

## The current status of LUCIFER experiment

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The registration of elusive particles requires the use of new high quality detectors with enhanced characteristics. The production of such materials often depends up on the application of dedicated methods for the entire production process from synthesis of raw materials up to the storage and transport of the finished product ready for use for the construction of the particle detector. Scintillating bolometers are among the most promising detectors used in rare event physics, what have clearly demonstrated by the excellent background rejection capabilities that arise from the simultaneous, independent, double readout of heat and scintillation light. Moreover, the bolometric technique allows an extremely good energy resolution.

The main goal of LUCIFER experiment is to build a “background-free” small-scale experiment in order to directly prove the potentiality of this technique for Neutrinoless Double Beta Decay (0νDBD) searches.

The current report reviews scientific and technological aspects related to the Zn82Se enriched scintillating crystal production, and progress in bolometric technique in framework of LUCIFER experiment.

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