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The DAMIC-M Experiment: Status and First Results

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The DAMIC-M (DARk Matter In CCDs at Modane) experiment employs thick, fully depleted Si charged-coupled devices (CCDs) to search for dark matter particles with a target exposure of 1 kg-year. A novel skipper readout implemented in the CCDs provides single electron resolution through multiple non-destructive measurements of the individual pixel charge, pushing the detection threshold to the eV-scale. DAMIC-M will advance by several orders of magnitude the exploration of the dark matter particle hypothesis, in particular of candidates pertaining to the so-called “hidden sector.” A prototype, the Low Background Chamber (LBC), with 20g of low background Skipper CCDs, has been recently installed at Laboratoire Souterrain de Modane and is currently taking data. We will report the status of the DAMIC-M experiment and first results obtained with LBC commissioning data.

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