IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 2, July 2024

Early Universe Astroparticle Dynamics: A Theoretical Perspective

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Abstract: *The study of astroparticle dynamics in the early universe is critical for understanding fundamental questions about the origin and evolution of the cosmos. This research explores the interplay between particle physics and cosmology during the first few seconds after the Big Bang, focusing on topics such as inflation, baryogenesis, dark matter production, and neutrino decoupling. We provide a theoretical overview of the mechanisms governing these phenomena and highlight their observational signatures in the cosmic microwave background (CMB) and large-scale structure*

Keywords: Early Universe, Astroparticle Physics, Cosmic Inflation

DOI: 10.48175/568