

SEMICONDUCTOR DETECTORS  
WITH CONVERTERS FOR MEASUREMENT  
OF A NEUTRON FLUX

*P. G. Litovchenko, L. I. Barabash, T. I. Kibkalo,  
V. F. Lastovetski, A. P. Litovchenko,  
L. A. Polivtsev, W. Wahl<sup>1</sup>*

Scientific Center "Institute for Nuclear Research", Nat.  
Acad. of Sci. of Ukraine  
(47, Nauky Prosp., Kyiv 03022, Ukraine),

<sup>1</sup>GSF, Institute of Radiation Protection  
(85764 Neuherberg, Germany)

A semiconductor detector with <sup>235</sup>U converter allows one to measure a neutron flux in the energy range from thermal to epithermal neutrons. The detector efficiency obtained is  $5.5 \cdot 10^{-4}$  impulse per neutron for thermal neutrons and  $1.82 \cdot 10^{-5}$  impulse per neutron for epithermal neutrons with the average energy of 10.4 keV. A semiconductor detector (thickness  $8 \cdot 10^{-4}$  m, area  $2 \cdot 10^{-3}$  m<sup>2</sup>) with PMMA - plastic converter (depth  $1.5 \cdot 10^{-3}$  m) was used for measurement of fast neutron fluxes with energy to 10 MeV. These semiconductor detectors with different converters may be used for measurement of neutron fluxes in a wide energy range in the on-line mode.