ID de Contribution: **63** Type: **YSF (Young Scientists Forum)**

$0\nu\beta\beta$ sensitivity of the SuperNEMO demonstrator

vendredi 24 mars 2017 20:19 (5 minutes)

The SuperNEMO demonstrator, which is the first module of the SuperNEMO experiment, is looking for the neutrinoless double beta decay $0\nu\beta\beta$ in order to unveil the nature of the neutrino. Its unique design, combining both tracking and calorimetry techniques, provides essential topological information. Indeed, fully reconstructing the event kinematics gives access to a variety of event topologies which can be used to measure the different background contributions as well as look for new processes such as the double beta decays to the excited states of the daughter nuclei. Using a multivariate analysis to take advantage of these informations can improve the background discrimination and further increase the detector sensitivity. The commissioning of the demonstrator is ongoing and the data taking should start in the Summer of 2017.

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Classification de Session: YSF4

Classification de thématique: Experiment