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Mr. CONTILLO, Adriano (SISSA Trieste): Inflationary solutions in asymptotically safe f(R) theories

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Power-law inflationary solutions obtained from Renormalization Group improvement of a class of f(R) theories recently studied in the context of asymptotic safety scenario are discussed. The higher-order gravity dynamics encode the dimensional scaling around the non-gaussian fixed point coming from the beta functions of a polynomial Lagrangian up to order n=8 in the scalar curvature R. By means of a dynamical identification of the energy scale of the renormalization group equation, it is then found that power-law inflation is a rather general prediction of RG improved cosmologies in this truncation. DeSitter solutions are also obtained in the case of pure gravity, and it is shown that they can be read as a limit case of the above mentioned power-law solutions.

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