

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 and is celebrating its tenth anniversary in 2016.

Faculty Fellows

Paul Steinhardt, Director
Igor Klebanov, Associate Director
Andrei Bernevig
Curtis Callan
Pablo Debenedetti
Eve Ostriker
Howard Stone
Herman Verlinde
Ned Wingreen

Center Postdoctoral Fellows

Barry Bradlyn 2015-2018
Jennifer Cano 2015-2018
Anna Frishman 2016-2019
Anna Ijjas 2014-2017
Bruno Le Floch 2015-2018
Daniel Lecoanet 2016-2019
Zhiyuan Li 2015-2108
Mark Mezei 2014-2017
David Pinner 2014-2017
Pierre Ronceray 2016-2019
Curt von Keyserlingk 2014-2017
Yaojun Zhang 2015-2018

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

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



“New Developments in Conformal Field Theory Above Two Dimensions” March 6-8, 2017 Jadwin Hall, Room 407

Workshop Organizers

Simone Giombi
Igor Klebanov
Bruno Le Floch
Silviu Pufu

This workshop will be held in conjunction with “The
Quantum Hall Effect: Past, Present & Future”
Workshop, held from March 8-10, 2017.

“New Developments in Conformal Field Theory Above Two Dimensions”

Monday, March 6, 2017

8:30-8:55am Continental Breakfast/Welcome

- 9:00-10:15 “The Lightcone Bootstrap and the Spectrum of the 3d Ising CFT” (Pedagogical talk)
David Simmons-Duffin, IAS
- 10:15-11:00 “A scaling theory for the long-range to short-range crossover”
Slava Rychkov, CERN
- 11:00-11:45 “QFT phases via methods of dynamical systems”
Sergei Gukov, Caltech
- 12:00-1:30 Lunch at PCTS, Jadwin Hall, Fourth Floor**
- 1:30-2:15 “Seeking fixed points in scalar field theories”
Hugh Osborn, Cambridge University
- 2:15-3:00 “Comments on conformal higher spin theory”
Arkady Tseytlin, Imperial College London
- 3:00-3:45 “Current interactions from nonlinear higher-spin equations and holography”
Misha Vasiliev, LPI
- 3:45-4:15 Coffee break**
- 4:15-5:00 “Three dimensional QED and QCD with massless fermions”
Rajamani Narayanan, FIU
- 5:00 Reception at PCTS**

Tuesday, March 7, 2017

8:30-8:55am Continental Breakfast

- 9:00-9:45 “Frontiers of the Spinning Bootstrap”
David Poland, Yale University
- 9:45-10:30 “S-matrix bootstrap revisited”
João Penedones, EPFL
- 10:30-11:00 Coffee break**
- 11:00-11:45 “QFT: A new hope”
Emanuel Katz, Boston University

“New Developments in Conformal Field Theory Above Two Dimensions”

Tuesday, March 7, 2017 (cont.)

- 11:45-12:30 “ETH in CFT”
Anatoly Dymarsky, University of Kentucky
- 12:30-2:00 Lunch at PCTS, Jadwin Hall, Fourth Floor**
- 2:00-2:45 “Phases of 4d $N=1$ gauge theories with fundamental and adjoint matter”
Jennifer Lin, IAS
- 2:45-3:30 “On VEVs Of Line Defects In $d=4, N=2$ Theories”
Greg Moore, Rutgers University
- 3:30-4:00 Coffee break**
- 4:00-4:45 “Large N Tensor Models”
Grigory Tarnopolsky, Princeton University
- 4:45-5:30 “Instability of the conformal phase in QED3”
Lukas Janssen, Dresden University

Combined: CFT & QHE Session

Wednesday, March 8, 2017

- 8:30-8:55 Continental Breakfast/welcome**
- 9:00-9:45 “Duality in $2+1d$ ”
Nathan Seiberg, IAS
- 9:45-10:30 “Three-dimensional dualities, quantum symmetries and topological phases”
Francesco Benini, IAS & SISSA
- 10:30-11:00 Coffee Break**
- 11:00-11:45 “Dualities in $2+1$ dimensions”
Andreas Karch, University of Washington
- 11:45-12:30 “Dualities in condensed matter physics: quantum Hall phenomena, topological insulator surfaces, and quantum magnetism”
Senthil Todadri, MIT
- 12:30-2:00 Lunch at PCTS, Jadwin Hall, Fourth Floor**

Combined: CFT & QHE Session
Wednesday, March 8, 2017 (continued)

- 2:00-2:45 “Fixed-point collisions and tensorial order parameters in some relativistic and non-relativistic field theories”
Igor Herbut, Simon Fraser University
- 2:45-3:30 “The Dirac composite fermion in the half filled Landau level”
Dam Son, University of Chicago
- 3:30-4:00 **Coffee break**
- 4:00-5:30 **PANEL DISCUSSION**
Eduardo Fradkin, Greg Moore, Nick Read, Nathan Seiberg, Dam Son
- 5:30 **Reception for both CFT and QHE at PCTS**