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Hexu Zhang "Dynamical realization of the small field inflation black of Coleman-Weinberg type in the post supercooled universe,"

Thursday, 9 November 2023 15:35 (25 minutes)

The small field inflation (SFI) of Coleman-Weinberg (CW) type suffers from precise tuning of the initial inflaton field value to be away from the true vacuum one. We propose a dynamical trapping mechanism to solve this problem: an ultra-supercooling caused by an almost scale-invariant CW potential traps the inflaton at the false vacuum, far away from the true vacuum dominantly created by the quantum scale anomaly, and allows the inflaton to dynamically start the slow-roll down due to a classical explicit-scale breaking effect. To be concrete, we employ a successful CW-SFI model and show that the proposed mechanism works consistently with the observed bounds on the inflation parameters. The proposed new mechanism thus provides new insights for developing small field inflation models.

Session Classification: Short talks