

LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

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INFN - LNGS

***LUCIFER: Low background
Underground Cryogenic
Installation For Elusive
Rates***

Thermal detectors have recently achieved prominence in neutrinoless double beta decay and dark matter searches thanks to excellent energy resolution and the wide range of absorbers materials. In the field of rare events searches, having high resolution detectors in which a very large part of the natural radioactive background can be identified and discriminated with respect to the weak expected signal, results very appealing. This goal can be reached by means of scintillating bolometers, which offer the capability of distinguishing different types of interacting particle in the detector via simultaneous read out of the heat and scintillation signals. The experimental set-up is made of LUCIFER (Low-background Underground Cryogenic Installation For Elusive Rates) is a pilot project, installed at LNGS, for a neutrinoless double beta decay search based on the technology of scintillating bolometers. The prototype aims at achieving possibly a background-free experiment, having a discovery potential comparable with presently funded experiments. We will report on the detectors performances and we will also show some interesting results from recent R&D activities.

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