

Abstract Submitted  
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**Development of the Low Energy Neutron Detector Array (LENDa) for the Study of Charge-Exchange Reactions at the NSCL**  
DU NGUYEN, Michigan State University, S.M. AUSTIN, D. BAZIN, C. CAESAR, J.M. DEAVEN, C.J. GUESS, G.W. HITT, R. MEHARCHAND, G. PERDIKAKIS, R.G.T. ZEGERS, NSCL, CHARGE-EXCHANGE TEAM — Charge-exchange reactions have long been used as a probe of the spin-isospin response of stable nuclei, in particular the Gamow-Teller transitions. Gamow-Teller strengths can be extracted model-independently, providing detailed information on nuclear structure and key inputs for astrophysical scenario that involve weak transitions. Therefore, it is important to extend the charge-exchange studies to unstable nuclei. The Low Energy Neutron Detector Array (LENDa) is currently in development at the NSCL and is designed to facilitate the study of  $(p, n)$  charge-exchange reactions in inverse kinematics using unstable beams. The energy and angle of the recoiling neutrons from these reactions can be measured by LENDa and used for kinematical reconstruction of charge-exchange each event. For this purpose, good timing and position resolutions should be achieved in LENDa. Currently, an initial array consisting of three 30cmX4.5cmX2.5cm plastic scintillators has been developed. The final LENDa array will consist of 24 such scintillators designed to detect neutrons with energies as low as 100 keV. In addition, the proper light output function must be extracted to determine the correct efficiency of the detectors. Results from ongoing work on the development of the array will be presented. This work was supported by the US NSF, grants PHY-0606007 and PHY 0216783(JINA).

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