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## Using scientific-grade CCDs for the direct detection of dark matter with the DAMIC-M experiment

The DAMIC-M experiment, successor of the DAMIC at SNOLAB, is devoted to the exploration of the hidden sector and the search for light WIMPs interacting with the electrons or the nucleus of the bulk silicon of fully depleted Charge-Coupled Devices (CCDs). A kilogram-sized target mass will be installed at the Modane underground laboratory which offers an excellent low background environment for rare-event search.

The implementation of the Skipper readout allows for multiple non-destructive pixel charge measurements, reaching a readout noise of a fraction of an electron. This perfect performance in terms of charge resolution can be limited by the radioactive background and the noise introduced by the external electronics. Much effort is put into the protection of the silicon from contamination by cosmic ray spallation, careful choice of the materials to support and shield the CCDs, and development of a new acquisition system with fast and sensitive electronics for the control and readout of a CCD. All these advancements will push the detection threshold down to a few eVs, improving the sensitivity of DAMIC-M by at least one order of magnitude better than previous experiments.

I will present the current status of DAMIC-M describing our technological challenges and the solutions we have adopted, and introduce the ongoing assembly of a prototype detector, the Low Background Chamber, aiming at validating our final design options and produce the first scientific results.

### Primary experiment

DAMIC-M

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**Track Classification:** Dark matter and other low-background experiments