

Abstract Submitted
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Determination of the Spectral and Intensity Distribution of the Mono-Energetic Gamma-Ray Beam at HI γ S Using a Large Volume HPGe Detector¹ GENCHO RUSEV, ANTON TONCHEV, ANTHONY HUTCHESON, ELAINE KWAN, WERNER TORNOW, CHRIS ANGELL, HUGON KARWOWSKI, JOHN KELLEY, CHANCHANG SUN, YING WU — The High-Intensity Gamma-ray Source facility (HI γ S) provides γ -ray beams with small energy spread (1 – 3 %) suitable for investigating the response of nuclides to dipole radiation. Nuclear resonance fluorescence experiments require precise knowledge of the intensity and the spectral distribution of the incident γ -ray beam in order to deduce the scattering cross section. We present a method for determining the energy spectrum of the γ -ray beam using a large volume HPGe detector. We monitor the γ -ray flux during in-beam experiments by measuring the intensity of γ -rays scattered through small angles from a copper plate. The results are compared to flux determinations derived from strong narrow resonances with known scattering cross sections in various nuclides in γ -ray scattering experiments.

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