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Updating constraints on the decaying dark matter scenario

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The stability of particles in the cosmic soup is an important property as it governs their evolution in the cosmos, both on the perturbation and on the background level. In this work, we update the constraints on the decay rate of decaying cold dark matter (DCDM), particularly in the case when decay products are dark and massless or well within the relativistic limit. We further assume, as a base case, that all dark matter is “decayable”. We then extend the analysis to include the scenario where only a fraction of dark matter can decay. We consider the latest dataset of Planck temperature and polarization measurement with lensing and BAO measurements from SDSS to put significantly tighter constraints on the decay rate, compared to previous work in the same direction.

In-person participation

Yes

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