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Hybrid Array of Gamma Ray Detectors (HAGRiD) KARL SMITH, R. GRZYWACZ, K.L. JONES, S. MUNOZ, University of Tennessee - Knoxville, T. BAUGHER, J.A. CIZEWSKI, A. RATKIEWICZ, Rutgers University, S.D. PAIN, Oak Ridge National Laboratory — Transfer reactions and beta-decay studies are powerful tools to study nuclear structure and to provide insight into astrophysically important reactions that may be difficult to measure directly. Both types of studies are enhanced immensely by measuring a particle-gamma coincidence. For transfer reactions, gamma-ray measurements improve the resolution, aid in channel selection and lifetime measurements. To achieve these coincidences the Hybrid Array of Gamma Ray Detectors (HAGRiD) is being designed and constructed. This array would be coupled with the Oak Ridge Rutgers Barrel Array (ORRUBA) of silicon detectors, the Versatile Array of Neutron Detectors at Low Energy (VANDLE) and beta detection scintillators. Detector systems providing a particle-gamma coincidence have previously compromised the charged-particle angular resolution due to compact geometries used to increase the gamma efficiency. HAGRiD will be coupled with ORRUBA such that resolution is not sacrificed, requiring the new array to provide improved resolution and efficiency over NaI and increased portability and flexibility over germanium detectors; therefore, we have chosen to use $LaBr_3$(Ce) crystals. We demonstrate the advantages of a coupled detector system and discuss the current status of the project.

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