XVII Workshop on Neutrino Telescopes
Palazzo Franchetti - Venice, 13-17 March 2017

Poster Session
Submission of Abstract

Submitter:

Paolo Carniti, INFN & University of Milano Bicocca, paolo.carniti@mib.infn.it

Author:

Paolo Carniti

Title of the Poster:

Front-end electronics for large arrays of macro-bolometers

Abstract Text: (no longer than 800 characters)

Underground bolometric experiments offer unique opportunities for the study of neutrino-less double beta decay and other rare decays.
Both the current and next generation detectors consist of large arrays of macro-bolometers. In particular, CUORE is the first bolometric experiment reaching the 1-ton scale and it is currently in pre-operation phase. CUPID, CUORE upgrade with particle identification, is also starting its first demonstrator (CUPID-0), with very promising performance.
The readout of such large scale and high sensitivity bolometric detectors poses new challenges for the front-end and detector calibration electronic systems.
In this poster, we will present the strategies, design choices and actual performance of the electronic instrumentation as implemented in CUORE and CUPID-0.

Summary: (no longer than 400 characters. Insert a tag, key word, topic, etc.)

The readout of ton-scale bolometric experiments poses new challenges in the front-end electronics. For such experiments, thermal signals are readout with NTD thermistors, whose biasing and amplification must fulfill very stringent noise and stability requirements. In the present work, design strategies and performance of the front-end electronics for CUORE and CUPID-0 experiments are presented.

Keywords: Neutrino-less double beta decay, bolometer, front-end electronics, NTD readout, low noise electronics, high stability electronics.
Topic: Electronic instrumentations for bolometric experiments

---