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Searches for Large Extra Dimensions in the DANSS experiment

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The DANSS detector is placed under the reactor core of Kalinin NPP (at distances 10.9–12.9 m) and collects up to 5000 antineutrino events per day. One of the main goals of the experiment is to scrutinize the sterile neutrino hypothesis. A large fraction of allowed parameter space was excluded by DANSS: for some values of Δm^2 , the exclusion goes up to $\sin^2(2\theta) < 0.01$, which had become the best in the world. In addition, the combination of a favorable placement of the detector near the reactor and large acquired statistics allows to investigate other scenarios of electron antineutrino disappearing. This poster reports on probing the Large Extra Dimensions (LED) hypothesis in the simplest approach of only one additional dimension. This theory describes particles oscillations to hidden, finite-size additional dimensions and provides sensitivity to neutrino mass. Report covers MC generation for different LED parameters, study of experiment sensitivity for oscillation to LED, and investigation of exclusion areas in the phase space in the coordinates of a and m_0 —size of hidden dimension and mass of the lightest neutrino.

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