

Computer Simulation of PFN Detector

Wednesday, 13 July 2022 11:00 (20 minutes)

PFN emission of $^{235}\text{U}(n,f)$ reaction are under investigation in JINR for last 20 year. The recent achievements in experimental apparatus simulation are the subject of this presentation. The object of simulation is prompt fission neutron (PFN) detector used for resonance neutron induced fission of U-235. The neutron source was IREN facility and double ionization chamber (DIC) with Frisch grids was used for fission fragment spectroscopy. The PFN detector was multi detector system consisted of 32 BC501 scintillation liquid filled modules from the Sionix (Netherlands) company. Detectors were located on the sphere surface with 50 cm radius. Double Frisch gridded ionization chamber, used as fission spectrometer at the same time generated trigger signal for PFN registration apparatus. For each fission event the following simulated information was recorded: correlated fission fragments time mark, emission angle in respect to the selected coordinate frames along with the pulse heights and shapes of neutron detector signals. Multiple neutron scattering and the cross-talks were taken into account in order to evaluate contribution of those effects in the final results.

The speaker is a student or young scientist

No

Section

1. Experimental and theoretical studies of nuclear reactions

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