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Constraining Inert Triplet Dark Matter by the LHC and FermiLAT

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We study collider phenomenology of inert triplet scalar dark matter at the LHC.
We discuss possible decay of Higgs boson to dark matter candidate and apply current experimental data for invisible Higgs decay and $R_{\gamma\gamma}$ to constrain parameter space of our model. We also investigate constraints on dark matter coming from forthcoming measurement, $R_{Z\gamma}$ and mono-Higgs production. We analytically calculate the annihilation cross section of dark matter candidate into 2γ and $Z\gamma$ and then use FermiLAT data to put constraints on parameter space of Inert Triplet Model. We found that this limit can be stronger than the constraints provided by LUX experiment for low mass DM.

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