

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
Andrei Bernevig
Duncan Haldane
Andrew Houk
Eve Ostriker
Thanos Panagiotopoulos
Frans Pretorius
Ned Wingreen

Center Postdoctoral Fellows

Ricard Alert-Zenon 2018-2021
Nathan Benjamin 2018-2021
Fani Dosopoulou 2018-2021
Anna Frishman 2016-2019
Daniel Lecoanet 2016-2019
Biao Lian 2017-2020
Abhinav Prem 2018-2021
Pierre Ronceray 2016-2019
Yizhi You 2017-2020
Xinan Zhou 2018-2021

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

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



“Critical Phenomena in Statistical Mechanics and Quantum Field Theory”

A Joint CRM-PCTS Workshop

This is a satellite event in association with
XIX International Congress on Mathematical Physics

October 3-5, 2018

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

Program Organizers

Michael Aizenman
Igor Klebanov
Silviu Pufu

“Critical Phenomena in Statistical Mechanics and Quantum Field Theory”

Wednesday, October 3, 2018

- 8:30 – 8:55** **Light Breakfast**
8:55-9:00 Welcome/Introduction
- 9:00-9:55 On a Mathematical Theory of Repeated Quantum Measurements
Vojkan Jaksic, McGill University
- 9:55-10:50 Lace Expansions
David Brydges, University of British Columbia
- 10:50-11:20** **Coffee break**
- 11:20-12:15 A New SU(2) Anomaly
Edward Witten, IAS
- 12:15-2:00** **Lunch at PCTS**
- 2:00-2:55 Small Divisors, Diophantine Numbers and Interacting Quantum Many Body Systems
Vieri Mastropietro, University of Milan
- 2:55-3:50 Edge Universality in Interacting Topological Insulators
Marcello Porta, University of Tübingen
- 3:50-4:20** **Coffee Break**
- 4:20-5:15 TBA
Scott Sheffield, MIT
- 5:30** **WELCOME RECEPTION AT PCTS**

Thursday, October 4, 2018

- 8:30** **Light Breakfast**
9:00-9:55 Renormalization Group Flows in Disordered Field Theories
Ofer Aharony, Weizmann Institute
- 9:55-10:50 Tying Up Instantons with Anti-Instantons in $O(N)$ and CP^N Models
Nikita Nekrasov, Stony Brook
- 10:50-11:20** **Coffee break**

“Critical Phenomena in Statistical Mechanics and Quantum Field Theory”

Thursday, October 4, 2018 (cont.)

- 11:20-12:15 The Tensor Track
Vincent Rivasseau, Orsay
- 12:15-1:45** **Lunch at PCTS**
- 1:45-2:40 Effective Action in Tensor Field Theories
Razvan Gurau, CNRS, Ecole Polytechnique
- 2:40-3:35 Origin of Magic Angles in Twisted Bilayer Graphene
Grigory Tarnopolsky, Harvard University
- 3:35-3:55** **Coffee Break**
- 4:00 – 5:00** **Physics Colloquium—Room A-10 Jadwin Hall**
Critical Phenomena and the Conformal Bootstrap
David Poland, Yale University

Friday, October 5, 2018

- 8:30** **Light Breakfast**
9:15-10:10 Walking, Weak First-Order Phase Transitions, and Complex CFTs
Slava Rychkov, IHES
- 10:10-11:05 Phase Diagrams for Melonic Tensor / Disordered Models
Fidel Schaposnik Massolo, IHES
- 11:05-11:35** **Coffee break**
- 11:35-12:30 6-Vertex Model, Lipschitz Functions, Proper Colorings and Other Lattice Models with Hard Constraints
Ron Peled, Tel Aviv University
- 12:30-2:00** **Lunch at PCTS**
- 2:00-2:55 Random Band Matrices in the Delocalized Phase
Paul Bourgade, NYU
- 2:55 – 3:50 Traversable Wormholes
Juan Maldacena, IAS