

INITIAL CONDITIONS FOR INFLATION

PARIS January 23 & 24, 2014

Amphithéâtre Pierre-Gilles de Gennes
Bâtiment Condorcet Université Diderot Paris

ABSTRACTS

Martin BUCHER, APC Diderot University Paris France

Title: Planck 2013: The Straight Dope and Future Prospects

Mafalda DIAS, University of Sussex Brighton United Kingdom

Title: Multifield inflation from subhorizon until the conservation of zeta

Abstract:

The presence of more than one active scalar field is a common characteristic of models of inflation built from an underlying high energy theory. The phenomenological consequences of many fields are such that computing the primordial curvature perturbation is a non trivial task. This is particularly true when dealing with models with a rich mass spectrum and curved field-space, as the subhorizon dynamics can be especially rich. In this talk these challenges will be presented as well as an efficient and versatile tool to deal with them -- the transport method.

Jonathan FRAZER, UPV/EHU Bilbao Spain

Title: Assessing the "predictivity" of multifield inflation

Abstract:

The current state of knowledge in string theory indicates that more than one and possibly hundreds of scalar fields may be relevant during inflation. Confronting such models with data is a considerable challenge as simply ruling out regions of parameter space is not an effective means of obtaining constraints on the underlying theory: a better approach is urgently needed. A pressing question in this context is whether the increased sensitivity to initial conditions (i.e., the starting point in field space) resulting from the existence of a high dimensional phase space of inflationary trajectories makes the model fundamentally non-predictive. I will present first steps in an attempt to address this issue.

David LANGLOIS, APC Diderot University Paris France

Title: Impact of heavy fields on primordial perturbations from inflation

Jérôme MARTIN, IAP GReCO Paris France

Title: "Inflation after Planck"

Summary: In this talk, I study the implications of the recently released Planck data for inflation and discuss what are the "best" inflationary scenarios.

Subodh PATIL, CERN Geneva Switzerland

Title: Is Inflation predictive? An EFT critique.

Patrick PETER, IAP GReCO Paris France

Title: Testing quantum mechanics with cosmology.

Diederik ROEST, University of Groningen Netherlands

Title: The universal attractor of inflation

Abstract:

We discuss a novel non-minimal coupling between gravity and the inflation sector, and analyse the consequences at weak and strong coupling. For large enough coupling, all models asymptote to a universal attractor, which is located in the 'sweet spot' of Planck's recent results.

Martin SLOTH, CP³ Origins Odense Denmark

Title: Constraints on gauge field production during inflation

Alex WESTPHAL, DESY Hamburg Germany

Title: Low- l CMB Power Loss and String Inflation

Abstract:

The PLANCK satellite may have observed a lack of power on large scales ($l < 40$). We argue that this putative feature can be explained by a phase of fast roll at the onset of inflation. We show that in the context of single field models what is required is an asymmetric inflection point model of which fibre inflation is a string motivated example. We study the ability of fibre inflation to generate a suppression of the CMB 2-point function power at low l , finding that the potential derived from string loops is almost but not quite steep enough for this purpose. We introduce a steeper contribution to the potential, that dominates away from the inflationary region, and show that if properly tuned it can indeed lead to a spectrum with lack of power at large scales.