

Dynamical de Sitter conjecture and its applications to quintessence

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The de Sitter conjecture yields a severe bound on scalar potentials for a consistent quantum gravity. We extend the de Sitter conjecture by taking into account the kinetic term of the scalar field. We then apply such an extended de Sitter conjecture to a quintessence model of inflation for which dynamics of the scalar field is essential, and obtain an allowed region for parameters of the scalar potential wider than previously considered. The new bounds in the swampland conjecture could have implications in several situations to construct compactification models.

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