

Exploiting experimental data to constrain exotic dark matter scenarios

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Summary

“In the search of dark matter (DM), understanding the implications for several theory DM scenarios is an important task. It therefore is interesting to ask how to maximally use the experimental information in order to best constrain/rule out DM properties.

In this talk, I exemplify this philosophy with two different scenarios. I investigate the indirect detection signatures for DM annihilating to long-lived mediators. I detail the formalism to calculate the anisotropy of the decay of such long-lived mediator that can be utilised at indirect detection experiments.

In the second part of my talk, I sketch the constraining power of future low threshold direct detection experiments for DM interactions involving light mediators. I understand the improvement in parameter reconstruction by combining data from several different experiments.

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Session Classification: Light Dark Matter and Light Mediators