

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

Ned Wingreen, Acting Director
Shinsei Ryu, Acting Associate Director
Igor Klebanov, Director
Jeremy Goodman
Duncan Haldane
Andrew Houck
Mariangela Lisanti
Thanos Panagiotopoulos
Frans Pretorius
Silviu Pufu

Center Postdoctoral Fellows

Vir Bulchandani 2020-2023	Andrew Chael 2019-2022
Amos Chan 2019-2022	Minjae Cho 2021-2024
Giorgio Cipolloni 2021-2024	Scott Collier 2020-2023
Brooke Husic 2020-2023	Alejandro Martinez-Calvo 2021-2024
Elias Most 2020-2023	Vladimir Narovlanski 2019-2022
Sabrina Pasterski 2019-2022	Carolyn Raithel 2020-2023
Frank Schindler 2020-2023	Nicole Shibley 2021-2024

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



Physics In The Ground Beneath Our Feet

January 5-7, 2022

Virtual on Zoom

Program Organizers

Sujit Datta
Ian C. Bourg
Ching-Yao Lai
Howard A. Stone

Physics In The Ground Beneath Our Feet

Wednesday, January 5, 2022

8:50-9: Opening remarks

9-9:30: Doug Jerolmack—*Landscapes of glass*

9:30-9:40: Q&A

9:40-10:10: Kimberly Hill—*Granular mud, debris flows, and alluvial fans*

10:10-10:20: Q&A

10:20-10:50: Nathalie Vriend—*Patterns in sandy landscapes: morphology and evolution of sand dunes*

10:50-11: Q&A

11-11:30: Discussion and networking

11:30-12:30: Break

12:30-1: Karen Daniels—*Rigidity, Nonlocality, and Acoustics in Dense Granular Materials*

1-1:10: Q&A

1:10-1:40: Justin Burton—*Arctic ice mélange and the ebb and flow of floating granular materials*

1:40-1:50: Q&A

1:50-2:20: David Furbish—*Rarefied sediment particle motions and transport: Energetics and deposition*

2:20-2:30: Q&A

2:30-3: Discussion and networking

3-3:30: Break

3:30-4: Emanuela del Gado—*From ion specificity and water confinement to cohesion and gel morphology in cement and clays*

4-4:10: Q&A

4:10-4:40: Sujit Datta—*Visualizing soft matter dynamics in granular media*

4:40-5: Q&A

5-5:30 Wrap up discussion and networking

Thursday, January 6, 2022

9-9:30: Ruben Juanes—*Photoporomechanics*

9:30-9:40: Q&A

9:40-10:10: Vashan Wright—*It's a Hot Beach Summer*

10:10-10:20: Q&A

10:20-10:50: Ian Bourg—*Flow in porous media and couplings with mechanics*

10:50-11: Q&A

11-11:30: Discussion and networking

11:30-12:30: Break

Physics In The Ground Beneath Our Feet

Thursday, January 6, 2022 (cont.)

12:30-1: Arshad Kudrolli—*Intruder Dynamics in Granular Sediments*

1-1:10: Q&A

1:10-1:40: Olivier Devauchelle—*Slow and fast groundwater flows*

1:40-1:50: Q&A

1:50-2:20: Rachel Glade—*Soil drips and droplets: Arctic soil patterns analogous to fluid instabilities*

2:20-2:30: Q&A

2:30-3: Discussion and networking

3-3:30: Break

3:30-4: Lucas Goehring—*Stability and dynamics of convection in dry salt lakes*

4-4:10: Q&A

4:10-4:40: Claire Masteller—*How rivers remember*

4:40-5: Q&A

5-5:30 Wrap up discussion and networking

Friday, January 7, 2022

9-9:30: John Wettlaufer—*Polar Nonequilibrium Statistical Physics*

9:30-9:40: Q&A

9:40-10:10: Ian Hewitt—*Subglacial plumbing systems*

10:10-10:20: Q&A

10:20-10:50: Yao Lai—*Ice cracks*

10:50-11: Q&A

11-11:30: Discussion and networking

11:30-12:30: Break

12:30-1: Jenny Suckale—*Why do persistently degassing volcanoes erupt?*

1-1:10: Q&A

1:10-1:40: Howard Stone—*Bacteria-mediated processes in porous media*

1:40-1:50: Q&A

1:50-2:30: Wrap up discussion and networking