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## Kination in String Theory

*Thursday 6 July 2023 17:15 (15 minutes)*

I will discuss some theoretical and phenomenological implications of a string theory-inspired, cosmological phase of kination, dominated by the kinetic energy of a rapidly rolling scalar. In the first part of the talk, I will describe how such a kination epoch can naturally arise in string compactifications after inflation, focusing on the case where it is driven by the volume modulus. I will also show how a phase of volume kination for approximately no-scale vacua (such as LVS) can be uplifted to a classical Kasner solution in 10d where the non-compact dimensions collapse towards a Big Crunch, in contrast with the standard picture of decompactification limits. In the second part of the talk, I will discuss possible solutions to the “overshoot problem”, which takes place if the kinating scalar is able to overcome the barrier separating the vacuum from runaway directions. I will show how, assuming a sufficiently large hierarchy between the inflationary scale and the weak scale, initial seed radiation will be enough to locate the system to a tracker solution where the problem is avoided. This can be regarded as an anthropic argument for a large inflation/weak hierarchy.

**Presenter:** REVELLO, Filippo

**Session Classification:** Parallel