

Status of the LUCIFER experiments: results and prospects

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LUCIFER is a Neutrinoless Double Beta Decay experiment based on scintillating bolometers. In addition to the extremely good energy resolution allowed by standard bolometers, this technique combines the heat detection with independent scintillation read-out, resulting in an excellent background reduction capability, as demonstrated by several tests based on bolometers with different DBD sources. Besides attesting the validity of the technique, those measurements, here presented, allow defining the characteristics of the main elements of the LUCIFER detector (main ZnSe absorber, light detector, temperature sensor), showing how the technology is almost ready for the fabrication of the LUCIFER demonstrator as well as for the realization of a much larger next generation experiment to study the isotope Se-82.