

# Generality of inflation in observation motivated inflationary models

Alexey Toporensky  
Sternberg Astronomical Institute  
Russia

Recent observational results indicate that a viable model for a minimally coupled scalar field requires a very flat scalar field potential. We reconsidered the generality of inflation for such potentials and get initial conditions good for inflation. In contrast to well-known massive and self-interacting cases, now zero scalar field initial conditions can be good for inflation when the kinetic term initially dominates.

Alternatively, there are viable inflation models without scalar field. The most popular case is Starobinsky inflation in quadratic gravity. We study numerically corresponding equations of motion and find initial conditions leading to Starobinsky inflation directly in Jordan frame. This result is further generalized to initial conditions with a non-zero shear, as well as for theories with the square of the Weyl tensor in the action.