



Contribution ID : 100

Type : Oral talk

TIME-OF-FLIGHT CORRECTION METHOD FOR SETUPS WITH HEAVY CRYSTALS

Friday, 30 October 2026 09:25 (20)

In nucleus-nucleus collisions at energies up to 2 GeV, neutrons constitute a significant fraction of secondary particles. For their registration and identification, it is proposed to use modules of a High Granularity Neutron Detector (HGND). The detector has a layered structure, where each active layer consists of individual cells. This work considers the possibility of replacing passive layers with active layers made of a high-density scintillator — bismuth orthogermanate $\text{Bi}_4\text{Ge}_3\text{O}_{12}$ (BGO). However, the use of BGO for time-of-flight (TOF) measurements is complicated by the long signal rise time (>100 ns) and requires the development of specialized electronics (amplifier). The report presents a time-of-flight data analysis method applied to data obtained during testing of a BGO crystal with the developed amplifier on an experimental test bench. Additionally, the results of simulations of a prototype detector based on BGO crystals are presented.

Primary author(s) : ZHIGAREVA, Natalia (NRC KI)

Co-author(s) : Mr. TAER, Georgyi (NRC KI); Mr. MARTEMYANOV, Alexander (NRC KI); Mr. STEKHANOV, Victor (NRC KI)

Presenter(s) : ZHIGAREVA, Natalia (NRC KI)

Session Classification : Facilities and advanced detector technologies

Track Classification : Facilities and advanced detector technologies