De Sitter and Power-law Solutions in Non-local Gauss-Bonnet Gravity

The cosmological dynamics of a non-locally corrected gravity theory, involving a power of the inverse d'Alembertian, is investigated. Casting the dynamical equations into local form, the fixed points of the models are derived, as well as corresponding de Sitter and power-law solutions. Necessary and sufficient conditions on the model parameters for the existence of de Sitter solutions are obtained. The possible existence of power-law solutions is investigated, and it is proven that models with de Sitter solutions have no power-law solutions. A model is found, which allows to describe the matter-dominated phase of the Universe evolution.

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