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Proton Transfer Reactions Studied Using the VANDLE Neutron Detector Array[1] C.R. THORNSBERRY, S. BURCHER, R. GRYZWACZ, K.L. JONES, S.V. PAULAUSKAS, K. SMITH, M. VOSTINAR, University of Tennessee, J. ALLEN, D.W. BARDAYAN, D. BLANKSTEIN, J. DEBOER, M. HALL, P.D. O'MALLEY, C. REINGOLD, W. TAN, University of Notre Dame, J.A. CIZEWSKI, A. LEPAILLEUR, D. WALTER, Rutgers University, M. FEBBRARO, S.D. PAIN, Oak Ridge National Laboratory, S.T. MARLEY, Louisiana State University — Proton transfer reactions, such as (d,n), are powerful tools for the study of single particle proton states of exotic nuclei. Measuring the outgoing neutron allows for the extraction of spectroscopic information from the recoil nucleus. With the development of new radioactive ion beam facilities, such as FRIB in the U.S., comes the need for new tools for the study of reactions involving radioactive nuclei. Neutron detectors, such as VANDLE, are sensitive to gamma rays in addition to neutrons. This results in high background rates for measurements with high external trigger rates. The use of discriminating recoil particle detectors, such as phoswich detectors, allow for the selection of a clean recoil tag by separating the recoil nucleus of interest from unreacted RIB components. Developments of low energy proton transfer measurements in inverse kinematics and recent (d,n) results will be presented.

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