



Contribution ID: 674

Type: Poster

## Analysis framework for sensitivity studies of the SoLid experiment

*Monday 15 July 2019 18:30 (1h 30m)*

The observation of the Reactor Antineutrino Anomaly, at the beginning of this decade, has revived the interest in short-baseline experiments that probe the disappearance of electron antineutrinos. In addition, the recent evidence for a distortion in the reactor antineutrino energy spectrum, seen by some of those short-baseline experiments, has questioned our current models even more.\

The SoLid experiment is a reactor neutrino experiment that aims to resolve the anomaly and perform a precise spectral measurement using a novel detector design. Installed at a very short distance of  $\sim 6 - 10$  m from the BR2 research reactor at SCK·CEN in Belgium, it will be able to search for sterile neutrino oscillations through the detection of low energy  $\bar{\nu}_e$ . It will also exploit the high purity in  $^{235}\text{U}$  of the BR2 reactor fuel, to increase our knowledge on reactor flux models and trace the origin of the spectral distortion.

The first phase of SoLid has reached one year of data taking and the experiment will soon be able to present some initial results.\

To fulfil its challenging goals, the SoLid collaboration needs to perform detailed reactor calculations and develop a dedicated analysis framework.

This poster aims to review the simulation chain and analysis techniques needed to predict the measured antineutrino rates and spectra, to build the detector response matrix and to determine the experimental sensitivity and confidence limits using several fitting methods.

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**Session Classification:** Wine & Cheese Poster Session

**Track Classification:** Neutrino Physics