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Exposition of the RED-100 two-phase emission detector at the Kalinin NPP for the study of coherent elastic neutrino scattering off Xenon nuclei

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The RED-100 two-phase emission detector with 200 kg of liquid xenon as a working medium was exhibited at a distance of 19 m from the core of the VVER-1000/320 nuclear power reactor at the 4th power unit of the Kalinin NPP in 2021-2022. Due to its high sensitivity to weak ionization signals (down to single electrons), the RED-100 detector was used to observe elastic coherent scattering of electron antineutrinos off xenon nuclei. A set of experimental data was obtained in the regimes with the reactor on and off. The results obtained are discussed.

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