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Searches for physics beyond SM at DANSS

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DANSS is a 1 m³ solid scintillator detector placed on a movable platform at the distances of 10.9 to 12.9 meters from the reactor core center at the Kalinin NPP in Russia. DANSS collected the largest sample of antineutrino events in the world of more than 10 millions. In a search for Large Extra Dimensions (LED) the best fit point in a model with one dominant LED has a statistical significance of 2 standard deviations only. Therefore, no statistically significant evidence for LED was found. The established upper limits on the model parameters (the size of the extra dimension and the mass of the lightest neutrino) are the best in the world in some areas. They exclude a large fraction of parameters preferred by the LED interpretation of the Gallium anomaly and Reactor anomaly including the best fit points. The limits are based on the comparison of the Inverse beta decay spectra at 10.9 and 12.9 meters from the reactor core center. They do not depend on the assumptions about the reactor antineutrino spectrum. Searches for sterile neutrinos were updated using additional 1.5 million of neutrino events. Limits obtained in a model independent way exclude practically all sterile neutrino parameters preferred by the recent BEST results for Δm^2 below 5 eV². The limits are the best in the world in this region. Using model predictions for the neutrino flux DANSS excludes practically the whole sterile neutrino parameter space preferred by the BEST experiment.

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