

Indeterminacy in Classical Cosmology with Dark Matter

Saturday, June 17, 2023 9:00 AM (30 minutes)

We describe a case of indeterminacy in general relativity for homogeneous and isotropic cosmologies for a class of dark energy fluids. The cosmologies are parametrized by an equation of state variable, with one instance giving the same solution as Norton's mechanical dome. Our example goes beyond previously studied cases in that indeterminacy lies in the evolution of spacetime itself: the onset of the Big Bang is indeterminate. We show further that the indeterminacy is resolved if the dynamics is viewed relationally.

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