Contribution ID: **66** Type: **Oral**

CALDER: cryogenic light detectors for background-free searches

Friday, 26 May 2017 09:20 (20 minutes)

CALDER is a R&D project for the development of cryogenic light detectors with an active surface of 5x5cm^2 and an energy resolution of 20eV RMS for visible and UV photons.
These devices can enhance the sensitivity of next generation large mass bolometric detectors for rare event searches, providing an active background rejection method based on particle discrimination.
A CALDER detector is composed by a large area Si absorber substrate with superconducting kinetic inductance detectors (KIDs) deposited on it.
The substrate converts the incoming light into athermal phonos, that are then sensed by the KIDs.
KID technology combine fabrication simplicity with natural attitude to frequency-domain multiplexing, making it an ideal candidate for a large scale bolometric experiments.
We will give an overview of the CALDER project and show the performances obtained with prototype detectors both in terms of energy resolution and efficiency.

Primary author: Mr DI DOMIZIO, Sergio (University of Genova and INFN)

Co-authors: CRUCIANI, Angelo (INFN); D'ADDABBO, Antonio (INFN); COSMELLI, Carlo (Sapienza Universita' di Roma and INFN); TOMEI, Claudia (INFN); BELLINI, Fabio (Sapienza Universita' di Roma and INFN); COLANTONI, Ivan (Sapienza Universita' di Roma); CARDANI, Laura (INFN); MINUTOLO, Lorenzo (Sapienza Universita' di Roma and INFN); CASTELLANO, Maria Gabriella (IFN-CNR); MARTINEZ, Maria (Sapienza Universita' di Roma and INFN); CASALI, Nicola (INFN)

Presenter: Mr DI DOMIZIO, Sergio (University of Genova and INFN)

Session Classification: Session 6