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 celebrated 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
Bruno Le Floch 2015-2018
Daniel Lecoanet 2016-2019
Zhiyuan Li 2015-2018
Biao Lian 2017-2020
Pierre Ronceray 2016-2019
Oren Slone 2018-2020
Yizhi You 2017-2020
Yaojun Zhang 2015-2018

To find out more about Center Postdoctoral Fellowships and Programs see: http://pcts.princeton.edu/pcts

“Elastic Turbulence”
9-11 April 2018

Jadwin Hall, Room 407

Workshop Organizers
Paulo Arratia (U Penn)
Anna Frishman (PCTS)
Victor Steinberg (Weizmann)
Howard Stone (PCTS, PU)
“Elastic Turbulence”

**Monday, April 9, 2018**
8:30  Coffee & Light Breakfast  
8:55-9:00  Welcome/Introduction  
9:00-9:50  Itzhak Fouxon  
**Theoretical perspectives on turbulence in dilute polymer solutions**  
9:50-10:40  Yves Dubief  
**Key energy transfer mechanisms and topological features of elasto-inertial turbulence and elastic turbulence**  
10:40-11:10  Coffee break  
11:10-12:00 Victor Steinberg  
**Elastic turbulence, inertial effect and drag reduction**  
12:00-2:00  Lunch at PCTS  
2:00-2:50  Michael D. Graham  
**Dynamics and structures of viscoelastic turbulence in channel flow**  
2:50-3:10  Coffee break  
3:10-4:00  Björn Hof  
**The nature of the maximum drag reduction asymptote**

**Tuesday, April 10, 2018**
11:10-11:40  Coffee break  
11:40-12:30  Vladimir Lebedev  
**Statistical properties of the boundary layer of the elastic turbulence.**
12:30-2:00  Lunch at PCTS  
2:00-2:50  Dario Vincenzi  
**Modeling and simulation of elastic turbulence**
2:50-3:10  Coffee break  
3:10-4:00  Eldad Afik  
**An experimental Lagrangian approach to elastic turbulence: Lessons from pair dispersion in a dissipative chaotic flow**
4:00-5:00  Discussion – experimental and theoretical open questions.

**Wednesday, April 11, 2018**
8:30  Coffee & Light Breakfast  
9:00-9:50  Bruno Eckhardt  
**Viscoelastic effects on exact coherent structures and boundary layers**
9:50-10:40  Alexander Morozov  
**Exact coherent states in parallel shear flows**
10:40-11:00  Coffee break  
11:00-11:50  Tamer Zaki  
**Nonlocal vorticity amplification in viscoelastic Couette flow over wavy surfaces**
11:50-1:00  Lunch at PCTS  
1:00-1:50  Robert Poole  
**Engineering applications of elastic turbulence**
1:50-2:40  Hamid Kellay  
**Turbulent like flows of complex fluids in channels**
2:40-3:30  Discussion & conclusion