

Abstract Submitted
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Collider and Direct Detection Limits on Effective WIMP Dark Matter JEFFREY HUTCHINSON, Florida Gulf Coast University, KARA FARNSWORTH, Case Western Reserve University — We analyze the limits from the 36 fb^{-1} ATLAS jets and missing transverse momentum search, direct detection limits from XENON1T, and projected detect detection limits from XENON, LZ, and DARWIN on Effective WIMP dark matter, a minimal extension to the standard model with thermal relic dark matter. This dark matter is a gauge singlet which couples to the standard model through a renormalizable coupling to quarks and a new quark partner particle. Within this framework, we consider six models where dark matter is either a real scalar boson, complex scalar boson, Majorana fermion, Dirac fermion, real vector boson, or complex vector boson. The observed dark matter abundance is used as a constraint on the model to reduce the parameter space down to the dark matter and partner masses. Direct detection searches rule out complex scalar and Dirac dark matter where the coupling is perturbatively small. Collider limits are the primary constraint on the other models, ruling out dark matter masses under roughly 1-2 TeV and partner masses under roughly 2-5 TeV with a loss of sensitivity near the degeneracy of the masses and additional sensitivity for light dark matter.

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