

Relic density at NLO: the thermal corrections

Friday 29 July 2016 11:30 (15 minutes)

Summary

In recent years there has been an increasing interest in computations of the dark matter thermal relic density beyond the leading order in perturbation theory. In this talk we point out that the standard calculation, based on solving the Boltzmann equations, at NLO suffers from a temperature-dependent IR divergence. In an example model we show how both soft and collinear temperature-dependent divergences cancel when the collision term is instead computed in the thermal field theory formalism. We also discuss the remaining finite temperature-dependent correction and its interpretation within the EFT framework.

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