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Prospects and challenges for dark sectors with heavy fermions

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Portal sectors, in the form of new fermions and scalars beyond the Standard Model, are among the simplest possibilities connecting the Standard Model to dark matter. However, minimal realizations of this idea often lead to troublesome cosmological histories or are in tension with dark matter detection experiments. I will discuss possible solutions to these issues in the context of dark matter portal models with heavy fermions, and their related collider signatures which offer complementary and testable probes of these scenarios. Solutions involving mixing of heavy fermions with Standard Model fermions through new scalars also lead to indirect tests from future precision measurements.

In-person participation

Yes

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