Princeton Center for Theoretical Science

The Princeton Center for Theoretical Science is a new, University-funded enterprise dedicated to exploring the frontiers of theory in the natural sciences. Its purpose is to promote interaction among theorists and seed new directions in research, especially in areas cutting across traditional disciplinary boundaries.

The Center is home to a corps of Center Postdoctoral Fellows, chosen from nominations made by senior theoretical scientists around the world. The full complement of ten Fellows is now in residence. A group of senior Faculty Fellows, chosen from science and engineering departments across the campus, are responsible for guiding the Center. Center activities include focused topical programs involving participants from inside and outside the university. To house these activities, the University has constructed a dedicated facility in Jadwin Hall, home of the Physics Department, in the heart of the campus "science neighborhood". The Center hopes to become the focus for innovation and cross-fertilization in theoretical natural science at Princeton.

Faculty Fellows:
Paul Steinhardt, Director
Igor Klebanov, Associate Director
Ravindra Bhatt
William Bialek
Curtis Callan
Roberto Car
David Spergel
Salvatore Torquato

Center Postdoctoral Fellows:
Dmitry Abanin 2008-2011
Bogdan Andrei Bernevig 2006-2009
Thomas Klose 2007-2010
Jean-Luc Lehners 2007-2010
M. Lisa Manning 2008-2011
Meera Parish 2006-2009
Matthew Reece 2008-2011
Antonello Scardicchio 2006-2009
Branson Stephens 2007-2010
Aleksandra Walczak 2007-2010

The Big Bang and Beyond Program

Microsymposium on Frontiers of Observational Cosmology

September 25 - 26, 2008

Organizers: David Spergel, Nima Arkani-Hamed (IAS), Igor Klebanov, Jean-Luc Lehners, Paul Steinhardt, Matt Strassler (Rutgers), and Herman Verlinde

Co-sponsored by The D. E. Shaw Group
Frontiers of Observational Cosmology  
Micro Symposium  

Initial Conditions  
September 25, 2008 -- PCTS

9:00 – 9:15 am  Opening Remarks, Paul Steinhardt, Director, PCTS &  
David Spergel, Micro Symposium Organizer

9:15 – 10:15 am  “Testing models of the early universe with CMB observations”  
Lyman Page, Princeton University

10:15 – 10:30 am  Coffee Break

10:30 – 11:30 am  “Non-Gaussianities in the CMB”  
Kendrick Smith, The University of Chicago

12:00 – 1:00 pm  Lunch

1:15 – 2:15 pm  “LSS probes of Non-Gaussianities”  
Neal Dalal, The Canadian Institute for Theoretical Astrophysics

2:15 – 3:15 pm  “Redshifted 21 CM”  
Matias Zaldariaga, Center for Astrophysics, Harvard University

4:00 pm  Physics Tea in Room 218, Faculty Lounge, Jadwin Hall

4:30 – 5:30 pm  Joint Physics/PCTS Colloquium  
Room A-10, Jadwin Hall  
“Testing Physics of the Early Universe Observationally:  
Are Primordial Fluctuations Gaussian or Non-Gaussian?”  
Eiichiro Komatsu, The University of Texas at Austin

Frontiers of Observational Cosmology  
Micro Symposium  

Dark Energy  
September 26, 2008 -- PCTS

9:00 – 10:00 am  “Supernova measurements”  
Adam Riess, Johns Hopkins University

10:15 – 10:30 am  Coffee Break

10:30 – 11:30 am  “Clusters counts”  
Alexey Vikhlinin, Center for Astrophysics, Harvard

11:30 – 12:15 pm  What worries you about your technique?  
Panel Discussion (Moderator: Spergel)

12:30 – 1:30 pm  Lunch

1:30 – 2:30 pm  “Measuring the metric of the Universe with weak gravitational lensing”  
Gary Bernstein, University of Pennsylvania

2:30 – 2:45 pm  Coffee Break

2:45 – 3:45 pm  “Baryon oscillations”  
Daniel Eisenstein, Steward Observatory, University of Arizona

3:30 – 4:30 pm  Discussion of next steps in the field  
Panel Discussion (Moderator: Steinhardt)

5:00 pm  Light Dinner

For Group Meetings: See Next Page
Group Meetings
(Tentative Schedule)

(check http://pcts.princeton.edu/pcts/bigbang/bigbang.html for updates)

Speakers include:

Monday, September 29, 2008

2  Rachel Mandelbaum (IAS)
2:20  Wejuan Fang (Columbia)
2:40  Zheg Zheng (IAS)
3:00  Jan Kratochvil (Columbia)
3:20  Vivi Acquaviva (Princeton)

Wednesday, October 1, 2008

12:30  Pizza Lunch

1:15  Amir Hajian, "Testing global isotropy and some interesting cosmological models with CMB"

2:00  Latham Boyle, "Inflationary bootstrap relations: observational predictions from the bottom up"