

STATUS AND RESULTS FROM NUGEN EXPERIMENT AT KALININ NUCLEAR POWER PLANT

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The experiment nuGeN investigates neutrino properties at Kalinin nuclear power plant (KNPP, Udomlya, Russia) [1]. The experimental setup was installed under the third unit of the KNPP at a distance of 11.1-12.2 m from the reactor core. The enormous antineutrino flux at this place of $(3.6 - 4.4) \cdot 10^{13} \nu / (\text{cm}^2 \text{ sec})$, good overburden of 50 m w.e. and suitable background conditions provide the one of the best places for search of coherent elastic neutrino scattering, magnetic moment of neutrino and other rare processes. The signals are recorded by a specially designed low-background, low-threshold, 1.4 kg germanium detector. The surrounding of the detector by active and passive shielding allows to mitigate background from external radiation. Special techniques were developed to detect nuclear recoils with energy depositions below 300 eV. The detection efficiency for signals from events with energy higher than 250 eV is more than 80 %. The spectrometer demonstrates good and stable performance. More than 1600 kg·days of data has been accumulated so far. A detailed overview of the experimental setup, the current status of measurements, and the new results will be presented at the conference.

Section

Neutrino physics and nuclear astrophysics

Primary author: ЛУБАШЕВСКИЙ, Алексей (JINR)

Presenter: ЛУБАШЕВСКИЙ, Алексей (JINR)

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