

LNGS SEMINARS

Two seminars from SABRE collaboration visiting scientists

Francis Froberg, Imperial College (UK)

NaI(Tl) crystals and their scintillation properties in context of the SABRE experiment

Abstract

NaI(Tl) crystals can be used as target for direct dark matter detection experiments. A prominent example is the DAMA/LIBRA experiment, which measured an annual modulation of their event rate that can be interpreted as WIMP signal. Future experiments not only aim to test this result but also plan on using NaI to further explore the low WIMP mass region by using NaI as bolometer. To be usable as dark matter targets, NaI(Tl) crystals have to be as radio-pure as possible, presenting a challenge for the growth process. I will show how SABRE approaches this challenge and show first results. A complete understanding of the scintillation process of the crystal is then important to be able to properly interpret experimental data. This includes for example a quenching factor measurement of Na recoils for different energies, or the temperature dependency of the light yield. Both measurements will be presented in this talk as well.

Elisabetta Barberio, University of Melbourne (Australia)

A Southern Hemisphere prospect on Dark Matter

Abstract

After the Proof of Principle phase, the SABRE experiment aims to run two detectors, one at LNGS and one at the Stawell Underground Physics Laboratory (SUPL) in Australia. The first underground physics laboratory of the Southern Hemisphere will be presented in details together with the SABRE South program.

December 13, 2016 - 2:30 pm
LNGS - "B. Pontecorvo" room