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## LUCIFER: Neutrinoless Double Beta decay search with scintillating bolometers

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One of the fundamental open questions in elementary particle physics is the value of the neutrino mass and its nature of Dirac or Majorana particle. Neutrinoless double beta decay (DBD0v) is a key tool for investigating these neutrino properties and for finding answers to the open questions concerning mass hierarchy and absolute scale.

Experimental techniques based on the calorimetric approach with cryogenic particle detectors are proved to be suitable for the search of this rare decay, thanks to high energy resolution and large mass of the detectors. One of the main issues to access an increase of the experimental sensitivity is strictly related to background reduction, trying to perform possibly a zero background experiment.

The LUCIFER (Low-background Underground Cryogenic Installation For Elusive Rates) project, funded by the European Research Council, aims at building a background-free DBD0v experiment, with a discovery potential comparable with the present generation experiments. The idea of LUCIFER is to measure, simultaneously, heat and scintillation light with ZnSe bolometers.

Detector features and operational procedures are reviewed. The expected performance and sensitivity are also discussed.

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