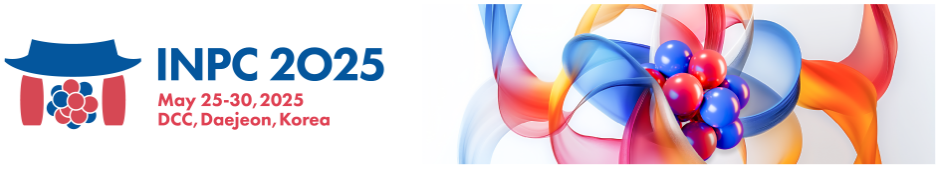

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PARIS array –idea, status, first results and outlook

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PARIS (Photon Array for studies with Radioactive Ion and Stable beams) is an international project aiming on developing and building a novel 4π γ-ray calorimeter, benefiting from recent advances in scintillator technology. It is intended to play the role of an energy-spin spectrometer, a calorimeter for high-energy photons and a medium-resolution gamma-detector. The PARIS is composed of two shells: the scintillators of the most advanced technology (LaBr3 or CeBr3) for the inner volume offering simultaneously high efficiency, excellent time resolution and relatively good energy resolution in a large energy range, and a more conventional scintillator (NaI) for the outer shell. The calorimeter is of high granularity and the basic element is made following the "phoswich"(PHOSphor sandWICH) concept –LaBr3 or CeBr3 scintillator in the front, optically connected to the NaI scintillator at the back, while the signals from both scintillators are read by fast photomultiplier connected to the NaI. The array can be used in a stand-alone mode, in conjunction with other detection systems, like germanium arrays (e.g., AGATA, EXOGAM), particle detectors (e.g., MUGAST, NEDA, FAZIA, ACTAR) or heavy-ion spectrometers (e.g., VAMOS, PRISMA). It will be used in experiments with both intense stable and radioactive ion beams to study the structure of atomic nuclei and new nuclear excitation modes as a function of angular momentum, isospin, and temperature, as well as reaction dynamics. The construction of the array is phased: from a single phoswich detector, via one cluster, or a limited number of clusters via mini-cube, and finally the ultimate 4π phase.

In the presentation the concept of the PARIS array will be described, status of its construction presented, results from the first experiments in different laboratories (GANIL Caen, IJC Lab Orsay, IFJ PAN Krakow) will briefly shown, as well as the near future perspectives for the use of PARIS will be listed.

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