DNP13-2013-020020

Abstract for an Invited Paper
for the DNP13 Meeting of
the American Physical Society

GRETINA: Status and Future Plans[1]

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GRETINA [2] is a first implementation of a gamma-ray spectrometer which is capable of tracking gamma-rays through its active detector volume. This new technology is based on segmenting the outer contact of large-volume HPGe crystals to allow the location of the individual scattering sites in the detector by analyzing both net and induced signals. The characteristics of the Compton and pair-production processes are then used to group and sequence the interactions points and determine the scattering path of the original gamma-rays. This ability to track gamma-rays accurately is crucial in building high-efficiency, closely packed HPGe arrays. GRETINA consists of seven, four-crystal modules (6x6 segments). Each crystal is individually encapsulated with all four crystals sharing a common cryostat. The irregular, tapered hexagonal crystals pack into a spherical shell with the seven modules spanning 1π solid angle. GRETINA was constructed and commissioned at LBNL and just completed its first physics campaign at NSCL/MSU. In this talk, I will discuss some technical aspects and the performance of the array and present an overview of the experimental program carried out at NSCL. Future plans for GRETINA as well as its evolution into GRETA, a full 4π coverage array, will also be discussed.

[1]GRETINA was funded by the US DOE - Office of Science. Operation of the array at NSCL is supported by NSF under Cooperative Agreement PHY-1102511(NSCL) and DOE under grant DE-AC02-05CH11231(LBNL).

[2]S. Paschalis, I.Y.Lee, et al. NIM A709 (2013) 44-55