The Abdus Salam International Centre for Theoretical Physics

Summer School in Cosmology

Organizer(s): Directors: P. Creminelli, U. Seljak, P. Ullio, F. Vernizzi
Collaboration(s): SISSA & INFN
Trieste - Italy, 21 July 2008 - 1 August 2008

Final programme

Monday, 21 July 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

21 July 2008

08:30 - 09:50	(Room: Leonardo da Vinci Building, Lobby) --- REGISTRATION & ADMINISTRATIVE FORMALITIES ---
09:50 - 10:00	**WELCOME**
10:00 - 11:00	**L. Kofman** / *CITA, Canada* **Introduction to Cosmology and Inflation - Lecture 1**
11:00 - 11:45	(Room: Leonardo da Vinci Building Terrace) --- Coffee Break ---
11:45 - 12:45	**L. Kofman** / *CITA, Canada* **Introduction to Cosmology and Inflation - Lecture 2**
12:45 - 14:15	--- Lunch ---
14:15 - 15:15	**R. Caldwell** / *Dartmouth College, U.S.A.* **Dark Energy - Lecture 1**
15:15 - 16:15	**L. Baudis** / *Universitat Zurich, Switzerland* **Dark Matter - Lecture 1**
16:15 - 16:45	--- Break ---

16:45 - 17:45 **V. Bromm** / *University of Texas at Austin, U.S.A.*
First Stars and Galaxies - Lecture 1

Tuesday, 22 July 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

22 July 2008

09:30 - 10:30 **L. Hui** / *Columbia University, U.S.A.*
Large Scale Structures - Lecture 1

10:30 - 11:15 (Room: Leonardo da Vinci Building Terrace)
--- Coffee Break ---

11:15 - 12:15 **R. Caldwell** / *Dartmouth College, U.S.A.*
Dark Energy - Lecture 2

12:15 - 13:45 --- Lunch ---

13:45 - 14:45 **L. Kofman** / *CITA, Canada*
Introduction to Cosmology and Inflation - Lecture 3

14:45 - 15:45 **L. Kofman** / *CITA, Canada*
Introduction to Cosmology and Inflation - Lecture 4

15:45 - 16:15 --- Break ---

16:15 - 17:15 **L. Baudis** / *Universitat Zurich, Switzerland*
Dark Matter - Lecture 2

19:00 - 21:00 (Room: Adriatico Guest House (Terrace))
--- RECEPTION ---

Wednesday, 23 July 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

23 July 2008

09:30 - 10:30 **V. Bromm** / *University of Texas at Austin, U.S.A.*
First Stars and Galaxies - Lecture 2

10:30 - 11:15 (Room: Leonardo da Vinci Building Terrace)
--- Coffee Break ---

11:15 - 12:15 **L. Hui** / *Columbia University, U.S.A.*
Large Scale Structures - Lecture 2

12:15 - 13:45 --- Lunch ---

13:45 - 14:45 **L. Baudis** / *Universitat Zurich, Switzerland*
Dark Matter - Lecture 3

14:45 - 15:45 **D. Wands** / *University of Portsmouth, U.K.*
Inflation and Cosmological Perturbations - Lecture 1

15:45 - 16:15 --- Break ---

16:15 - 17:15 **D. Wands** / *University of Portsmouth, U.K.*
Inflation and Cosmological Perturbations - Lecture 2

Thursday, 24 July 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

24 July 2008

09:30 - 10:30 **R. Caldwell** / *Dartmouth College, U.S.A.*
Dark Energy - Lecture 3

10:30 - 11:15 (Room: Leonardo da Vinci Building Terrace)
--- Coffee Break ---

11:15 - 12:15 **L. Hui** / *Columbia University, U.S.A.*
Large Scale Structures - Lecture 3

12:15 - 13:45 --- Lunch ---

13:45 - 14:45 **D. Wands** / *University of Portsmouth, U.K.*
Inflation and Cosmological Perturbations - Lecture 3

14:45 - 15:45 **V. Bromm** / *University of Texas at Austin, U.S.A.*
First Stars and Galaxies - Lecture 3

15:45 - 16:15 --- Break ---

16:15 - 17:15 **L. Baudis** / *Universitat Zurich, Switzerland*
Dark Matter - Lecture 4

Friday, 25 July 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

25 July 2008

09:30 - 10:30 **L. Hui** / *Columbia University, U.S.A.*
Large Scale Structures - Lecture 4

10:30 - 11:15 (Room: Leonardo da Vinci Building Terrace)
--- Coffee Break ---

11:15 - 12:15 **V. Bromm** / *University of Texas at Austin, U.S.A.*
First Stars and Galaxies - Lecture 4

12:15 - 13:45 --- Lunch ---

13:45 - 14:45 **V. A. Rubakov** / *Russian Academy of Sciences, Russia*
Cosmology and Particle Physics - Lecture 1

14:45 - 15:45 **D. Wands** / *University of Portsmouth, U.K.*
Inflation and Cosmological Perturbations - Lecture 4

15:45 - 16:15 --- Break ---

16:15 - 17:15 **R. Caldwell** / *Dartmouth College, U.S.A.*
Dark Energy - Lecture 4

