

The using of the integral compensation method for the measurement of TOF - spectra of the neutron.

Abstract. The time-of-flight neutron transmission spectra were measured by the integral-compensation method. Investigations of the stability of time-of-flight spectra of neutrons were carried out; measurements of time-of-flight spectra were carried out in the counting and integral modes.

In the counting mode, after amplification, the detector pulses were fed into a discriminator-shaper, which, according to a set threshold, generated a signal in the NIM standard. The formed pulses were fed to a digital converter and recorded in the computer memory. The system used had a limitation on the pulse recording rate of <105 pulses / s (miscalculations, a decrease in the gain of the preamplifier, up to the locking of the input transistor); therefore, the neutron beam had to be attenuated tens and even hundreds of times.

When measuring time-of-flight spectra in the integral mode, the difficulties associated with large pulsed neutron fluxes disappear, however, problems with pickups, noise, and high-quality transmission of a time-of-flight pulse may arise. During measurements in the integral mode, the signal from the detector was fed to a direct current preamplifier, and then to a digitizer.

The paper presents the results of measurements and estimates the accuracy and stability of the obtained spectra.

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