

# Polynomial Inflation

*jeudi 2 juin 2022 16:30 (20 minutes)*

Monomial inflationary models have been ruled out by latest B-mode experiments. In this talk, I will show that a simple and well motivated polynomial of degree four can nevertheless fit comfortably well current CMB data. The model predicts a running of the spectral index  $\alpha \sim -10^{-3}$ , which is testable by next generation CMB experiments. A full model parameter space was obtained by considering BBN constraint on reheating temperature and radiative stability. The inflationary scale can be as low as  $H_{\text{inf}} \sim 1$  MeV, or as high as  $\sim 10^{10}$  GeV. Similarly, the reheating temperature can lie between its lower bound of  $\sim 4$  MeV and about  $4 \times 10^8$  ( $10^{11}$ ) GeV for fermionic (bosonic) inflaton decays. The model is renormalizable and very simple, which can be easily extended for post-inflationary production of dark matter and leptogenesis.

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