

The RED-100 experiment

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The experiment on first observation of the elastic coherent scattering of neutrino off atomic nuclei is proposed with the use of the RED-100 emission two-phase xenon detector. This process was theoretically predicted more than 40 years ago by the Standard model of particle physics but has not been observed yet because of lack of the detection technique of the events with the low energy deposition in massive (more than several dozens of kg) targets: the energy of nuclear recoil from the neutrino scattering in detector is in the keV- and sub-keV-energy ranges. This can be done with a technology of particle detection by means of a two-phase emission detector proposed in Russia and well worked out in the experiments on search for dark matter. The RED-100 two-phase emission detector and proposed experiment with it at the Kalinin nuclear power plant (KNPP) are described in this talk. The perspective of the use of such type detectors for neutrino monitoring of nuclear power reactors is considered.

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