

Abstract Submitted
for the CAL10 Meeting of
The American Physical Society

The Big Bang and Inflation United by an Analytic Solution SHIH-HUNG CHEN, Arizona State University, ITZHAK BARS, University of Southern California — Inflation can solve many cosmological problems such as the horizon and the flatness problem. It also provides a natural mechanism of generating primordial perturbation. Introducing homogeneous scalar field “inflaton(s)” is a common way of generating inflation, however, even the dynamics of the simplest inflation model (single inflaton, canonically normalized, minimally coupled to gravity) is difficult to solve. This is because the equations of motion are second order coupled nonlinear differential equations. These equations are usually approached by approximation or numerical method. In this talk I will introduce an inflation model inspired by 2T-Physics where the dynamics of the background evolution can be solved analytically. This solution provides a natural starting point of the universe and provides a specific time after the Big Bang when inflation starts. The analytic background solution also helps us solving the perturbation equation (Mukhanov equation) more accurately. The proposed model although interesting but is still lacking a mechanism of stopping the inflation. The future directions of improving this model will be pointed out at the end of this talk.

Shih-Hung Chen
Arizona State University

Date submitted: 01 Oct 2010

Electronic form version 1.4