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## First Energy Calibration of SuperNEMO's Calorimeter using its Tracko-Calo Technology

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The discovery of neutrinoless double beta decay ( $0\nu\beta\beta$ ) would be a huge step in the understanding of the nature of the neutrino. SuperNEMO is an experiment designed to search for  $0\nu\beta\beta$ , whose demonstrator module is located in Modane Underground Laboratory in France (4800 m.w.e). It uses a unique technique combining a tracker and a segmented, scintillator-based calorimeter that allows us to unambiguously identify the two final-state electrons and measure their time and energy. It aims to achieve an ultra-low background level of  $< 10^{-4}$  events/(keV.kg.yr) and its topological reconstruction allows us to probe double-beta decay mechanisms. The main calibration method uses conversion electrons from  $^{207}\text{Bi}$  sources that can be automatically deployed in the centre of the detector. A tracking algorithm based on the Legendre transform is being developed to reconstruct tracks. By combining tracker and calorimeter information, detailed studies of the energy response will be performed to evaluate effects such as non-uniformity and non-linearity of the scintillator making up the calorimeter, and energy losses in the tracker. Some preliminary measurements using the first data from the Demonstrator will be presented.

### Submitted on behalf of a Collaboration?

Yes

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