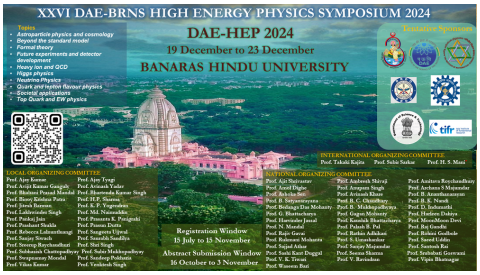

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One-Loop Leptogenesis: Unraveling Extra CP Phases Incorporating Dark Sectors

One-Loop Leptogenesis: Unraveling Extra CP Phases Incorporating Dark Sectors

Despite the success of the Standard Model (SM), the observed baryon asymmetry (BA) of the Universe remains an unresolved issue, motivating exploration beyond the Standard Model (BSM). The leptogenesis mechanism provides a plausible explanation, proposing that an asymmetry generated in the lepton sector is transferred to baryons through sphaleron processes. However, the traditional leptogenesis mechanism typically involves high-energy scales, posing challenges for experimental detection. This work investigates how introducing additional phases can lower the required energy scale, enabling us to explore relevant collider signatures at the 13 TeV LHC. Additionally, we discuss the implications for dark matter phenomenology, offering a more accessible experimental framework for probing baryogenesis.

Field of contribution

Phenomenology

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