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The Search for Light Dark Matter with DAMIC

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The DAMIC (Dark Matter in CCDs) experiment employs the bulk silicon of scientific-grade charge coupled devices (CCDs) to detect dark matter particles. Since 2017, DAMIC has operated a seven-CCD detector (40-gram target mass) installed in a low radiation environment in the SNOLAB underground laboratory. The CCDs have excellent energy and spatial resolutions, low-energy threshold and unique capability to identify surface and bulk radioactive backgrounds. The DAMIC-M Experiment, the next phase of the program, will be installed at the Laboratoire Souterrain de Modane in France. It will feature a kg-size silicon target consisting of ultra low-noise CCDs, and will probe a broad range of low-mass dark matter particles. DAMIC-M CCDs feature a new specialized Skipper readout and have unprecedented single electron resolution resulting in a detection threshold as low as 2 ionized electrons. I will present results from the DAMIC Experiment at SNOLAB, and will review key development efforts of DAMIC-M, including the characterization of our first batch of 24 mega-pixel Skipper CCDs, the largest ever built.

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