

Status of the SuperNEMO Demonstrator and Analysis of First Data

Friday 19 July 2024 11:30 (15 minutes)

SuperNEMO is searching for the hypothesised lepton-number-violating neutrinoless double-beta decay ($0\nu\beta\beta$) process. Our unique NEMO-3-style tracker-calorimeter detector tracks individual particle trajectories and energies. This enables powerful background rejection and detailed studies of Standard Model ($2\nu\beta\beta$) decay. By studying electron and photon energies and relative trajectories, SuperNEMO will investigate nuclear processes hidden to other technologies, such as decays to excited nuclear states, and will constrain the axial coupling constant, g_A . By precisely measuring $2\nu\beta\beta$ observables we will seek beyond-the-Standard-Model effects like exotic $0\nu\beta\beta$ modes, Lorentz-violating decays and bosonic neutrino processes.

The SuperNEMO Demonstrator at LSM, France has a 6.1kg Se-82 $\beta\beta$ source, and is taking background data vital to isolate future signals. It is calibrated with a Bi-207 source deployment system. Multi-layer shielding, now in construction, will allow $\beta\beta$ data-taking in 2024.

Alternate track

1. Beyond the Standard Model

I read the instructions above

Yes

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