

Spin-2 Portal Dark Matter

We generalize models invoking a spin-2 particle as a mediator between the dark sector and the Standard Model. We show that a massive spin-2 messenger can efficiently play the role of a portal between the two sectors. The dark matter is then produced via a freeze-in mechanism during the reheating epoch. In a large part of the parameter space, production through the exchange of a massive spin-2 mediator dominates over processes involving a graviton with Planck suppressed couplings. We perform a systematic analysis of such models for different values of the spin-2 mass relative to the maximum and the final temperature attained at reheating.

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