

THE METHOD AND SET UP FOR THE MEASUREMENT OF DELAYED NEUTRON TEMPORAL CHARACTERISTICS FOR THE FISSION OF HEAVY NUCLEI IN THE COMPLEX PRIMARY NEUTRON FIELDS

Tuesday, 12 July 2022 16:10 (20 minutes)

Present work is dedicated to the description of the set-up designed for precise measurements of the energy dependence of aggregate delayed neutron characteristics in the energy range of primary neutrons from thermal to 20 MeV. The set-up constructed on the base of Tandem-3M accelerator of SSC RF – IPPE consisted of high-efficiency neutron detector, spectrometer of primary neutrons, pneumatic transport system of the sample under investigation, experimental control and data acquisition system. Special emphasis is made to study the influence of the primary neutron flux on performance characteristics of the neutron detector and to the measurements of the primary neutron spectra generated from the reaction $D(d,n)$ on the solid neutron target. The results of measurements of delayed neutron relative abundances and half-lives are presented for the fission of ^{235}U by the neutrons in energy range from 0.42 to 8 MeV, including insufficiently known range from 4 to 8 MeV.

The speaker is a student or young scientist

Yes

Section

1. Experimental and theoretical studies of nuclear reactions

Primary author: Mr GREMYACHKIN, Dmitrii (JSC SSC RF-IPPE)

Co-authors: Mr EGOROV, Andrey (JSC SSC RF-IPPE); Dr PIKSAIKIN, Vladimir (JSC SSC RF-IPPE); Mr MITROFANOV, Konstantin (JSC SSC RF-IPPE); Mr MITROFANOV, Vjacheslav (JSC SSC RF-IPPE)

Presenter: Mr GREMYACHKIN, Dmitrii (JSC SSC RF-IPPE)

Session Classification: Experimental and theoretical studies of nuclear reactions