

Phenomenology of b -associated TeV scale scalar production with baryon-number violation in $t\phi$ final states at the LHC

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Minimal non-thermal dark matter models are an attractive type of model, since they can potentially explain both the existence of dark matter as well as the baryon asymmetry in the universe. In this presentation, I focus on a type of model with two color-triplet iso-singlet scalars at TeV scale masses and a singlet Majorana fermion dark matter candidate at the GeV scale. A phenomenological study of a BDT-driven search for such a model is presented in the semi-leptonic top decay final state at the LHC with Delphes. It is compared to the current best limits of boosted monotop analyses in reach. Further possible improvements with boosted algorithms like SIFT in complementary fully-hadronic decay channels will be discussed.

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