

PARIS Array – status, first experiments and plans

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PARIS (Photon Array for studies with Radioactive Ion and Stable beams) is an international research project with the aim of developing and building a novel 4π gamma-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 device is composed of two shells: the scintillators of the most advanced technology (LaBr₃:Ce 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 array can be used in a stand-alone mode, in conjunction with other detection systems, like germanium arrays (e.g., AGATA), 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. More details can be found on the PARIS web page <http://paris.ifj.edu.pl>.

In the talk the concept and status of the PARIS project will be presented, as well as selected the results from the first experiments with PARIS in GANIL Caen (France), IJCLab Orsay (France) and IFJ PAN Krakow (Poland) will be shown. In addition, the outlook of the project as well as the ideas for next experiments, among others with AGATA in LNL Legnaro, will be discussed.

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