Istituto Nazionale di Fisica Nucleare

Laboratori Nazionali del Gran Sasso

PRESS RELEASE

New results in Dark Matter Search

During the international conference "Neutrino Oscillations in Venice", held in Venice today, DAMA collaboration has presented the results of the DAMA/LIBRA experiment, installed at Gran Sasso National Laboratory of the INFN (National Institute for Nuclear Physics), devoted to dark matter research.
DAMA/LIBRA experiment consists of 25 ultrapure crystals of Sodium Iodide for a total weight of 250 kg. of Sodium Iodide running since March 2003.
The main goal of the experiment is to research dark matter particle by measuring the flashes produced in the crystals by the interactions with the dark matter particles which are part of the Galactic Halo.
The results confirm the presence of an annual modulation in the signals counting rate, an evidence independent from various theoretical models, which can be directly connected to the Earth motion inside the dark matter Halo of Galaxy.
With a less massive apparatus, installed at Gran Sasso, a few years ago DAMA experiment had already detected this modulation. It is worth to say that DAMA collaboration has so far realized the most massive detectors, with better radio-purity and the highest data acquisition time.
This important confirmation is now part of the lively ongoing debate over the nature and constituents of dark matter, a debate in which other kind of experiments, with sensitivity close to those of DAMA, have not yet detected any signals having references to the presence of dark matter. In these kind of researches the Gran Sasso National Laboratory is the focus of international interest for the obtained results as well as for the new important experiments under installation, such as WARP and Xenon which use cryogenic liquids and CRESST which uses crystals cooled at very low temperatures.
Further relevant news could arise from the start-up phase of the large accelerator LHC at CERN of Geneva able to produce directly the particles responsible for dark matter.