

NNN25

International Workshop on Next Generation
Nucleon Decay and Neutrino Detectors

October 1-3, 2025



Contribution ID: 27

Type: Plenary Talk

The SuperNEMO Double-Beta-Decay Experiment

Thursday, October 2, 2025 2:30 PM (25 minutes)

SuperNEMO is a double-beta-decay experiment, whose isotope-agnostic tracker-calorimeter architecture has the unique ability to track trajectories and energies of individual particles. If the hypothesised lepton-number-violating process, neutrinoless double-beta decay ($0\nu\beta\beta$), is discovered, this full topological event reconstruction will be the only way to determine the mechanism. The detector serves as proof of concept for many novel developments in tracker-calorimeter technology, which could be used in a scaled-up version with neutrino-mass sensitivity comparable to next-generation experiments. In addition, the Demonstrator is uniquely positioned to make detailed studies of the Standard Model double-beta decay process ($2\nu\beta\beta$). Precise kinematic measurements of these events can place important constraints on nuclear models and the axial coupling constant, g_A . Additionally, the Demonstrator can probe beyond-the-Standard-Model phenomena, including exotic $0\nu\beta\beta$ modes, Lorentz-violating decays, and bosonic neutrino processes. The SuperNEMO Demonstrator, located at LSM, France, is currently collecting double-beta-decay data from a 6.11kg Se-82 $0\nu\beta\beta$ source. First physics data and physics objectives will be presented.

Submitter Email

chauveau@lp2ib.in2p3.fr

Submitter Name

Emmanuel Chauveau

Submitter Institution

LP2i Bordeaux, CNRS / IN2P3

Primary author: CHAUVEAU, Emmanuel (LP2i Bordeaux, CNRS / IN2P3)

Presenter: CHAUVEAU, Emmanuel (LP2i Bordeaux, CNRS / IN2P3)

Session Classification: Plenary Talks

Track Classification: Plenary Talk: Contributed Talk