2001 Vol.35 No.1 pp.125-128 DOI:

Allowed Parameter Regions for a Tree-Level Inflation Model

MENG Xin-He

National Astronomical Observatory, The Chinese Academy of Sciences, Beijing 100012, China
Department of Physics, Nankai University, Tianjin 300071, China
CCAST (World Laboratory), P.O. Box 8730, Beijing 100080, China
Department of Physics, Lancaster University, Lancaster, LA1 4YB, U.K.
(Received: 1999-9-8; Revised: 1999-12-22)

Abstract: The early universe inflation is well known as a promising theory to explain the origin of large-scale structure of universe and to solve the early universe pressing problems. For a reasonable inflation model, the potential during inflation must be very flat, at least, in the direction of the inflaton. To construct the inflaton potential all the known related astrophysics observations should be included. For a general tree-level hybrid inflation potential, which is not discussed fully so far, the parameters in it are shown how to be constrained via the astrophysics data observed and to be obtained to the expected accuracy, and to be consistent with cosmology requirements.

PACS: 98.80.Cq, 98.80.k, 98.80.Bp, 04.20.Jb, 47.40.Hg
Key words: inflation, parameter region, large-scale structure, COBE power normalization, spectral index, tree-level model

[Full text: PDF]

Close