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Starting low energy scale inflation in closed universes.Title: Onset of Starobinsky inflation in spatially closed FLRW model

Abstract: Recent CMB data favors a spatially closed FLRW model and low energy inflation such as sourced by the Starobinsky potential. An age old problem with the latter models is that they result in a recollapse of the universe and a big crunch singularity before inflation can even set in. To resolve this problem it is essential to work with a framework which is non-singular. We explore the resolution of this problem in loop quantum cosmology where results in the last decade suggest a generic resolution of singularity. We show that quantum gravity effects result in an onset of inflation even for those initial conditions where it is classically impossible. Interestingly, a key role is played by a hysteresis-like phenomena in the early universe resulting from non-singular dynamics