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## **Scintillating bolometers: a promising tool for rare decays search**

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The first idea of using a scintillating bolometer was suggested for solar neutrino experiments in 1989. After many years of developments, now we are able to exploit this experimental technique, based on the calorimetric approach with cryogenic particle detectors, to investigate rare events such as Neutrinoless Double Beta Decay and interaction of Dark Matter candidates.

The possibility to have high resolution detectors in which a very large part of the natural background can be discriminated with respect to the weak expected signal, results very appealing. The goal can be achieved by means of scintillating bolometers, which allow to distinguish the different type of interactions in the detector. The simultaneous read-out of the heat and scintillation signals made with two independent bolometers enable this precious feature, leading to possible background free experiment.

In the frame of the LUCIFER project, we report on how exploiting this technique to investigate Double Beta Decay for different isotope candidates. Moreover we demonstrate how scintillating bolometers are suitable for investigating other rare events such as alpha decays of long living isotopes of Lead and Bismuth.

### **quote your primary experiment**

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