

The Light Dark Matter eXperiment at 8 GeV

Friday 19 July 2024 15:21 (17 minutes)

The natural scenario where dark matter originates from thermal contact with familiar matter in the early universe requires the DM mass to lie within about MeV to 100 TeV. Considerable experimental attention has been given to exploring WIMPs in the upper end of this range, while the sub-GeV region is largely unexplored, even though a thermal origin for dark matter works in a predictive manner in this mass range as well. It is therefore an exploration priority. If there is such an interaction between light DM and ordinary matter, then there necessarily is a production mechanism in accelerator-based experiments. The Light Dark Matter eXperiment (LDMX) is a planned electron-beam fixed-target missing-momentum experiment with unique sensitivity to sub-GeV light DM. This contribution will discuss the background rejection capabilities and the projected sensitivities of the experiment after an accelerator upgrade from 4 to 8 GeV beam energy, where most of LDMX's data will be collected.

Alternate track

I read the instructions above

Yes

Author: WALLIN, Erik (Lund University (SE))

Presenter: WALLIN, Erik (Lund University (SE))

Session Classification: Dark Matter

Track Classification: 09. Dark Matter Detection