

Moduli Portal Dark Matter

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Supergravity and string theories usually have particles, such as a modulus, with only gravitational interactions. These moduli fields arise due to the flat directions in the above theories. We inspect the possibility that these moduli fields acting as a mediator between the dark sector and the Standard Model, from an effective field theory perspective. We show that in this scenario, dark matter can be efficiently produced via freeze-in mechanism during the reheating epoch. We delineate the regions where this portal is efficient by varying the modulus mass relative to the temperatures attained during the reheating process.

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