

# String core effect on the axion dark matter abundance

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The axion is a hypothetical particle arising from the spontaneous breaking of a global Peccei-Quinn (PQ) symmetry, which has been introduced to solve the strong CP problem of quantum chromodynamics. Due to the weakness of the coupling with ordinary matters, it is also regarded as a good candidate of dark matter of the universe. However, the estimation of the axion dark matter abundance is not so straightforward if the PQ symmetry is restored and broken after inflation, since in this case we have to analyze the production from the decay of hybrid networks of topological defects called the string-wall systems. In this talk, I will focus on some recent developments of the theoretical estimation of the axion dark matter abundance in the post-inflationary PQ symmetry breaking scenario. In particular, I will highlight a problem of the string core effect, which was overlooked in previous studies and may have a potentially large impact on the estimate of the relic axion dark matter abundance.

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