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Inflation from Purgatory

Abstract

In this talk, we revisit motivation from String Theory for new phases of cosmology – prior to inflation. Cosmic inflation offers a causal way to predict initial conditions for the growth of structure and density fluctuations in the cosmic microwave background and large scale structure formation. However, asymptotic deSitter space possesses a past cosmological (physical) singularity implying the theory cannot be complete. In this talk, I will discuss how investigations into QCD led to an idea that could prevent the past singularity, or at least give a way to calculate predictions precisely on curved space-time backgrounds. This paradigm would lead to cosmologies that do not begin (Big Bang) or repeat (Ekpyrotic / Cyclic scenario) but instead begin from sitting around – a period of “lingering”, as inspired by Lemaître, Hagedorn, and COVID.