

## 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:

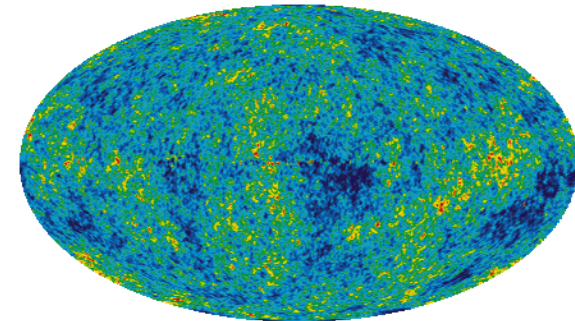
Dmitry Abanin 2008-2011  
Bogdan Andrei Bernevig 2006-2009  
Thomas Klose 2007-2010  
Jean-Luc Lehners 2007-2010  
M. Lisa Manning 2008-2011  
Meera Parish 2006-2009  
Matthew Reece 2008-2011  
Antonello Scardicchio 2006-2009  
Branson Stephens 2007-2010  
Aleksandra Walczak 2007-2010



## 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"