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While waiting for γ beams at ELI-NP: The ELIGANT campaigns at IFIN-HH and at ELI-NP

Content

In the period 2022-2025 four experimental campaigns were carried out at the 9 MW tandem accelerator of IFIN-HH using the large-volume LaBr₃:Ce and CeBr₃ detectors of the ELIGANT-GN array which were placed in the anti-Compton shields of the ROSPHERE array [1]. As a result, a high-efficient spectrometer was assembled for detection of high-energy gamma rays. In the experiments, nuclear level densities and γ -strength functions, were studied, as well as weak γ -ray transitions in light nuclei. In the talk the performance of the spectrometer will be described, the goals of the campaigns will be summarized and first results will be presented, the γ -ray spectroscopy in ¹⁰B [2] and the γ -strength functions in ^{112,114}Sn [3]. The ELIGANT-GN array was also used to study neutron and γ -ray angular and energy correlations in spontaneous fission of ²⁵²Cf [4].

[1] S. Aogaki et al., Nucl. Instrum. Meth. Phys. Res. A 1056, 168628 (2023)

[2] A. Kusoglu et al., Phys. Rev. Lett. 133, 072502 (2024)

[3] P.-A. Söderström et al., Phys. Rev. C (2025) submitted

[4] D. Choudhury et al., Phys. Rev. C (2025) in preparation

Primary author: BALABANSKI, Dimiter L. (Extreme Light Infrastructure - Nuclear Physics, IFIN-HH, Magurele, Romania)

Presenter: BALABANSKI, Dimiter L. (Extreme Light Infrastructure - Nuclear Physics, IFIN-HH, Magurele, Romania)

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