



Contribution ID: 1021

Type: **Parallel Talk**

Status of the DAMIC-M dark matter experiment

Saturday, 9 July 2022 09:40 (20 minutes)

The DAMIC-M (Dark Matter In CCDs at Modane) experiment will use n-type Si skipper CCDs, fully depleted, with a total target mass of about one kilogram. Four individual silicon plates of 6k x 1.5k pixels will be placed in each holder making a total of around 200 CCDs. The skipper amplifier readout allows for several non-destructive measurements of the individual pixel charge, reducing the detection resolution to single electron and thus pushing the energy threshold to the eV-scale. With a significantly larger exposure and lower energy threshold, 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 25g of low background Skipper CCDs, has been recently installed at LSM and is currently taking data. We will report the status of the DAMIC-M experiment, CCD performance and calibration and first results with LBC commissioning data.

In-person participation

No

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Session Classification: Dark Matter

Track Classification: Dark Matter