

The Direct Search Experiment for Light Dark Matter (DELIGHT): Overview and Perspectives

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Driven by the null results in the searches for dark matter, the field of direct dark matter detection is constantly evolving to push new frontiers. Ultimately, a vast parameter space for dark matter masses below a few GeV is yet to be explored. That said, low mass dark matter candidates necessitate novel detector designs with lower thresholds and alternative target materials compared to e.g., the xenon-based experiments currently providing the strongest overall constraints on many dark matter models.

The Direct search Experiment for Light dark matter (DELIGHT) will deploy a target of superfluid ^4He instrumented with large area microcalorimeters (LAMCALS) based on magnetic microcalorimeter (MMC) technology in a setup optimized for low mass dark matter searches. The talk will present an overview of this novel upcoming experiment, including preliminary background models and sensitivity projections.

Collaboration you are representing

DELIGHT

Author: SOLMAZ, Melih (Heidelberg University)

Presenter: SOLMAZ, Melih (Heidelberg University)

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