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Status of the SNO+ Experiment

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The SNO+ experiment has multiple physics goals among which the search for neutrinoless double-beta decay, the study of solar neutrinos, measurements of anti-neutrinos from nuclear reactors and the Earth's natural radioactivity, as well as the ability to detect Supernovae neutrinos. Located in the SNOLAB underground physics laboratory (Canada) it will re-use the SNO detector equipped with ˜9000 PMTs and looking at a 12 m diameter spherical volume. The detector will be filled with 780 tons of liquid scintillator to which 130Te at 0.3% loading will be added. The commissioning of the detector at SNOLAB has started, and data with air and partial water fill have been taken. A short phase with the detector completely filled with water is expected to start at the end of the year, before running the detector with scintillator in 2016. The main detector developments and technical challenges inherent to this large volume liquid scintillator and low-energy experiment will be presented. In addition the status of the detector which is in its commissioning phase and the detector and physics plans for the water phase will be described. Finally the neutrinoless double-beta decay sensitivity physics goals that SNO+ aims to achieve in phases with different loadings will be given.

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