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Status and first results of the DAMIC-M experiment

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The DAMIC-M experiment will search for dark matter particles via direct detection using thick, fully depleted silicon charge-coupled devices (CCDs) with a target exposure of 1 kg-year. The CCDs have been enhanced with the skipper readout technology which allows for single electron resolution through multiple non-destructive measurements of the individual pixel charge, lowering the detection threshold to the eV-scale. This experiment aims to significantly advance the exploration of the dark matter particle hypothesis, particularly for leptophilic candidates of the hidden sector with mass in the sub-GeV range.
The Low Background Chamber (LBC) prototype, containing 20g of low background Skipper CCDs, was installed at the Laboratoire Souterrain de Modane at the end of 2021 and is currently in operation. The main objective is the demonstration of the feasibility of skipper CCD technology in a low-background environment and the evaluation of the experimental sensitivity for light dark matter searches. This presentation will discuss the status and the first results of this experiment.

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