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Physics and Commissioning 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 detection of Supernovae neutrinos. Located in the SNOLAB underground physics laboratory (Canada) it re-uses the SNO detector equipped with ~9300 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 0.5% loading will be added. The commissioning of the detector at SNOLAB has started with water fill data at the end of 2016. A short phase with the detector completely filled with water is on-going, before filling the detector with scintillator later this year. The neutrinoless double-beta decay sensitivity physics goals that SNO+ aims to achieve in phases with different loadings, as well as the physics plans for the water phase will be presented. A full review of the experiment present status and on-going commissioning in the water phase will also be given.

Experimental Collaboration

SNO+

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