Contribution ID: **176** Type: **not specified**

STATUS AND LATEST FINDINGS FROM THE NUGEN EXPERIMENT AT KALININ NUCLEAR POWER PLANT

The νGeN experiment is a research project aimed at exploring the properties of neutrinos [1]. The experiment is being conducted at the Kalinin nuclear power plant (KNPP) in Udomlya, Russia. The experimental setup is positioned $11.1-12.2m$ from the reactor core under the third unit of the KNPP. This unique location provides a high flux of antineutrinos, ranging in $3.6-4.4\times10^{13}/(cm^2s)$, and shielding equivalent to $\sim 50m$ of water equivalent, ensuring favorable background conditions.

The main goal of the νGeN experiment is to study rare processes, such as coherent neutrino scattering, in order to search for the neutrino's magnetic moment and other unusual phenomena. A specially designed high-purity germanium (HPGe) detector, weighing $1.4kg$, with a low background value and a low threshold, is used for this task. The detector is surrounded by a combined shielding system, incorporating active and passive components to protect against external background sources.

During the experiment, the spectrometer demonstrated stable performance, achieving an efficiency of over 80% for signals above $250eV$. To date, more than $1600kg-days$ of data have been collected, providing a solid foundation for the ongoing analysis.

[1] I. Alekseev, et al., Physical Review D 106 (5), L051101 (2022)

Section

Nuclear physics (Section 1)

Primary author: Mr SHAKHOV, Konstantin (Joint Institute for Nuclear Research)

Presenter: Mr SHAKHOV, Konstantin (Joint Institute for Nuclear Research)

Track Classification: The V International Scientific Forum "Nuclear Science and Technologies": Nuclear physics (Section 1)