



ID de Contribution: 44

Type: Non spécifié

Analysis of the light production and propagation in the 4 tonne dual-phase demonstrator

mardi 25 juin 2019 15:00 (30 minutes)

The Deep Underground Neutrino Experiment (DUNE) is a new generation long-baseline neutrino detector conceived to answer fundamental questions regarding neutrino physics. DUNE proposed to increase the sensitivity on the CP-violation, and search for supernova neutrino burst and proton decays. To pursuing these goals, DUNE planned to install four giant Liquid Argon (LAr) Time Projection Chambers (TPC) with an active volume of 10-kton, using both single and dual-phase (DP) technology. The latter provides charge amplification before collection in the gaseous phase but, so far, it has never been tested in such a big scale. A DUNE DP prototype (ProtoDUNE-DP, 6x6x6 m³ LAr volume) is currently being constructed at CERN. In 2017, a DP 4 tonne demonstrator of 3x1x1 m³ volume took cosmic data and exhibited good performance in terms of charge extraction and light collection. The photon detection system in these detectors is crucial to provide the trigger signal for rare non-beam events, to give an absolute time reference for the charge and to complementary calorimetry.

An overview of the 3x1x1 light detection system performance will be presented. Preliminary results on the electron recombination in the LAr, the de-excitation mechanisms of LAr atoms, sensitivity on the LAr optical parameters and on the LAr purity monitoring will be shown.

Summary

Orateur: LASTORIA, Chiara (CIEMAT)

Classification de Session: GDR Neutrino GT4 session: Accélérateurs, Moyens de détection, R&D et valorisation: (Amphi Charpak)