

**CENTRE D'ÉTUDES NUCLÉAIRES DE
BORDEAUX-GRADIGNAN**

Vendredi 2 Février 2018

à 11H

Un café sera servi à partir de 10h45

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**Investigating the nature of the neutrino:
from SNO to SNO+**

Neutrinos are one of the most fundamental and least understood particles. They violate symmetries obeyed everywhere, transform into different types as they travel and have an exceedingly small mass not predicted by the Standard Model of particle physics. As such, they provide an important tool for gaining a deeper understanding of the basic nature of the universe, possibly even answer the question of how the universe came to survive matter-antimatter annihilation.

Through the observation of neutrino oscillations we know that neutrinos have mass, but we don't know it's absolute scale. Through the search for a rare nuclear decay – neutrinoless double beta decay – one could understand whether neutrinos are their own antiparticle and possibility determine its absolute mass scale.

The SNO+ experiment is a multi-purpose neutrino experiment with a broad experimental program and wide physics reach. The primary goal of SNO+ is a search for neutrinoless double beta decay. By reusing the SNO detector, whose original purpose was the observation of neutrino oscillations, SNO+ now aims to complement the achievements of SNO in the understanding of the neutrino mass. This talk will introduce the problem of neutrino mass and its implications, the achievements of SNO in the observation of neutrino oscillations, and the status and goals of its successor SNO+ experiment and its potential contributions to the field of neutrino physics.

Salle des Séminaires du CENBG

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