

## The Path to Accurate Measurements with Gamma Beams

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The Extreme Light Infrastructure Nuclear Physics facility (ELI-NP), under implementation in Bucharest-Magurele, Romania, will deliver very intense brilliant beams. Several very important nuclear reactions related to Big Bang Nucleosynthesis and other stages of stellar burning have been selected for the first measurement campaigns using dedicated instruments. We have recently measured the  ${}^7\text{Li}(\gamma, {}^3\text{H}){}^4\text{He}$  reaction between 4 and 10 MeV at the HI $\gamma$ S facility on Duke University campus in USA. Tritons and alpha particles were detected in coincidence using the SIDAR array from ORNL. The beam intensity was monitored using multiple techniques: activation, Compton scattering, and the  $\text{d}(\gamma, \text{n})\text{p}$  reaction. Details of the  ${}^7\text{Li}(\gamma, {}^3\text{H}){}^4\text{He}$  experiment at HI $\gamma$ S, including the challenges of beam normalization and charged-particle measurements with gamma-ray beams, will be presented together with perspectives for future measurements at ELI-NP. An overview of the gamma beam monitoring instruments at ELI-NP will also be discussed.