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Search for sterile neutrinos at the DANSS experiment

Friday, 7 July 2017 10:00 (15 minutes)

DANSS (JINR, Dubna and ITEP, Moscow) is a one cubic meter highly segmented solid scintillator detector. It consists of 2500 scintillator strips (100x4x1 cm3), covered with
gadolinium loaded reflective coating and read out by SiPMs via wave length shifting fibers. Groups of 50 strips are also read out by conventional PMTs. DANSS is placed under a 3 GW reactor at the Kalinin NPP (Russia) on a movable platform. The distance from the reactor core center can be changed from 10.7m to 12.7m. The reactor core and other materials provide about 50 mwe shielding against cosmics, which reduces the background drastically. DANSS detects about 5000 Inverse Beta Decay events per day with a background from cosmic muons of about 2.5% only. Results based on more than 6 months of data taking will be presented including reactor off periods. This data set provides sensitivity to a large range of sterile neutrino parameters. Comparison of the measured positron spectrum with Monte Carlo predictions will be also presented.

Experimental Collaboration

DANSS

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