



Contribution ID : 209

Type : Poster

Development of a solid-state modular reactor antineutrino detector

Tuesday, 27 October 2026 19:25 (5)

We present a prototype of a modular reactor antineutrino detector based on the inverse beta decay (IBD) reaction ($\bar{\nu}_e + p \rightarrow n + e^+$). Each module operates as an independent spectrometer based on a solid plastic scintillator block measuring $(700 \times 50 \times 50) \text{ mm}^3$, optically coupled to two vacuum photomultiplier tubes (PMTs) with an effective photocathode diameter of 46.5 mm. Neutron detection is planned to be performed using a $\text{ZnS(Ag)} + \text{B}_2\text{O}_3$ scintillating composite, optical fiber, and SiPMs. This work presents the design of the individual module and a 3×3 module array assembly, the corresponding experimental charge spectra, Monte Carlo simulation results, and the spectrometric performance of the detector based on this design.

Primary author(s) : БИКТИМИРОВ, Руслан (НИЦ «Курчатовский институт»)

Co-author(s) : ШМЫКHALO, Dmitry; Mr. ПОПОВ, Даниэль; ПРОКОПОВ, Дмитрий; RASTIMESHIN, Anton; SKOROKHVATOV, Mikhail (MEPhI/NRC KI); GROMUSHKIN, Dmitry (MEPhI)

Presenter(s) : БИКТИМИРОВ, Руслан (НИЦ «Курчатовский институт»)

Session Classification : Poster session

Track Classification : Neutrino physics