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 Houck
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

Fracton Phases of Matter & Topological Crystalline Order

December 3-5, 2018

PCTS Seminar Room
Jadwin Hall, Fourth Floor, Room 407

Program Organizers
Fiona Burnell, Biao Lian, Abhinav Prem, and Yizhi You
**Monday, December 3, 2018**

- **08:30 – 09:00** Light Breakfast
- **09:00 – 10:00** “Fractons: A Guided Tour”  
  Michael Pretko
- **10:00 – 11:00** A New Gapless Fracton Phase, and its Dual Description  
  Sagar Vijay
- **10:00 – 11:30** Coffee break
- **11:30 – 12:30** “Ungauging quantum error-correcting codes”  
  Beni Yoshida
- **12:30 – 2:00** Lunch at PCTS
- **2:00 – 3:00** “Exotic braiding statistics in (3+1) dimensions”  
  Shinsei Ryu
- **3:00 – 4:00** “Topological quantum many-body scars”  
  Titus Neupert
- **4:00 – 4:30** Coffee Break
- **4:30 – 5:30** “Foliated Field Theory and String-Membrane-Net Condensation of Fracton Order”  
  Kevin Slagle

**Tuesday, December 4, 2018**

- **08:30 – 09:00** Light Breakfast
- **09:00 – 10:00** “On automorphisms of local algebras.”  
  Jeongwan Haah
- **10:00 – 11:00** “Fracton Dynamics”  
  Rahul Nandkishore
- **10:00 – 11:30** Coffee break
- **11:30 – 12:30** “Higher rank Chern-Simons theory”  
  Yizhi You
- **12:30 – 2:00** Lunch at PCTS
- **2:00 – 3:00** “Fractonicity from Elasticity”  
  Leo Radzihovsky
- **3:00** Continue informal discussions at PCTS

**Tuesday, December 4, 2018 (cont.)**

- **12:30 – 1:40** Lunch at PCTS (NOTE SHORTER LUNCH)
- **1:40 – 2:40** Lattice homotopy: some applications  
  Adrian Po
- **2:40 – 3:40** “From higher order topological insulators to fractons”  
  Felix von Oppen
- **3:40 – 4:10** Coffee Break
- **4:10 – 5:30** Contributed Talks by Daniel Bulmash, Dominic Else, Wilbur Shirley, and Dominic Williamson.