Contribution ID: **119** Type: **Talk**

Marisa Sarsa (U. of Zaragoza, Spain): Testing DAMA/LIBRA result with ANAIS-112 experiment

Friday 23 February 2018 12:00 (15 minutes)

Detecting the elusive WIMPs (Weakly Interacting Massive Particles) proposed to explain the dark matter has shown to be a very challenging effort. The study of distinctive features in the WIMP signal allowing disentangling it from other backgrounds is an important asset in this search. The motion of the Earth around the Sun will produce a modulation in the dark matter interaction rate along the year, because of the change in relative velocity between WIMPs and target nuclei. Such a modulation, having all the features expected for WIMPs distributed in an isotropic and spherical halo, has been observed by DAMA/LIBRA experiment, in the Laboratory of Gran Sasso, Italy, with a high statistical significance. Neither considered systematics are able to explain such a modulation, nor are other very sensitive experiments using other target nuclei compatible with this result in most of the considered dark matter scenarios. The ANAIS (Annual modulation with NaI(Tl) Scintillators) experiment aims at the confirmation or refutation of the DAMA/LIBRA signal using the same target and technique at the Canfranc Underground Laboratory (LSC), Spain. Several 12.5 kg NaI(Tl) modules produced by Alpha Spectra Inc. have been operated in Canfranc during the last years in various set-ups. An outstanding light collection at the level of 15 photoelectrons per keV, which allows triggering at 1 keV of visible energy, has been measured for all of them and a complete characterization of their background has been achieved. The full ANAIS-112 set-up consisting of nine detectors in a 3x3 matrix configuration with a total mass of 112.5 kg has been commissioned at LSC in the first semester of 2017, starting the dark matter run on August, the 3rd. We will present and discuss the present status of the experiment, experimental planning, and sensitivity prospects in the search for the annual modulation of dark matter.

Presenter: Prof. SARSA, Marisa (University of Zaragoza)

Session Classification: Session 13