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Dynamical analysis of cosmological models with non-Abelian gauge vector fields

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We study some models where non-Abelian gauge vector fields endowed with a SU(2) group representation are the unique source of inflation and dark energy. These models were first introduced under the name of gauge-flation and gaugessence, respectively. Although several realizations of these models have been discussed, not all available parameters and initial conditions are known. In this work, we use a dynamical system approach to find the full parameter space of the massive version of each model. In particular, we found that the inclusion of the mass term increases the length of the inflationary period. Additionally, the mass term implies new behaviours for the equation of state of dark energy allowing to distinguish this from other prototypical models of accelerated expansion. We show that an axially symmetric gauge field can support an anisotropic accelerated expansion within the observational bounds.

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