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The status of the SoLid experiment

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SoLid is a very short baseline reactor neutrino oscillation experiment. The goal of the experiment is to test the sterile neutrino hypothesis and to measure the BR2 reactor antineutrino spectrum of pure ^{235}U with high precision. Operation of detector on the surface and very close to the research reactor core requires handling the high levels of background induced by the reactor and cosmic rays. SoLid has a unique take on those measurements; it uses an innovative highly segmented solid scintillation technology, combining PVT (cubes of $5\times 5\times 5\text{ cm}^3$) and $^6\text{LiF:ZnS}$ (sheets $\sim 250\mu\text{m}$ thickness) scintillators. This combination provides a linear energy response with good resolution and unprecedented spatial and time reconstruction of antineutrino interactions. The detector system is highly segmented, read out by a network of wavelength shifting fibers and SiPMs with an intelligent triggering scheme that records real time data with high efficiency. The detector has been taking physics data for almost a year in the BR2 reactor area. We will present an overview of the experiment, the detailed features of antineutrino reconstruction in SoLid, the calibration methods, background rejection capabilities and some preliminary analysis of the antineutrino data.

Author: Dr VERCAEMER, Simon (UAntwerpen)

Co-author: VERCAEMER, Simon (UAntwerpen)

Presenter: Dr VERCAEMER, Simon (UAntwerpen)

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