

Exploring dark matter models with global fits

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The nature of Dark Matter is one of the most fundamental questions of our day, and many new physics models have been developed to accommodate it. In spite of the considerable amount of experiments built to detect Dark Matter particles, none of them have yet provided significant evidence, and thus many of the models of dark matter are severely constrained. Understanding the status of these models in light of the experimental data then becomes a daunting task of exploring systematically and thoroughly their parameter spaces. Global fits are thus the ultimate strategy for this goal, as they provide efficient sampling of multidimensional parameter spaces and combine all constraints in a rigorous statistical manner. In this talk I will present the results of global studies on various models of dark matter: Higgs portal models, simplified models and an effective field theory of dark matter.

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