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## Status of SuperNEMO demonstrator (15' + 5')

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SuperNEMO is a next generation neutrinoless double beta decay experiment with a design capability to reach a half-life sensitivity of  $10^{26}$  years with 100 kg of enriched double beta decay isotopes corresponding to an effective Majorana neutrino mass of  $m_{\beta\beta} < 50 - 100$  meV. The concept of the detector has been validated by the successful NEMO3 experiment. It is based on the possibility to measure different isotopes, to track the two emitted electrons, to measure all kinematic parameters (individual energy of the electrons, angular distribution) and then, to reduce drastically the background. The detector consists of a thin central source foil sandwiched by two tracker volumes made of drift chambers working in Geiger mode and surrounded by a calorimeter made of plastic scintillators coupled to low radioactive photomultipliers to measure the energy of the electrons.

The first phase of the experiment is the SuperNEMO demonstrator able to accommodate 7 kg of enriched  $\beta\beta$  emitter isotopes. It is currently under construction at the Modane Underground Laboratory (LSM). The objective is to demonstrate that the required radiopurity levels for the full detector can be reached:  $< 2$   $\mu\text{Bq/kg}$  in  $^{208}\text{Tl}$  and  $< 10$   $\mu\text{Bq/kg}$  in  $^{214}\text{Bi}$  in the source foil and less than 150  $\mu\text{Bq/m}^3$  in the tracker gas. For the demonstrator with 7 kg of enriched  $^{82}\text{Se}$ , no background is expected for 2.5 years of data acquisition leading to a half-life sensitivity of  $6 \cdot 10^{24}$  years corresponding to a neutrino mass sensitivity  $m_{\beta\beta} < 0.2 - 0.4$  eV. The main achievements of the R&D concerning the calorimeter, the tracker, the source foils and low radioactive measurements will be presented as well as the status of the installation of the detector at LSM.

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