

O. Kuchmagra¹, I. Maznii², H. Odynokin¹, A. Sadovnikov¹, A. Skorbun¹, S. Stadnik¹

¹*Institute for Safety Problems of Nuclear Power Plants, National Academy of Sciences of Ukraine, Chornobyl, Ukraine*

²*Institute of Nuclear Research, National Academy of Sciences of Ukraine, Kyiv, Ukraine*

Fission Ionization Chamber as Reference Source in Neutron Flux Analysis

The paper considers the statistics of intervals between neutron registration by the detecting system based on fission ionization chamber KHT31-1, statistics of intervals between noise signal impulses in absence of neutrons and possibility to distinguish neutron flows from different sources. It is shown that spurious noise signal from alpha decay of ^{234}U in a radiator of the ionization chamber KHT31-1 can be used as a reference signal in measuring neutron fluxes from different sources. The analysis of long-term continuous sets of measurements is taken as a basis of mathematical treatment.

Keywords: spent fuel, neutron statistics, ionization chamber, noise signal.