

Search for Neutrinoless Double-Beta Decay with SNO+

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The SNO+ experiment, located in SNOLAB, 2 kilometers underground in the Creighton mine, near Sudbury, Canada, is a large scale neutrino detector whose main purpose is to search for neutrinoless double-beta decay and thus probe the Majorana nature of the neutrino. With 780 tons of liquid scintillator loaded with tellurium, SNO+ aims at exploring the Majorana neutrino mass parameter space down to the inverted mass hierarchy region. The versatility of the SNO+ detector also allows it to detect solar and reactor neutrinos, provide a measurement of the geoneutrino flux, detect galactic core-collapse supernovae and perform nucleon decay searches. The SNO+ experiment is currently taking data with a detector fully filled with ultrapure water. The detector will be completely filled with liquid scintillator in the coming months and subsequently loaded with tellurium. This presentation will describe the physics case, detector design and current status of SNO+.

E-mail

vfischer@ucdavis.edu

Collaboration name

SNO+

Primary author: Dr FISCHER, Vincent (UC Davis)

Presenter: Dr FISCHER, Vincent (UC Davis)

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