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Quasi-scale invariant inflationary attractors

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Recently Kallosh, Linde, and collaborators have provided a unified description of single-field inflation in terms of just one parameter α . These so-called α -attractors predict a spectral index n_s and a tensor-to-scalar ratio r , which are fully compatible with the latest Planck data. The only common feature of all α -attractors is a non-canonical kinetic term with a pole, and a potential analytic around the pole.

Starting from the same Einstein frame with a non-canonical scalar kinetic energy, we explore the case of non-analytic potentials and find that they all correspond to quasi-scale invariant gravitational models in the Jordan frame, characterised by a universal relation between r and n_s that fits the observational data but is clearly distinct from the one of the α -attractors.

Since the breaking of the exact classical scale-invariance in the Jordan frame can be attributed to one-loop corrections, we desume that non-analytic potentials in the non-canonical Einstein frame are physically equivalent to an entire class of models in the Jordan frame, with scale-invariance softly broken by one-loop quantum corrections.

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