studies are planned by our new detector array targeting experiments with radioactive ion beams at FSU and MSU. The Array for Nuclear Astrophysics Studies with Exotic Nuclei (ANASEN) is a charged-particle detector array designed primarily for studies of reactions important in the ap- and rp- processes. It consists of 40 silicon-strip detectors backed with CsI scintillators and a position-sensitive annular gas proportional counter. In the presentation, the ^{32}Cl resonance experiment will be described and the ANASEN overview with first tests and experiments will be given.

Nuclear
Seminar

All interested
persons are
cordially
invited to
attend.