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Latest Results of the NEMO-3 Experiment and Status of SuperNEMO

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The NEMO-3 experiment located in the Modane Underground Laboratory researched the neutrinoless double beta decay from 2003 to 2011. Seven isotopes were studied with the unique tracko-calo technique including the 2 most important in term of sensitivity with 7kg of 100Mo and 1kg of 82Se. No evidence for neutrinoless double beta decay has been observed but the limits set on the effective neutrino mass are among the best to date. At this TAUP 2013 conference we will present the latest results of this neutrinoless double beta decay search with the NEMO-3 experiment with the details of all the tests, calibrations and analyses proving we control the detector stability and backgrounds. The data will also be interpreted in terms of alternative models, such as weak right-handed currents or Majoron emission.
The second part of this talk concerns the new generation SuperNEMO experiment under construction. We will present the status of this construction and the improvements foreseen compared to NEMO-3. The R&D started in 2007 and today all the requirements are achievable. The collaboration is now equipped with very sensitive complementary detectors (for radon: diffusion apparatus, concentration line and emanation tank and for radiopurity: BiPo, HPGe...). The first detector construction has started in 2012 and data taking should start by the end of 2014. Underground early commissioning of one quarter of tracker and one brick of calorimeter is expected by the end of this year.

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