

The Geometrical Destabilization of Inflation

I will describe the consequences of a recently discovered instability at play in the early universe. The so-called Geometrical Destabilization of inflation is a general mechanism by which the curvature of the field space of inflationary models can dominate the stabilizing forces from the potential and destabilize inflationary trajectories. This instability is present in lots of concrete inflationary models in high-energy physics, although it is often overlooked, and potentially affects all of them. This phenomenon can prematurely end inflation, thereby leading to important observational consequences and sometimes excluding models that would otherwise perfectly fit the data. More generally, it radically modifies the interpretation of cosmological observations in terms of fundamental physics. I will also explain how the Geometrical Destabilization can lead to powerful selection criteria on the internal geometry of high-energy physics models.

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