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Status of the SNO+ experiment

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The SNO+ experiment is located in SNOLAB (Sudbury, Canada), 2 kilometers underground in the Creighton mine. It is a large scale, low-background, neutrino detector whose main purpose is to search for neutrinoless double-beta decay. The outcome of the discovery would be a measurement of the half-life for such a process, which is inversely proportional to the effective neutrino mass squared. With 780 tons of liquid scintillator loaded with tellurium, SNO+ is going to explore the Majorana neutrino mass parameter space down to the inverted mass hierarchy region.

Designed as a multi-purpose detector, the SNO+ can also detect solar and reactor neutrinos, geo and supernovae neutrinos and perform nucleon decay searches. It is currently filled with ultrapure water and taking data since May 2017 to measure the 8B neutrino flux and constrain the lifetime of nucleon decay through invisible modes in 16O. The results have been published and they will be presented during this talk.

The experiment is now moving to the next phase, where the detector will be filled with liquid scintillator and subsequently loaded with tellurium.

Author: BIALEK, Aleksandra (SNOLAB)

Presenter: BIALEK, Aleksandra (SNOLAB)

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