

## The SNO+ experiment

*Tuesday 12 June 2018 10:00 (30 minutes)*

SNO+ is a large liquid scintillator based experiment located in the SNOLAB underground laboratory in Sudbury, Canada. The SNO+ experiment uses the 12 m diameter acrylic vessel as well as the PMT array of the SNO detector, with several upgrades necessary to fill with liquid scintillator.

The main physics goal of SNO+ is the search for the neutrinoless double-beta ( $0\nu 2\beta$ ) decay with  $^{130}\text{Te}$ . During the initial double-beta phase, the liquid scintillator will be loaded with 0.5% natural tellurium, corresponding to 1330 kg of  $^{130}\text{Te}$ . SNO+ sensitivity to the effective Majorana neutrino mass will begin to explore the parameter space in the inverted hierarchy region. Higher Te loading are being developed and a SNO+ Phase II would extend sensitivity to the entire inverted hierarchy region.

Designed as a general purpose neutrino experiment, the low background levels and the low thresholds will allow to additionally measure the reactor neutrino oscillations, geo-neutrinos in a geologically-interesting location, watch for supernova neutrinos, and measure the low energy solar neutrinos, like low energy  $^8\text{B}$ , pep and CNO.

This talk will focus on the current status of the SNO+ experiment, its sensitivity, and in particular the solar and supernova neutrino measurements.

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