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First measurements with the SoLid experiment's prototype anti-neutrino detector

The SoLid collaboration aim to probe the reactor neutrino anomaly by searching for anti-neutrino oscillations between 5-10 m from the core of the BR2 reactor at SCK-CEN. The SoLid experiment is using a new detector concept based on segmented plastic scintillator with layers containing a mixture of lithium-6 and Zinc Sulphide scintillator. The detector uses the two different scintillators to detect and identify both the positron and the neutron from inverse beta decay events. An 8 kg prototype detector was constructed and deployed at the BR2 reactor in 2013. This small system has been taking data during a number of reactor on/off cycles. The data is being used to study the detector response, the environmental conditions and background signals at the site where the full scale experiment will be installed. The poster will introduce the SoLid experiment's design and present the first measurements made with the prototype detector.

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