

MEASUREMENT OF FISSION CROSS SECTION AND ANISOTROPY OF ANGULAR DISTRIBUTIONS OF FISSION FRAGMENTS FROM NEUTRON-INDUCED FISSION OF ^{236}U IN INTERMEDIATE ENERGY RANGE 1-200 MEV

The neutron-induced fission cross sections of ^{236}U and ^{235}U (used as a standard) have been measured simultaneously in the energy range 1-200 MeV at the neutron time-of-flight spectrometer GNEIS based on the 1-GeV proton synchrocyclotron of the NRC KI - PNPI (Gatchina) used as pulsed neutron source [1]. The fission fragments from neutron-induced fission of investigated nuclei were registered by two position sensitive multi-wire proportional counters which allowed measuring not only the ^{236}U to ^{235}U fission cross section ratio but also the angular distributions of fission fragment at the same time.

The description of the original experimental set-up is presented, as well as the some principal details of experimental data processing. The anisotropy of fission fragments $W(0^\circ)/W(90^\circ)$ deduced from the experimental data on angular distributions for ^{236}U are presented. A special attention is devoted to the neutron energy range above 20 MeV where the present data have been obtained for the first time in spite of the ever-growing interest to this field stimulated by the development of new nuclear technologies. This report presents the experimental part of the work, while the theoretical analysis of the data obtained are given in other report presented at this Conference. This work is a part of large program devoted to the investigations of neutron-induced fission at intermediate energies [2-5].

1. O. A. Shcherbakov et al., Phys. Part. Nucl. 49, 81 (2018).
2. A. S. Vorobyev et al., JETP Lett. 102, 203 (2015).
3. A. S. Vorobyev et al., Bull. Russ. Acad. Sci. Phys. 84, No. 10, 1245 (2020).
4. A. L. Barabanov et al., Bull. Russ. Acad. Sci. Phys. 84, No. 4, 397 (2020).
5. A. S. Vorobyev et al., JETP Lett. 112, 323 (2020).

The speaker is a student or young scientist

No

Section

1. Experimental and theoretical studies of nuclear reactions

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