

Revisiting the scotogenic model with scalar dark matter

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There are many models trying to explain some of the main current questions in physics. The scotogenic model presents both an explanation to neutrino masses and provides a dark matter candidate that can be a scalar or a fermion. In this work we focus on a real scalar as the dark matter candidate which is generated in a thermal freeze-out scenario. We study the parameter space of the model contrasting our results with the most recent signatures presented by the experiments for dark matter relic abundance, direct and indirect detection. We find regions in the parameter space that explain the total dark matter abundance below 500 GeV for the mass of the dark matter that are correlated with the presence of long-lived particle signals at colliders and we discuss different signatures for its detection.

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