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Inflation from Supergravity with Gauged R-symmetry in de Sitter Vacuum

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We study the cosmology of a recent model of supersymmetry breaking, in the presence of a tuneable positive cosmological constant, based on a gauged shift symmetry of a string modulus that can be identified with the string dilaton. The minimal spectrum of the 'hidden' supersymmetry breaking sector consists then of a vector multiplet that gauges the shift symmetry of the dilaton multiplet and when coupled to the MSSM leads to a distinct low energy phenomenology depending on one parameter. Here we study the question if this model can also lead to inflation by identifying the dilaton with the inflaton. We find that this is possible if the Kahler potential is modified by a term that has the form of NS5-brane instantons, leading to an appropriate inflationary plateau around the maximum of the scalar potential, depending on two extra parameters. This model is consistent with present cosmological observations without modifying the low energy particle phenomenology associated to the minimum of the scalar potential. Talk based on hep-ph/1608.02121.

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