Istituto Nazionale di Fisica Nucleare

Sezione di Pisa

SEMINARIO

Martedì 4 luglio 2016
ore 15.00
presso INFN - Sezione di Pisa

Largo B. Pontecorvo, 3 – Edificio C
Aula 131 (edificio C – piano terra)

Dott. Eugenio Paoloni
(INFN e Universita' Pisa)

Terrà un seminario dal titolo

"DARKSIDE: A TWO PHASES ARGON TIME PROJECTION CHAMBER FOR DARK MATTER SEARCHES"

Abstract:
The seminar will quickly and pedagogically presents the astrophysical and cosmological evidences of the dark matter content of our universe.
The strategy and challenges of dark matter searches using noble gas time projection chambers (TPC) will then be introduced using Darksid as a prototypical example.
DarkSide is a two phases TPC using 50 kg of liquid argon as active target immersed in a 4-meter-diameter stainless steel sphere containing a borated liquid scintillator acting as a neutron veto. This is itself inside the Borexino CTF (Counting Test Facility) tank, which is filled with water and used as a Čerenkov muon veto.
The neat features of this detector will be presented together with the limits published by the collaboration.
The seminar will then presents the future plan of the collaboration to build a liquid argon TPC with a 20 metrical ton fiducial target able to collect background-free data from an exposure of 100 ton years with which dark matter particles in the multi TeV/c^2 mass range will be detected if their interaction cross section with a nucleon would exceed 10^-46 cm^2.