

Future targets for light gauge bosons from cosmic strings

Friday, 31 May 2024 17:40 (5 minutes)

Cosmic strings, theoretical one-dimensional topological defects from the early universe, are a compelling source for studying dark matter production and gravitational wave (GW) emission. In this talk, I will focus on the production of gauge bosons and GW emission resulting from the decay of cosmic strings, discussing the constraints imposed by cosmological considerations. Specifically, I will examine the contribution of gauge bosons radiated from strings to dark matter and dark radiation respectively, which are strictly limited by the observed dark matter abundance and Cosmic Microwave Background data respectively. Moreover, I will assess the GW spectrum of this model against the forecasted capabilities of future GW observatories, with a particular emphasis on the Laser Interferometer Space Antenna. Following that, I will provide an overview of how these considerations influence the model parameters, specifically the gauge boson mass and the energy scale of U(1) symmetry breaking, offering insights into the potential for cosmic strings to inform our understanding of dark matter and GW astronomy.

Paper info

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