

Reconstruction of inflationary models from the power spectrum of primordial density perturbations

Alexei A. Starobinsky
Landau Institute for Theoretical Physics RAS
Moscow-Chernogolovka, Russia

Quantitative information about details of inflation obtained from recent CMB observational data on the primordial spectrum of scalar (density) perturbations suggests going further and reconstructing inflationary models phenomenologically using some additional assumptions, mainly aesthetic ones, about the form of the spectrum in the region of smaller scales. I remind an old result about the reconstruction of the inflaton potential in General Relativity, obtained without expanding the power spectrum in a power series at some scale, and generalize it to the case of $f(R)$ gravity. Predictions for the tensor-to-ratio following from the simplest and most elegant assumptions are summarized.