

## Energy reconstruction with the SuperNEMO calorimeter.

### Authorship annotation

For the SuperNEMO collaboration

### Session and Location

Monday Session, Poster Wall #66 (Auditorium Gallery Right)

### Abstract content

The SuperNEMO experiment aims to reach the sensitivity on the neutrinoless double beta decay half-life to  $10^{26}$  years, i.e a Majorana neutrino mass of 50-100 meV. The detector is a modular tracker-calorimeter based experiment. The calorimeter is composed of 712 Optical Modules, an assembly of large volume plastic scintillators (10L) mainly coupled with 8 inch photomultipliers (Hamamatsu R5912-MOD). It achieved a resolution of 8% FWHM in energy and 400ps in time at 1MeV, more than 50% gammas tagging and a good uniformity of the entrance face of scintillators. In scintillation detector, the response in term of visible energy depends on the type of the particle, its energy and its interaction point(s). An effective model is introduced in the SuperNEMO simulation software (FALAISE) in order to take into account non-linearities as well as non-uniformity of the calorimetric response. The SuperNEMO calorimeter is presented, as well as the expected software reconstruction performances.

### Poster included in proceedings:

yes

**Primary author(s) :** Mr. PIN, Axel (Centre d'Etudes Nucleaires de Bordeaux Gradignan)

**Co-author(s) :** Mrs. MARQUET, Christine (Centre d'Etudes Nucleaires de Bordeaux Gradignan); Mr. CHAUVEAU, Emmanuel (Centre d'Etudes Nucleaires de Bordeaux Gradignan)

**Presenter(s) :** Mrs. MARQUET, Christine (Centre d'Etudes Nucleaires de Bordeaux Gradignan); Mr. CHAUVEAU, Emmanuel (Centre d'Etudes Nucleaires de Bordeaux Gradignan)

**Session Classification :** Poster Session Monday

**Track Classification :** Poster (not participating in poster prize competition)