Contribution ID: **105** Type: **Oral**

Status of the SuperNEMO Demonstrator and First Physics Data

Monday 25 August 2025 15:00 (20 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 (0νββ), 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 (2νββ). Precise kinematic measurements of these events can place important constraints on nuclear models and the axial coupling constant, gA. Additionally, the Demonstrator can probe beyond-the-Standard-Model phenomena, including exotic 0νββ 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 ββ source. First physics data and physics objectives will be presented.

Collaboration you are representing

SuperNEMO

Author: AGUERRE, Xalbat

Presenter: AGUERRE, Xalbat

Session Classification: Neutrino Physics and Astrophysics

Track Classification: Neutrino Physics and Astrophysics