
(P,N) TYPE CHARGE-EXCHANGE REACTIONS IN INVERSE KINEMATICS

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Charge-exchange experiments at intermediate energy yield important information about collective excitations with spin-isospin degrees of freedom. The properties of isovector giant resonances in neutron-rich rare-isotopes provide stringent tests of theoretical models and are important inputs for modeling of astrophysical phenomena. The (p,n) charge-exchange reaction in inverse kinematics has been developed as a new tool for investigating isovector giant resonances in rare isotopes. The technique, which involves the detection of low-energy neutrons that recoil from a hydrogen target, while detecting fast beam-like ejectiles in a magnetic spectrometer, was successfully employed at NSCL to study the $^{56}\text{Ni}(p,n)$ reaction. Continuing with this technique a $^{16}\text{C}(p,n)$ experiment at 100 MeV/u aimed at extracting isovector multipole strengths up to excitation energies of 30 MeV was performed. The Low Energy Neutron Detector Array (LEND) and the Versatile Array of Neutron Detectors at Low Energy (VANDLE) were utilized in combination with the Ursinus Liquid Hydrogen Target and the S800 spectrometer to perform this experiment. Preliminary results will be shown.