ID de Contribution: **177** Type: **Ordinary**

Results of CUPID-0

jeudi 15 mars 2018 17:40 (15 minutes)

CUPID-0 is the first large array of enriched scintillating ZnSe cryogenic calorimeters implementing active particle identification. The detector consists of an array of 24 ZnSe crystals 95% enriched in ^{82}Se and two natural ZnSe crystals for a total mass of 10.5 kg installed in a dilution refrigerator located underground in the Laboratori Nazionali del Gran Sasso.
We will report the first result of the search for neutrinoless double beta decay (0νDBD) in ^{82}Se based on the data collected between june and november 2017. We find no evidence in a 3.45 kg yr exposure and we set the most stringent lower limit on the 0νDBD ^{82}Se half life of $T_{0\nu}^{1/2}$ >2.4×10^{24} yr (90% C.I.) which corresponds to an effective Majorana neutrino mass $m_{\beta\beta}$ < (376-770) meV. This excellent result was obtained also thanks to the heat-light readout that provides a unique tool for α particle discrimination and allows to suppress the background in the region of interest to an unprecedented level for a bolometric experiment.

Summary

Auteurs principaux: Dr GIRONI, Luca (Università degli Studi di Milano - Bicocca); FOR THE CUPID-0 COLLABORATION

Orateur: Dr GIRONI, Luca (Università degli Studi di Milano - Bicocca)

Classification de Session: Thursday afternoon: Neutrinos (cntd)