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The DANSS Collaboration: recent results and perspectives

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The DANSS experiment at Kalininskaya NPP is running for already 8 years since April 2016. More than 8 million inverse beta decay events are already collected. DANSS experimental program includes both search for physics beyond the Standard Model, like sterile neutrinos or large extra dimensions, and applied studies connected to reactor monitoring using electron antineutrino flux. The model independent exclusion area in the sterile neutrino parameter space for 3+1 hypothesis extends till $\sin^2(2\theta) = 0.004$ for $\Delta m^2 = 0.9 \text{ eV}^2$, where sensitivity of the experiment is the best. Our data show presence of the antineutrino with energies above 10 MeV with significance 6.8σ . Independent from the NPP standard equipment reactor power measurements during 7+ years demonstrated excellent stability with uncertainty 1.3% for a three days measurement.

Along with ongoing statistics collection DANSS is preparing for an upgrade, which shell significantly improve energy resolution and also increase the fiducial volume. The talk covers recent analysis results and the upgrade status.

Primary author(s) : Dr. ALEKSEEV, Igor (KCTEP, NRC KI)

Presenter(s) : Dr. ALEKSEEV, Igor (KCTEP, NRC KI)

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