Contribution ID: **113** Type: **Sectional**

Calculation of efficiency of cylindrical thermal neutron counter assemblies

Tuesday, 1 October 2019 17:45 (15 minutes)

Cylindrical proportional counter assemblies are the main tool for observing neutron fluxes on many spectrometers. Optimization of the geometric parameters of the assemblies is of interest from the point of view of increasing the homogeneity of efficiency and simplifying the design of the detector system. Calculation of the efficiency of different variants of assembly designs consisting of 4 or 5 Helium-4-1 type counters has been carried out in the paper. The GEANT-4 package has been used to simulate the operation of the modules designed to replace the old counters of the spectrometer NERA. The calculation results have been compared with the experimental ones.

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Session Classification: Detector & Nuclear Electronics

Track Classification: Detector & Nuclear Electronics