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Dark Matter From Weak Polyplets

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Abstract:

We consider the addition of new fermion multiplets charged under the Standard Model gauge group, with the aim of finding a viable dark matter candidate. These fermions are charged under $SU(2) \times U(1)$; their quantum numbers are determined by requiring anomaly cancellation and that their masses arise via Yukawa couplings with the SM Higgs boson. Constraints from colliders, electroweak precision measurements, and dark matter direct detection experiments are considered. We find that this model can contain a viable candidate for dark matter.

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