

Anti-neutrino Measurements and Prospects in SNO+

SNO+, the successor experiment to the Sudbury Neutrino Observatory (SNO), is now filled with an optimized scintillator mixture after an initial water fill and a sustained period of being partially filled with scintillator. The SNO+ experiment has demonstrated good neutron detection through all phases of the experiment to date, allowing for the detection of anti-neutrinos by the inverse beta decay (iBD) interaction. A recent publication has demonstrated the first detection of anti-neutrinos in a water Cherenkov detector. Ontario based nuclear reactors at the Bruce, Pickering and Darlington installations produce 60% of the anti-neutrinos detected by SNO+, all of which are at distances greater than 300 km with the remainder coming from reactors at much larger distances. An analysis of data collected through the pause in scintillator fill has yielded a measurement of anti-neutrinos oscillations over the distances between SNOLAB and reactors across North America. The results and consequences of these measurements will be described in this presentation. Future prospects for the IDB detection channel in SNO+ will also be presented.

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