Monday, 28 July 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

28 July 2008

09:30 - 10:30	**V. A. Rubakov** / *Russian Academy of Sciences, Russia* **Cosmology and Particle Physics - Lecture 2**
10:30 - 11:15	(Room: Leonardo da Vinci Building Terrace) --- Coffee Break ---
11:15 - 12:15	**S. A. Hughes** / *MIT, U.S.A.* **Gravitational waves - Lecture 1**
12:15 - 13:45	--- Lunch ---
13:45 - 14:45	**V. A. Rubakov** / *Russian Academy of Sciences, Russia* **Cosmology and Particle Physics - Lecture 3**
14:45 - 15:45	**U. Seljak** / *Universitat Zurich, Switzerland* **Cosmic Microwave Background - Lecture 1**
15:45 - 16:15	--- Break ---
16:15 - 17:15	**V. A. Rubakov** / *Russian Academy of Sciences, Russia* **Cosmology and Particle Physics - Lecture 4**

Tuesday, 29 July 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

29 July 2008

09:30 - 10:30	**M. Bartelmann** / *Universitat Heidelberg, Germany* **Gravitational lensing - Lecture 1**
10:30 - 11:15	(Room: Leonardo da Vinci Building Terrace) --- Coffee Break ---
11:15 - 12:15	**S. Hannestad** / *University of Aarhus, Denmark* **Neutrino Physics - Lecture 1**
12:15 - 13:45	--- Lunch ---
13:45 - 14:45	**S. A. Hughes** / *MIT, U.S.A.* **Gravitational waves - Lecture 2**
14:45 - 15:45	**U. Seljak** / *Universitat Zurich, Switzerland* **Cosmic Microwave Background - Lecture 2**
15:45 - 16:15	--- Break ---
16:15 - 17:15	**S. Hannestad** / *University of Aarhus, Denmark* **Neutrino Physics - Lecture 2**

Wednesday, 30 July 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

30 July 2008

09:30 - 10:30	**S. A. Hughes** / *MIT, U.S.A.* **Gravitational waves - Lecture 3**
10:30 - 11:15	(Room: Leonardo da Vinci Building Terrace) --- Coffee Break ---
11:15 - 12:15	**S. Hannestad** / *University of Aarhus, Denmark* **Neutrino Physics - Lecture 3**
12:15 - 13:45	--- Lunch ---
13:45 - 14:45	**M. Bartelmann** / *Universitat Heidelberg, Germany* **Gravitational lensing - Lecture 2**
14:45 - 15:45	**S. Hannestad** / *University of Aarhus, Denmark* **Neutrino Physics - Lecture 4**
15:45 - 16:15	--- Break ---
16:15 - 17:15	**Discussion Session**

Thursday, 31 July 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

31 July 2008

09:30 - 10:30	**M. Bartelmann** / *Universitat Heidelberg, Germany* **Gravitational lensing - Lecture 3**
10:30 - 11:15	(Room: Leonardo da Vinci Building Terrace) --- Coffee Break ---
11:15 - 12:15	**S. A. Hughes** / *MIT, U.S.A.* **Gravitational waves - Lecture 4**
12:15 - 13:45	--- Lunch ---
13:45 - 14:45	**U. Seljak** / *Universitat Zurich, Switzerland* **Cosmic Microwave Background - Lecture 3**
14:45 - 15:45	**Research Presentations - Session 1** M. Drewes - Non equilibrium phenomena in the early universe 05' S. V. Anishehenko - Primordial power spectrum 05' J. Macher - Transplanckian problem of inflation 05' R. Dal Bosco Fontana - Scalar fields in magnetic universes 05' R. Monteiro - Gravitational partition functions 05' S. Hardeman - Consistent integration of heavy moduli in N = 1 SUGRA 05' D. Tanner - A new, non perturbative approach to string cosmology 05' R. Ziour - Spherically symmetric solutions of massive gravity and the Goldstone picture 05' K. Atazadeh - Accelerating universe in f(R) brane gravity 05' M. Quartin - Dark interactions and cosmological fine-tuning 05'

15:45 - 16:15 --- Break ---

16:15 - 17:15 **Research Presentations - Session 2**

J. J. Lopez-Villarejo - Transverse Gravity theories : a minimal General Relativity modification based on a symmetry principle 05'

A. Piloyan - Theory of Jordan-Brans-Dicke in Einstein conformal time 05'

L. Kraiselburd - The breaking of Equivalence Principle in theories with variable \alpha 05'

O. Hrycyna - Dynamics of extended (super)quintessence 05'

M. Jamil - Interacting dark energy with inhomogeneous equation of state 05'

N. Khosravi - A fundamental length as a candidate for dark energy 05'

V. N. Strokov - The gauge invariant speed of sound in the case of a minimally coupled scalar field 05'

R. Carlotto Batista - Structure formation on the dark energy perturbations 05'

T. Delahaye - Indirect detection of dark matter through positron cosmic rays 05'

K. Petraki - Sterile neutrinos in Cosmology and Astrophysics 05'

O. Akarsu - B-I cosmologies with anisotropic dark energy 05'

Friday, 1 August 2008 (Room:Leonardo da Vinci Building Main Lecture Hall)

1 August 2008

09:30 - 10:30 **M. Bartelmann** / *Universitat Heidelberg, Germany*
Gravitational lensing - Lecture 4

10:30 - 11:15 (Room: Leonardo da Vinci Building Terrace)
--- Coffee Break ---

11:15 - 12:15 **U. Seljak** / *Universitat Zurich, Switzerland*
Cosmic Microwave Background - Lecture 4

12:15 - 12:20 --- Letters of Participation - Distributed in Mail Boxes ---

12:20 - 12:20 **ADDITIONAL MATERIAL**

Introduction to CMB anisotropies (M. Zaldarriaga - Harvard University, USA)