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Overview of the PARIS Project

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With the next generation of radioactive beams, rich research programs in nuclear physics could be addressed. However, they require efficient and dedicated detection systems. In particular, letters of intent for SPIRAL2 have shown the necessity to build a new calorimeter for medium and high-energy gamma-rays.

The PARIS (Photon Array for the studies of Radioactive and Ion Stable beams) array should have the required characteristics through the exploitation of the novel scintillator LaBr₃ (produced by Saint Gobain) that has an energy resolution of about 3% at 662 keV with excellent time response. A wide range of physics cases are envisaged from discrete gamma-ray spectroscopy (up to 15 MeV, at low multiplicity) to studies of giant resonances (up to 50 MeV) and reaction dynamics (sum-spin spectrometer for medium gamma-ray energies). To fulfil such a program, PARIS should be highly flexible, modular, allowing synergies with other arrays such as GASPARD and/or AGATA.

The main characteristics of the PARIS array are given in this talk with highlights on the developments made to try and keep the excellent intrinsic LaBr₃ properties. An overview of the current status and plans up to the first SPIRAL2 beams are also presented.

On behalf of the PARIS collaboration

Primary author: STEZOWSKI, Olivier (IPN Lyon)

Presenter: STEZOWSKI, Olivier (IPN Lyon)

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