

Princeton Center for Theoretical Science

The Princeton Center for Theoretical Science is 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. 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 chosen from proposals by Princeton faculty across the natural sciences. The Center is located on the fourth floor of Jadwin Hall, 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
Adam Burrows
Curtis Callan
Roberto Car
Salvatore Torquato
Jeroen Tromp

Center Postdoctoral Fellows

Dmitry Abanin 2008-2011
Benjamin Basso 2009-2012
Adam Brown 2009-2012
Bryan Clark 2009-2012
Mariangela Lisanti 2010-2013
M. Lisa Manning 2008-2011
Matthew Reece 2008-2011
Marco Schiro', 2010-2013
Alexander Tchekhovskoy 2010-2013
Mosahito Yamazaki 2010-2013

Associate Postdoctoral Fellows

Shravan Hanasoge 2010-2011

To find out more about Center Postdoctoral Fellowships and Programs see:

<http://pcts.princeton.edu/pcts>



Seismology of Earth and Stars 4-6 May 2011

**PCTS – Jadwin Hall
Fourth Floor, Room 407**

Organizers

Jeroen Tromp
Shravan Hanasoge
Yang Luo

Wednesday, 4 May, 2011 -- Terrestrial Seismology

- 8:45 am** **Breakfast/Welcoming Remarks**
- *9:00 – 9:45 “Introduction to noise-based imaging and monitoring in seismology”
Nikolai Shapiro, CNRS, France
- 10:00 – 10:45 “Seismic tomography of Earth’s lithosphere and upper mantle: the role of ambient-noise cross –correlations”
Lapo Boschi, Institute of Geophysics, Switzerland
- 10:50 – 11:00** **Coffee break**
- 11:00 – 11:45 “Promoting Sparsity and Localization in Geophysical Inverse Problems”
Frederik Simons, Princeton University
- 12:00 – 2:00** **Lunch on your own**
- 2:00 – 2:45 “Techniques in computational seismology and inverse problems”
Jeroen Tromp, Princeton University
- 3:00 – 3:45 “Non-linear adjoint inversion of Southern California”
Qinya Liu, University of Toronto
- 3:50 - 4:00** **Coffee break**
- 4:00 – 4:45 Discussion
- 6:30 pm** **Banquet**
Triumph Brewing Company
138 Nassau Street

Thursday, 5 May 2011 -- Helioseismology

- * 9:00 – 9:45 “Introduction to global helioseismology and inferences thereof”
Michael Thompson, High Altitude Observatory (HAO)
- 10:00 – 10:45 “Developments in local helioseismology”
Laurent Gizon, Max Planck Institute
- 10:50 – 11:00** **Coffee break**
- 11:00 – 11:45 “Astero-seismology”
Sarbani Basu, Yale University
- 12:00 – 2:00** **Lunch on your own**

Thursday, 5 May 2011 - Afternoon Helioseismology

- 2:00 – 2:45 “Issues in understanding helioseismic data”
Doug Braun, CORA, NWRA
- 3:00 – 3:30 “The adjoint method in helioseismology”
Shravan Hanasoge, Princeton University
- 3:35 - 3:45** **Coffee break**
- 3:45 – 4:30 “The physics of magnetohydrodynamic wave propagation”
Paul Cally, Monash University, Australia
- 4:45 – 5:15 “The interaction of resonant modes with magnetic fields in the Sun”
Ashley Crouch, CORA, NWRA
- 5:15 – 5:45 “Developments in imaging sunspots”
Hamed Moradi, Max Planck Institute

Friday, 6 May 2011 -- Inverse Methods

- 9:00 – 9:45 “Randomized dimensionality reduction in seismic inversion”
Felix Herrmann, University of British Columbia, Canada
- 10:00 – 10:45 “Randomized operator fitting for preconditioning the wave-equation Hessian in seismology”
Laurent Demanet, MIT
- 10:50 – 11:00** **Coffee break**
- 11:00 – 11:45 “Passive correlation based imaging”
George Papanicolaou, Stanford University
- 12:00 – 2:00** **Lunch at PCTS**
- 2:00 – 2:45 “Imaging discontinuities”
Ingrid Daubechies, Princeton University
- 3:00 – 3:45 Open Discussion/ Future collaboration
- 3:45 - 4:00** **Coffee break/Conclusion**

**Talks appropriate for general audiences*