

TOF MEASUREMENT OF LOW-ENERGY NEUTRON SCATTERING BY DEFORMED NUCLEI

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The measurement of cross sections for neutron scattering by deformed nuclei in the energy range from 1 keV to 3 MeV is possible on the time-of-flight (TOF) channel of a pulsed neutron source based on a linac proton beam trap. The use of a beam with a duration of 0.3 μs will make it possible to measure neutron cross sections in this energy range with a resolution of (1–30)% over a 50 m span. Using elastic neutron scattering on W sample, the neutron spectrum was measured in the TOF channel of a pulsed source at an accelerator beam current of 1 μA

Measurement of the inelastic neutron scattering cross section at the threshold of excitation of rotational states of deformed nuclei up to 0.5 MeV is relevant for nuclear power engineering. When calculating the dynamics of nuclear reactors, it is necessary to take into account the energy dependence of the neutron strength functions of nonspherical nuclei, which can be determined from the measured total cross sections in the range from 1 keV to 2 MeV.

The speaker is a student or young scientist

No

Section

1. Applications of nuclear methods in science and technology

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