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DETECTION FOR (N,G*) REACTIONS BY FAST NEUTRONS

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Precise nuclear data are of great importance in the design of fusion and ADS devices. The studies of prompt and delayed gamma rays from (n,g*) reactions bring important knowledge as it is one of the main sources of nuclear data such as cross-section, nuclear energy levels, etc.
A central part of the capability is the Cyclotron U-120 and neutron converter coupled to the collimator. The collimated neutron beam of fast neutrons (with energies up to 33 MeV) was recently acquired at the Laboratory of Fast Neutrons of the NPI CAS. The detection system for the prompt gammas irradiated in the reaction of studied material with fast neutrons is being constructed. The setup consists of an array of HpGe detectors. The first experiments performed have shown that the setup was able to detect delayed gammas with decay times of a few ms. Future tests will focus on detecting prompt gammas.

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