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Geo-neutrinos in SNO+

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SNO+ is a multipurpose, low background, liquid scintillator neutrino detector. It is located 2km underground at SNOLAB in Sudbury, Canada. It is currently being filled with 800 tonnes of liquid scintillator, after the successful completion of the water phase of the experiment. Once the detector is filled, studies into several physics topics will begin, including reactor antineutrinos and geo-neutrinos. After the scintillator phase, 4 tonnes of tellurium will be loaded into the liquid scintillator as the primary objective of SNO+ is to search for the neutrinoless double-beta decay of Te-130.

SNO+ can observe geo-neutrinos coming from the uranium and thorium decay chains via inverse beta decay reactions with protons in the liquid scintillator. The measured geo-neutrino flux will be compared with KamLAND and Borexino results in a global analysis to help constrain models of radiogenic heat production in the deep Earth. This talk will present the current status of the SNO+ detector and the geo-neutrino measurement prospects.

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