

On optimization of $(\gamma, n 0; 1; 2)$ - experiments with the proposed neutron spectrometer at national center for physics and mathematics

Sunday 6 July 2025 13:00 (20 minutes)

For γ -quantum energies in the region of E1 giant resonance in atomic nuclei, there were analyzed:

- requirements for $(\gamma, n 0; 1; 2)$ -experiments with fast neutron spectrometry on the base of results of the works [1, 2];
 - parameters of γ -sources from Compton backscattering High Intensity γ -ray Source (HI γ S, Durham, USA [3]) and National Center for Physics and Mathematics (NCPhM, Sarov, Russia [4–6]);
 - characteristics of the neutron spectrometer proposed for NCPhM [5, 6];
 - principles of one-dimensional time-coordinate compensation for neutron spectrometer scintillators [7, 8].
- Initial experiments have been carried out using the one-dimensional time-coordinate compensation method [7, 8] to investigate the possibilities of improving the efficiency and resolution of the fast neutron scintillation spectrometer proposed in [5, 6], which provides both amplitude and time-of-flight data.

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4. L.V.Grigorenko et al. FIZMAT, 2023, V.3–4. P.1 (in russian).
5. A.M.Lapik et al. Bull.Russ.Acad Sci.Phys. 2024, V.88. P.1191.
6. A.M.Lapik et al. Mosc.Univ.Bull.Phys.2025, V.80, №3.
7. K.G.Sharpak et al. Nucl.Instr.& Meth.1962,V.15,P.323.
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Session Classification: 2. Experimental and theoretical studies of nuclear reactions

Track Classification: Section 2. Experimental and theoretical studies of nuclear reactions.