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QUANTUM ENTANGLEMENT AND COSMIC INFLATION: THE POTENTIAL OF A MULTIVERSE

Abstract

The concept of the multiverse has fascinated scientists for decades, with the idea that there may be multiple universes or alternate realities coexisting with our own. Recent developments in quantum entanglement and cosmic inflation have opened up the possibility of a multiverse. Quantum entanglement is a peculiar phenomenon in which particles become connected in such a way that the state of one particle is dependent on the state of the others, even if they are separated by a great distance. This phenomenon has significant implications for our comprehension of the fundamental nature of reality and may provide hints to the existence of a multiverse. Cosmic inflation theory, formulated in the 1970s and 1980s, explains how the universe underwent a rapid expansion immediately following the Big Bang, increasing dramatically in size and smoothing out any irregularities in its early structure. This concept is supported by evidence from cosmic microwave background radiation and the large-scale distribution of galaxies. By studying the possibility of a multiverse utilizing quantum entanglement, the existence of multiple universes can be revealed. This analysis examines the most recent advancements in quantum mechanics, inflationary cosmology, and string theory to shed light on the intriguing topic of the multiverse. The implications of a multiverse for our comprehension of the universe and ourselves are also considered. Despite the fact that there is still much to discover about the nature of the multiverse and quantum entanglement, the findings suggest that investigating these phenomena is a critical step in unraveling the mysteries of our universe.