



Dark Matter Relic and Its Implications on the Underground Laboratory and LHC Search

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Dark matter (DM) search is one of the major goals in the modern physics. An eligible dark matter candidate may reproduce the correct relic inferred from astrophysical observations, e.g. WMAP experiment. It may also be compatible with the null results on dark matter direct detection performed in the underground laboratories by measuring events of nuclei recoil as scattered by the halo dark matter, e.g. XENON experiment. Due to weakly interacting, dark matter particles produced at colliders involve missing momentum and this increase the mono-jet plus missing E_T events. But so far there is no deviation from SM prediction found with the now accumulated luminosity, e.g. LHC experiment. Alternative to the recent effective operator study shows it is hard to compatible with relic and collider search simultaneously. Here we study a dark sector consists of DM fermion and scalar mediator with a mediator kinematics details kept. We display viable parameter space in terms of these two exotic particle masses which satisfy various experimental data.

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