

## **CALDER: Cryogenic light detectors with excellent resolution for rare event searches**

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Active background rejection can be achieved in next generation bolometric experiments for rare event searches by detecting the light (scintillation or Cherenkov) that follows an energy deposition.

The CALDER (Cryogenic wide-Area Light Detectors with Excellent Resolution) project is part of the R&D activities under development for the upgrade of the CUORE experiment, a ton-scale neutrinoless double beta decay experiment recently started at the Laboratori Nazionali del Gran Sasso (LNGS).

The CALDER goal is to develop large-area high-sensitivity light detectors with a resolution of 20 eV RMS, using phonon-mediated superconducting kinetic inductance detectors (KIDs).

Here we present the latest results obtained with aluminum KIDs and promising measurements done recently with multilayer titanium-aluminum chips

featuring a remarkable sensitivity. Once the target resolution is achieved, in the last phase of the project we plan to

demonstrate the performances of the new light detectors in a small prototype experiment with TeO<sub>2</sub> bolometers at LNGS.

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