Investigation of the Neutron Spectrum in the Reference Spectrum ΣΣ-ITN by means of Spherical Proton Recoils Counters.

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In the fast reference spectrum ΣΣ-ITN measurements of the neutron spectrum were carried out by means of the Rossendorf proton recoil counter spectrometer. Spherical proportional counters were applied. The energy range of 8...1400 keV was covered, that corresponds to about 85 % of the total lethargy flux.
The results have been compared with other experiments (carried out by Magurele and Karlsruhe groups), with calculations (ANISN, 100 groups, ENDF/B-III) and with the recommended ΣΣ-spectrum. The agreement with the results of other experiments is rather good. The low energy limit could be decreased from about 20 keV - as reached up to now - to 10 keV. In the low energy region there are deviations from the recommended spectrum.