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Searching for Singlet Majorana dark matter.

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We are searching the Singlet Majorana dark matter (DM) by using constraints from relic density, colliders (LHC and LEP), DM direct detection, and DM indirect detection. By the means of effective field theory (EFT), we write down several kinds of higher dimensional operators and show the allowed parameter space by current experiments in DM mass and cut-off scale plane. Furthermore, we also try to explore the parameter space where EFT is invalid. We propose a method to fix this problem by connecting the EFT with several simplified models, which allows us to make a robust prediction on DM collider signals.

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