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Status and prospects of the SoLid neutrino experiment

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The SoLid experiment intends to search for active-to-sterile anti-neutrino oscillation at very short baseline from the SCK•CEN BR2 research reactor (Mol, Belgium). A novel detector approach to measure reactor anti-neutrinos was developed based on an innovative sandwich of composite polyvynil-toluene and ^{6}LiF:ZnS scintillators. The system is highly segmented and read out by a network of wavelength shifting optical fibers and silicon photomultipliers (SiPMs). This detector will have few passive shielding, relying on its volume segmentation and robust neutron identification capabilities to reject the backgrounds components of the experiment and provide a precise measurement.
We will describe the principle of detection and the detector design. Results from the first full scale detector prototype (SM1) measurements will be presented. Particular focus will be made on the current status and the expected results of the SoLid experiment. The SoLid Phase I is planing to start data taking in fall 2017 and will be able to provide important results to clarify the so-called Reactor Antineutrino Anomaly.

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