Contribution ID: 43

Type: Parallel talk

## Investigating Dark Matter Electromagnetic Moments Using the Migdal Effect

Recently, the Migdal effect has been used along with nuclear direct detection experiments to constrain dark matter models in the sub-GeV region, providing a complementary approach to electron and standard nucleus scattering analyses. By utilizing the Migdal effect with data from the XENON1T and DarkSide-50 experiments, we constrained the electromagnetic interactions of dark matter with visible matter. Our findings show that these limits set the strongest constraints on dark matter at the GeV scale. Additionally, we calculated the electromagnetic interactions of a fermionic dark matter candidate in a leptophilic model and used direct detection data to set limits on the underlying parameter space, highlighting the complementarity between collider and direct detection searches.

Track type

Dark Matter

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Session Classification: Plenary