



## Poster session 3 – Wednesday 6 July

### P3.052 NEOS: Search for sterile neutrino at short baseline using a nuclear reactor

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The existence of sterile neutrinos may explain the discrepancy between the recent calculation and experimental measurements for the reactor anti-neutrino flux. The sterile neutrino can be searched by measuring the distortion of the anti-neutrino energy spectrum at a very short distance from the reactor core. NEOS, Neutrino Experiment for Oscillation at Short Baseline, measured the anti-neutrino energy spectrum at 24m baseline, in the tendon gallery of a 3 GW<sub>th</sub> commercial reactor in Yeonggwang, South Korea. A 1000L of homogeneous liquid scintillator target doped with 0.5% Gd was used to detect e<sup>+</sup> and neutron coincidence from the inverse beta decay. The experiment has taken data for about 8 months, reactor off for 2 months and reactor on for the last 6 months. We observed about 2,000 IBD events per day with the signal to background ratio 20. We observed the disagreement between the calculation and the experimental data in the energy spectrum around 5 MeV for the first time in the short baseline reactor experiments, as in the  $\theta_{13}$  experiments. In this talk, we will present the sterile neutrino search with our data sample.