

Results with Low Background Chamber, a DAMIC-M prototype

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The DAMIC-M (Dark Matter In CCDs at Modane) experiment employs a novel technique to search for the elusive particles which make up most of the matter in the universe, called dark matter. The aim is direct detection of light dark matter (WIMPs, Hidden Sector Particles) via interaction with silicon in the bulk of the CCDs (Charged Coupled Devices). These CCDs use skipper amplifiers to non-destructively measure charge multiple times to provide single electron resolution, pushing our detection threshold to a few eVs.

The LBC (Low Background Chamber), a prototype detector of DAMIC-M, containing 20g target silicon CCDs, was commissioned near the end of 2021 at the Laboratoire Souterrain de Modane. After two successful science runs, LBC was able to set unparalleled exclusionary limits on dark matter-electron scattering interactions. The LBC was utilized to study the background rates and to compare them with simulations, which gives us a clear pathway for further mitigation of background. This talk would focus on the first results and background analysis with the prototype LBC.

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Classifica Sessioni: Parallel 1

Classificazione della track: Parallel session: Light Dark Matter