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Project of ton-scale liquid xenon detector for nuclear reactor monitoring

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A ton-scale liquid xenon two-phase emission detector for nuclear reactor monitoring is proposed. The detector operation is based on the elastic scattering off atomic nuclei of antineutrinos coming from the reactor. It is shown that a ton-scale detector is able to measure antineutrino flux from reactor with precision necessary for nuclear reactors safeguards needs. A specific design of the detector RED-1000 is proposed. It is based on scaling up the already built RED-100 detector. The detector uses the same technologies as for RED-100 detector, and it can be assembled with the same or similar infrastructure.

Presentation type

Section talk (10+5 min)

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