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Status of the DANSS project

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The common JINR (Dubna) - ITEP (Moscow) project DANSS is aimed at creating a relatively compact neutrino spectrometer which does not contain any flammable or other dangerous liquids and may therefore be located very close to the core of an industrial power reactor. As a result, high neutrino flux provides about 15,000 IBD interactions per day in the detector with a sensitive volume of 1 m^3. High segmentation of the plastic scintillator allows to suppress a background down to a $\sim$1% level. Numerous tests performed with a simplified pilot prototype DANSSino under a 3 GW_{th} reactor WWER-1000 of the Kalinin NPP have demonstrated operability of the chosen design.

The DANSS detector surrounded with a composite shield is movable on-line by means of a special lifting gear, varying the distance to the reactor core in a range from 9.7 m to 12.2 m. Due to this feature, it is used not only for the reactor monitoring, but also for fundamental research including short-range neutrino oscillations to the sterile state. Supposing one-year measurement, the sensitivity to the oscillation parameters is expected to reach a level of $\sin^2(2\theta_{\rm new}) \sim 5 \times 10^{-3}$ with $\Delta m^2 \subset (0.02 - 5.0)$ eV^2.

Operation of the DANSS detector has been started in January 2016. The report will contain description of the spectrometer and the first preliminary results got in few months.

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