Contribution ID: **11** Type: **not specified**

SEARCH FOR LOW-MASS WIMPS WITH THE EDELWEISS-III EXPERIMENT

Tuesday, 1 December 2015 11:00 (30 minutes)

The EDELWEISS-III experiment is a direct search for WIMP dark matter that uses an array of twenty-four 800 g heat-and-ionization cryogenic detectors fully covered with interleaved electrodes for the rejection of near-surface events.
An 8-month search has been recently concluded. Detector performances and in particular the improvement of experimental resolutions relative to the previous phase of the experi- ment has made possible to reduce the analysis threshold down to 2.4 keV nuclear recoils, and extend significantly the sensitivity to lower WIMP masses. We will present the limit obtained on the spin-independent WIMP-nucleon cross-section from a fiducial exposure of 582 kg.day.
The present limitations and the future prospects of the experiment will be discussed, with the emphasis on the important gain in sensitivity achievable in the near future for WIMP within the mass range from 1 to 20 GeV range, notably by using the Luke-Neganov amplification of the heat signal to reduce experimental thresholds, and at longer term in a 100-kg scale experiment installed in an improved facility such as the one currently being planned at SNOLAB by the SuperCDMS collaboration.

Primary author: Prof. GASCON, Jules (IPNL Universite Lyon 1 and CNRS/IN2P3)

Presenter: Prof. GASCON, Jules (IPNL Universite Lyon 1 and CNRS/IN2P3)

Session Classification: Session E