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Recent developments in γ -ray beam intensity monitoring

Several laser-Compton scattering (LCS) sources of quasi-monochromatic γ -ray beams are operational around the world, either as standalone facilities or as beam line developments at synchrotron facilities. Knowledge of the γ -ray beam intensity is a critical parameter at all the γ -ray beam facilities and considerable efforts were directed towards implementing new measurement instruments and methods. One method to measure the intensity and polarization parameters is by detecting the neutrons from the $d(\gamma,n)p$ reaction with well-characterized neutron detectors. We discuss the use of novel deuterated scintillators placed directly in the beam to increase the efficiency of particle detection from $d(\gamma,n)p$ reaction hence reduce uncertainties in measuring of the intensity of the γ -ray beam. An overview of the most used methods to measure the intensity of γ -ray beams will also be given.

Primary author: Dr MATEI, Catalin (ELI-NP / IFIN-HH)

Co-authors: PAPPALARDO, A. (ELI-NP / IFIN-HH); Dr TURTURICA, G.V. (ELI-NP / IFIN-HH); Dr IANCU, V. (ELI-NP / IFIN-HH)

Presenter: PAPPALARDO, A. (ELI-NP / IFIN-HH)

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