

Experiment NEUTRINO-4 search for sterile neutrino with multisection detector model

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In connection with the question of possible existence of sterile neutrino the laboratory on the basis of SM-3 reactor (Dimitrovgrad, Russia) was created to search for oscillations of reactor antineutrino. In the middle of 2015 the multisection prototype of a neutrino detector with liquid scintillator volume of 350 l was installed. It can be moved at the distance of 6-11 m from the reactor core inside passive shielding. For the first time the measurement of the reactor antineutrino flux dependence at so short distances from the reactor core center with movable detector was realized. Different methods of cosmic background suppression were studied. After half year collecting statistics the accuracy of measurements of first point at 6.5 m is 10%. The full-scale detector with volume of liquid scintillator 3 m^3 (5×10 section) is in the stage of preparation. It will allow obtaining the statistic accuracy of measurements at 6-11 m up to 1.5 – 3.0 % after 2 years of measurements.

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