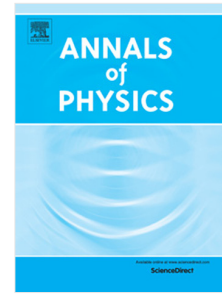


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Inflationary universe in the presence of a minimal measurable length

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Abstract

In this paper, we will study the effect of having a minimum measurable length on inflationary cosmology. We will analyze the inflationary cosmology in the Jacobson approach. In this approach, gravity is viewed as an emergent thermodynamical phenomena. We will demonstrate that the existence of a minimum measurable length will modify the Friedmann equations in the Jacobson approach. We will use this modified Friedmann equation to analyze the effect of minimum measurable length scale on inflationary cosmology. This analysis will be performed using the Hamiltonian-Jacobi approach. We compare our results to recent data, and find that our model may agree with the recent data.

1. Introduction

It is known that a connection exists between the thermodynamics and gravity. This connection was first investigated in the works of Bardeen, Carter and Hawking [4]. In this work, it was suggested that an analogy exists between the laws of thermodynamics and gravitational physics. However,

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