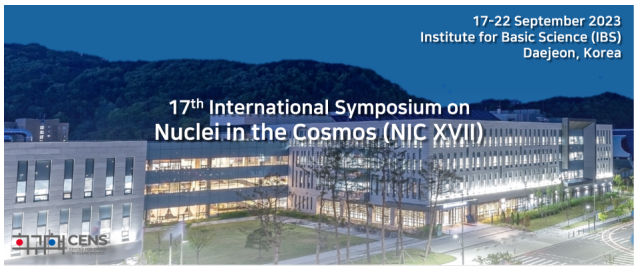

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Development of a LaBr3(Ce) detector array for high-energy gamma-ray measurement

Tuesday, 19 September 2023 17:55 (5 minutes)

We have developed a LaBr3(Ce) detector array, the HANULball, for measuring high-energy gamma rays from nucleosynthesis reactions near 10 MeV. The HANULball prototype comprises eight LaBr3(Ce) detectors arranged on the surfaces of a truncated cuboctahedron structure. Each LaBr3 crystal has a diameter of 50 mm and a length of 75 mm. The prototype array uses 2-inch photomultiplier tubes to detect scintillation light. We tested the prototype performance using a 60Co radioactive source and proton capture gamma rays from the Al(p, gamma)Si reaction from Ep=2.030 to 2.080 MeV at the tandem ion accelerator, KIST. This talk will present the preliminary results of the LaBr3 detector performance over a wide range of gamma-ray energy.

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Session Classification: Poster session (New facilities, instruments and tools)

Track Classification: Others (new facilities, instruments, tools, etc)