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Study of neutron emission at large angles in Xe + CsI collisions at 3.8 A GeV

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Neutron energy spectra were measured in the energy range 2 – 200 MeV for emission angles of 95°, 110° and 121° in collisions of ^{124}Xe nuclei with a CsI target at a beam energy of 3.8 GeV/nucleon. The measurement was carried out with a compact TOF spectrometer in the last run of the BM@N experiment. The spectrometer characteristics and data analysis are discussed. The studied region of angles corresponds to neutrons emitted during the decay of spectators of the target nuclei. The resulting neutron energy spectra are well described by phenomenological model of three moving sources. In the energy region below 15 MeV, the angular distribution is isotropic. It indicates that the velocity of this neutron source is close to zero. The obtained neutron spectra are compared with results of theoretical models.

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