



Contribution ID: 182

Type: not specified

## On the cosmological constant appearing as an initial condition for inflationary models

*Tuesday, July 11, 2023 3:00 PM (1h 20m)*

It's known that some FLRW inflationary models admit spacetime extensions through the big bang. For  $k = -1$  FLRW spacetimes, they are known as "Milne-like spacetimes." For  $k = 0$  FLRW spacetimes, they are known as "past-asymptotically de Sitter" spacetimes. In both cases, a new set of coordinates shows that the big bang is a coordinate singularity for these spacetimes, and, in both cases, the cosmological constant appears as an initial condition, i.e. the equation of state for the energy density and pressure takes the form of a cosmological constant precisely at the big bang for these models. In this talk, we generalize this fact to nonhomogeneous versions of these spacetimes by exploring the geometry of the big bang in the spacetime extension. This has applications to inflationary theory for nonhomogeneous FLRW models. This is joint work with Ghazal Geshnizjani and Jerome Quintin.

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