The Abdus Salam International Centre for Theoretical Physics

Spring School on Superstring Theory and Related Topics

Organizer(s): J. de Boer (University of Amsterdam), E. Gava (INFN), S. Kachru (Kavli Institute for Theoretical Physics), K.S. Narain (ICTP), S. Randjbar-Daemi (ICTP)
Collaboration(s): the Asia Pacific Center for Theoretical Physics (APCTP), the Italian Institute for Nuclear Physics (INFN) & the International School for Advanced Studies (SISSA)
Trieste - Italy, 22 - 30 March 2010

Venue: Leonardo da Vinci Building Main Lecture Hall

Final programme

Monday, 22 March 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)

22 March 2010

08:30 - 10:00	(Room: Leonardo da Vinci Building, Lobby) --- REGISTRATION & ADMINISTRATIVE FORMALITIES ---
11:00 - 11:15	**Opening Remarks by F. Quevedo (ICTP Director) & S. Randjbar-Daemi (ICTP Assistant Director)**
11:15 - 12:15	**J.A. McGreevy** / *MIT (Massachusetts Institute of Technology), Cambridge, USA* **Towards holographic duality for condensed matter - Lecture I**
12:15 - 14:30	--- Lunch Break ---
14:30 - 15:30	**J.A. McGreevy** / *MIT (Massachusetts Institute of Technology), Cambridge, USA* **Towards holographic duality for condensed matter - Lecture II**
15:45 - 16:45	**Discussion Session**

Tuesday, 23 March 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)

23 March 2010

09:00 - 10:00 **Y. Tachikawa** / *IAS (Institute for Advanced Study), Princeton, USA*
2d CFT from 4d N=2 gauge theory - Lecture I

10:15 - 11:15 **J.A. McGreevy** / *MIT (Massachusetts Institute of Technology), Cambridge, USA*
Towards holographic duality for condensed matter - Lecture III

11:30 - 12:30 **Y. Tachikawa** / *IAS (Institute for Advanced Study), Princeton, USA*
2d CFT from 4d N=2 gauge theory - Lecture II

12:30 - 14:30 --- Lunch Break ---

14:30 - 15:30 **J.A. McGreevy** / *MIT (Massachusetts Institute of Technology), Cambridge, USA*
Towards holographic duality for condensed matter - Lecture IV

15:45 - 16:45 **Discussion Session**

17:30 - 19:30 (Room: Leonardo da Vinci Building Cafeteria)
--- RECEPTION ---

Wednesday, 24 March 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)

24 March 2010

09:00 - 10:00 **C. Csaki** / *Cornell University, Ithaca, USA*
Models of electroweak symmetry breaking and the TeV scale - Lecture I

10:15 - 11:15 **J.A. McGreevy** / *MIT (Massachusetts Institute of Technology), Cambridge, USA*
Towards holographic duality for condensed matter - Lecture V

11:30 - 12:30 **Y. Tachikawa** / *IAS (Institute for Advanced Study), Princeton, USA*
2d CFT from 4d N=2 gauge theory - Lecture III

12:30 - 14:30 --- Lunch Break ---

14:30 - 15:30 **C. Csaki** / *Cornell University, Ithaca, USA*
Models of electroweak symmetry breaking and the TeV scale - Lecture II

15:45 - 16:45 **Discussion Session**

Thursday, 25 March 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)

25 March 2010

09:00 - 10:00 **C. Csaki** / *Cornell University, Ithaca, USA*
Models of electroweak symmetry breaking and the TeV scale - Lecture III

10:15 - 11:15 **J.A. McGreevy** / *MIT (Massachusetts Institute of Technology), Cambridge, USA*
Towards holographic duality for condensed matter - Lecture VI

11:30 - 12:30 **Y. Tachikawa** / *IAS (Institute for Advanced Study), Princeton, USA*
2d CFT from 4d N=2 gauge theory - Lecture IV

12:30 - 14:30 --- Lunch Break ---

14:30 - 15:30 **C. Csaki** / *Cornell University, Ithaca, USA*
Models of electroweak symmetry breaking and the TeV scale - Lecture IV

15:45 - 16:45 **Discussion Session**

Friday, 26 March 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)

26 March 2010

09:00 - 10:00 **G.M.L. Shiu** / *University of Wisconsin, Madison, USA*
String Phenomenology and Model Building - Lecture I

10:15 - 11:15 **J. deBoer** / *University of Amsterdam, Netherlands*
(Non)Geometric aspects of black holes and their microstates - Lecture I

11:30 - 12:30 **G.M.L. Shiu** / *University of Wisconsin, Madison, USA*
String Phenomenology and Model Building - Lecture II

