

LambdaCDM-like evolution in Einstein-scalar-Gauss-Bonnet gravity

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Recently, a Modified Gravity Theory named Einstein-scalar-Gauss-Bonnet (EsGB) gravity, a string-inspired theory that admits a coupling between an extra scalar field and the Gauss-Bonnet invariant, has been gaining some attention due to its rich phenomenology. Motivated by its theoretical advancements, we explored the cosmology of the theory in a model-independent manner by using the dynamical systems formalism. We show that this theory admits LambdaCDM-like solutions, that is, solutions that are consistent with the Planck data and the weak-field solar system dynamics while keeping both the extra scalar field and the coupling term finite and regular throughout the entire cosmological evolution. As a result, EsGB gravity may appear indistinguishable from the standard LambdaCDM model at the background level, and, therefore, its differences from General Relativity emerge only under certain conditions, which we will briefly discuss.

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