

THE STATE OF THE UNIVERSE

70TH

STEPHEN HAWKING BIRTHDAY SYMPOSIUM
5-8 JANUARY 2012
CENTRE FOR THEORETICAL COSMOLOGY,
DAMTP, UNIVERSITY OF CAMBRIDGE, UK

Scientific Conference at Centre for Mathematical Sciences

Wednesday 4 January

18:30 **Registration and Drinks Reception**

19:00 **Buffet Dinner**

Thursday 5 January

Session 1 *Chair: Paul Shellard*

09:30 **Peter Haynes** *Head of DAMTP, University of Cambridge*
Welcome and Introduction

09:40 **Frank Wilczek** *Massachusetts Institute of Technology*
Time Crystals

10:20 **Renata Kallosh** *Stanford University*
N=8 supergravity

11:00 COFFEE

Session 2 *Chair: Malcolm Perry*

11:30 **Juan Maldacena** *Institute for Advanced Study, Princeton*
The constraining power of higher spin symmetry

12:10 **Gary Gibbons** *DAMTP, University of Cambridge*
Conformal Symmetry and Scaling Limits of Black Holes

12:50 LUNCH

Session 3 *Chair: Bernard Carr*

14:00 **David Spergel** *Princeton University*
The State of the Universe: 380,000 Years After the Big Bang

- 14:40 **Daniel Eisenstein** *University of Arizona*
Dark Energy and Cosmic Sound
- 15:20 TEA
- Session 4* *Chair: Ruth Gregory*
- 16:00 **Alan Guth** *Massachusetts Institute of Technology*
Eternal Inflation and Its Implications
- 16:40 **Luis Lehner** *Perimeter Institute / University of Guelph, Ontario*
Black holes & membranes: observables & surprises?
- 19:00 **Drinks Reception at Gonville & Caius College, Cambridge**

Friday 6 January

- Session 1* *Chair: Thibault Damour*
- 09:40 **Bruce Allen** *Albert Einstein Institute, Hannover*
The Einstein@Home search for gravitational waves and neutron stars
- 10:20 **Hermann Nicolai** *Albert Einstein Institute, Golm*
Consistent Kaluza Klein universes from maximal supergravity
- 11:00 COFFEE
- Session 2* *Chair: Chris Hull*
- 11:30 **Michael Green** *DAMTP, University of Cambridge*
Scattering Amplitudes in String and Field Theory
- 12:10 **Andrew Strominger** *Harvard University*
Microscopic Realization of the dS/CFT Correspondence
- 12:50 LUNCH
- Session 3:* *Chair: Jonathan Halliwell*
- 14:00 **Raphael Bousso** *University of California, Berkeley*
The State of the Multiverse
- 14:40 **Andrei Linde** *Stanford University*
Inflation in supergravity and string theory
- 15:20 TEA

- Session 4* *Chair: Don Page*
- 16:00 **Neil Turok** *Perimeter Institute*
The Big Crunch/Big Bang Transition
- 16:40 **Alexander Vilenkin** *Tufts University*
Did the universe have a beginning?
- 19:15 for 20:00 **Evening Reception and Banquet (King's College, Cambridge)**

Saturday 7 January

- Session 1* *Chair: Nick Warner*
- 09:40 **Simon Ross** *Durham University*
Holography and black holes
- 10:20 **James Sparks** *University of Oxford*
The Nuts and Bolts of AdS/CFT
- 11:00 COFFEE
- Session 2* *Chair: Fay Dowker*
- 11:30 **Harvey Reall** *DAMTP, University of Cambridge*
Black holes and extra dimensions
- 12:10 **Gary Horowitz** *University of California, Santa Barbara*
Instability of Anti-de Sitter Spacetime
- 12:50 LUNCH
- Session 3* *Chair: Raymond Laflamme*
- 14:00 **Thomas Hertog** *University of Leuven*
A new twist on the no-boundary state
- 14:40 **Shing-Tung Yau** *Harvard University*
Quasi Local Mass and Momentum in General Relativity
- 15:20 TEA
- Session 4:* *Chair: Chris Pope*
- 16:00 **James Hartle** *University of California, Santa Barbara*
The State of the No Boundary Wave Function
- 16:40 **Conclusion of Scientific Conference**

Public Symposium at Lady Mitchell Hall, Sidgwick Avenue

Sunday 8 January

- 13:00 Doors open at Lady Mitchell Hall
- 14:00 *Introductory remarks: Professor Sir Leszek Borysiewicz – Vice-Chancellor, University of Cambridge*
- 14:10 **Martin Rees** *University of Cambridge*
From planets to universes
- 14:55 *Introduction: Dr Eng Lim Goh – Chief Technology Officer, SGI*
- 15:00 **Saul Perlmutter** *University of California, Berkeley*
Supernova, Dark Energy and the Accelerating Universe
- 15:45 TEA
- 16:25 *Introduction: Dr Nathan Myhrvold – CEO, Intellectual Ventures*
- 16:30 **Kip Thorne** *Caltech*
Black Holes: A New Golden Age
- 17:15 *Introduction: Justin Rattner, Chief Technology Officer, Intel Corporation*
- 17:20 **Stephen Hawking** *University of Cambridge*
A Brief History of Mine
- 18:00 End of symposium