

Prospects of the Neutrino-4 experiment on the search for sterile neutrino

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The Neutrino-4 collaboration plans to modernize the existing installation and create a second neutrino laboratory at reactor CM-3 and a second neutrino detector with increased sensitivity.

To improve the result, in addition to continuing the current experiment, a new study with an improved neutrino detector is also necessary. The project of the new neutrino laboratory at the CM-3 reactor is being prepared for implementation. Using a scintillator with a high concentration of gadolinium (5 g/l) and with the ability to separate signals in shape will suppress the background of random matches by 3 times, and the correlated background by half. Thus, a new detector of an even larger volume will improve the accuracy of measuring the flow of reactor antineutrinos by 3.1 times.

After starting the PIC reactor at full power, the experiment will continue in Gatchina. For this, a preliminary design of another detector and a project for its placement on the PIK reactor are already being developed.

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