12:30 - 14:00 --- Lunch Break ---

14:00 - 16:00 **Presentations by Participants**

Small Hairy Black Holes in Global AdS (Jyotirmoy Bhattacharya - Tata Institute of Fundamental Research, Mumbai, India) 15'

Phases of AdS Black Strings: any applications for dualities? (Terence Delsate - Universite de Mons, Belgium) 15'

Dual Identities inside the Gluon and the Graviton Scattering Amplitudes (Yang Zhang - Cornell University, Ithaca NY, USA) 15'

Universal thermal and electrical conductivity from holography (Sachin Jain - Institute of Physics, Bhubaneswar, India) 15'

Application of AdS/CFT to deconfined quantum criticality (Ki Seok Kim - APCTP (Asia Pacific Center for Theoretical Physics), Pohang, R. of Korea) 15'

String Model building at Toric Singularities (Sven Krippendorf - D.A.M.T.P., University of Cambridge, UK) 15'

The Next-to-Simplest Quantum Field Theories (Shailesh Lal - Harish-Chandra Research Institute, Allahabad, India) 15'

Resolution of Cosmic Singularities via String Theory (Johannes M. Oberreuter - University of Amsterdam, Netherlands) 15'

16:00 - 17:00 **R.C. Myers** / *Perimeter Institute for Theoretical Physics, Waterloo, Canada*
Puzzles and Problems for Gravity and Glue - Lecture I

17:30 - 19:00 (Room: Leonardo da Vinci Building Cafeteria)
--- Small Reception - Informal Buffet ---

19:00 - 20:00 **E.P. Verlinde** / *University of Amsterdam, The Netherlands*
The Entropic Origin of Gravity

Saturday, 27 March 2010 (Room:Leonardo da Vinci Building Main Lecture Hall) (**Saturday**)

27 March 2010

09:00 - 10:00 **G.M.L. Shiu** / *University of Wisconsin, Madison, USA*
String Phenomenology and Model Building - Lecture III

10:15 - 11:15 **R.C. Myers** / *Perimeter Institute for Theoretical Physics, Waterloo, Canada*
Puzzles and Problems for Gravity and Glue - Lecture II

11:30 - 12:30 **J. deBoer** / *University of Amsterdam, Netherlands*
(Non)Geometric aspects of black holes and their microstates - Lecture II

Monday, 29 March 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)

29 March 2010

09:00 - 10:00 **J. deBoer** / *University of Amsterdam, Netherlands*
(Non)Geometric aspects of black holes and their microstates - Lecture III

10:15 - 11:15 **N.J. Berkovits** / *UESP (Universidade Estadual Paulista), Sao Paulo, Brazil*
Superstring multiloop amplitudes and non-renormalization theorems - Lecture I

11:30 - 12:30 **G.M.L. Shiu** / *University of Wisconsin, Madison, USA*
String Phenomenology and Model Building - Lecture IV

12:30 - 14:30 --- Lunch Break ---

14:30 - 15:30 **N.J. Berkovits** / *UESP (Universidade Estadual Paulista), Sao Paulo, Brazil*
Superstring multiloop amplitudes and non-renormalization theorems - Lecture II

15:45 - 16:45 **R.C. Myers** / *Perimeter Institute for Theoretical Physics, Waterloo, Canada*
Puzzles and Problems for Gravity and Glue - Lecture III

17:00 - 17:45 **Presentations by Participants**

A few aspects of D3/D7 LVS Swiss Cheese Phenomenology (Pramod Kumar Shukla - Indian Institute of Technology, Roorkee, India) 15'

Proving the AGT relation for antifundamentals N=0;1;2 (Paulina Maria Suchanek - Wroclaw University, Poland) 15'

Geometric Corrections Induced by Nonperturbative Effects in Flux Compactifications (Sohang Chander Ghandi - Cornell University, Ithaca NY, USA) 15'

Tuesday, 30 March 2010 (Room:Leonardo da Vinci Building Main Lecture Hall)

30 March 2010

09:00 - 10:00 **N.J. Berkovits** / *UESP (Universidade Estadual Paulista), Sao Paulo, Brazil*
Superstring multiloop amplitudes and non-renormalization theorems - Lecture III

10:15 - 11:15 **R.C. Myers** / *Perimeter Institute for Theoretical Physics, Waterloo, Canada*
Puzzles and Problems for Gravity and Glue - Lecture IV

11:30 - 12:30 **J. deBoer** / *University of Amsterdam, Netherlands*
(Non)Geometric aspects of black holes and their microstates - Lecture IV

12:30 - 14:30 --- Lunch Break ---

14:30 - 15:30 **N.J. Berkovits** / *UESP (Universidade Estadual Paulista), Sao Paulo, Brazil*
Superstring multiloop amplitudes and non-renormalization theorems - Lecture IV