

INSTITUT D'ETUDES SCIENTIFIQUES DE CARGÈSE

Cargèse International School 2014

XIIth School of Cosmology - Structure Formation after Planck Their impact in the study of galaxies and Cosmology September 15 – 20, 2014

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The theme of the school is the formation of large scale structures after the results of the Planck mission. The aim of this school is, with an overview of the standard model containing the inflationary paradigm, to focus on alternatives. The model of inflation, although generally confirmed at phenomenological level with these new data, suffers from conceptual difficulties when we want to use it in the framework of a "realistic" theory (e.g., great unification theory string). Indeed, as models at large field (Large Field Inflation) are now virtually eliminated, one has to consider models for which the potential of the inflaton contains a plateau (Small Field Inflation) or several fields (Hybrid Inflation). And in the latter case, one must understand the reason why the non-local gaussianity are so weak. Moreover, the "recent" history of the Universe, since the nucleosynthesis to the formation of structures, requires, so that the observations are consistent with the theory to introduce two ingredients not yet well understood (Dark Matter and Dark Energy)..

Main topics will include

- *The standard model of cosmology*
- *Targeted improvements to the standard model*
- *Observations*
- *The physics of the early universe: inflation models and gravitation*
- *Inhomogeneous Cosmology and the dynamic of the cosmological expansion*
- *Formation of cosmological structures*

Scientific Organization Committee

Peter Patrick (IAP, Paris FR), Christophe Pichon (IAP, Paris FR), Roland Triay (CPT, Marseille FR)

Scientific Committee

François Bouchet (IAP, Paris FR), Thomas Buchert (Univ. Claude Bernard, Lyon FR), Stéphane Charlot (IAP, Paris FR), François Couchot (LAL, Orsay FR), Cédric Deffayet (IAP, Paris FR), Arnaud Monique (CEA, Gif sur Yvette FR), Mario Novello (Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, BR) Joe Silk (Univ. Oxford UK et IAP Paris FR)

Invited speakers

Jérôme Martin (IAP Paris FR), Slava Mukhanov Arnold Sommerfeld Center for Theoretical Physic, LMU DE), Will Percival (Univ. of Portsmouths UK), Christophe Ringeval (Univ. Catholique de Louvain, BE), Pierre Salati (Univ. de Savoie, Annecy le vieux FR), Dominik Schwarz (Univ. de Bielefeld, DE), Roberto Trotta (Imperial College London UK)

Application and registration

http://www.cpt.univ-mrs.fr/~cosmo/EC2014/EcoleLuminy14_a.html

Registration fee : 250 €

Deadline for applications : September 1st, 2014