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Physics results from the SNO+ scintillator phase and Neutrinoless Double Beta Decay prospects

SNO+ is a large multi-purpose neutrino detector located 2 km underground at SNOLAB, Canada, currently in operation filled with 780 tonnes of liquid scintillator as its target mass. The high light yield, low background levels, and continually increasing livetime, allow the SNO+ collaboration to perform measurements of solar neutrinos, antineutrinos from reactors and the Earth, and searches for other rare events. The data is also being used to quantify backgrounds and understand the detector response in preparation for the search of neutrinoless double beta decay of ^{130}Te . In a first phase, SNO+ will perform this search with 0.5% of natural tellurium by weight, for a predicted half-life sensitivity of 2×10^{26} years (90% CL) with 3 years of livetime, followed by higher tellurium loadings, up to 3%, for sensitivities above 1×10^{27} years. In this talk I will highlight the most recent physics results from the analysis of the SNO+ scintillator data, and will discuss the prospects for the neutrinoless double beta decay search.

Secondary track

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