

## 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  
Oren Slone 2018-2020  
Yizhi You 2017-2020  
Xinan Zhou 2018-2021

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

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



## Novel Ideas for Dark Matter 2019 January 14-16, 2019

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

### Program Organizers

Mariangela Lisanti (Princeton University)  
Oren Slone (PCTS, Princeton University)  
Tomer Volansky (Tel Aviv University)

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Endowment for Princeton Physics***

# “Novel Ideas for Dark Matter 2019”

## Monday, January 14, 2019

- 8:30** Check in and Light Breakfast  
**8:50-9:00** Welcome and Introductions, Oren Slone
- 9:00-9:45 **David Hogg**: Finding Dark Matter in the Milky Way
- 9:50-10:35 **Mike Boylan-Kolchin**: Small Scale Structure in Dark Matter Simulations
- 10:40-11:00** Coffee break
- 11:00-11:45 **Annika Peter**: A Halo Census Consensus
- 11:50-12:35 **Matthew Walker**: Evidence for the Nature of Dark Matter from Dwarf Galaxies
- 12:40-2:15** Lunch at PCTS
- 2:15-3:00 **Pieter Van Dokkum**: Galaxies with Deficits of Dark Matter
- 3:05-3:50 **Julio Navarro**: Halo Formation and Evolution
- 3:55-4:25** Coffee Break
- 4:25-5:10 **Mark Vogelsberger**: Simulating Structure Formation beyond CDM
- 5:15-6:30** WELCOME RECEPTION AT PCTS

## Tuesday, January 15, 2019

- 8:30** Light Breakfast
- 9:00-9:45 **Hai-bo Yu**: SIDM - Theory and Observations
- 9:50-10:35 **Manoj Kaplinghat**: Tests of the Self-Interacting Dark Matter Idea
- 10:40-11:00** Coffee break
- 11:00-11:45 **Herman Verlinde**: Emergent gravity and dark matter: an informal discussion

## Tuesday, January 15, 2019 (cont.)

- 11:50-12:35 **Stacy McGaugh**: The Radial Acceleration Relation
- 12:40-2:15** Lunch at PCTS
- 2:15-3:00 **Maxim Pospelov**: Dark Matter Theory Space and Dark Sectors
- 3:05-3:50 **Justin Khoury**: Superfluid Dark Matter
- 3:55-4:15** Coffee Break
- 4:15-5:15 Informal discussion
- 5:20-6:45** Reception at PCTS

## Wednesday, January 16, 2019

- 8:30** Light Breakfast
- 9:00-9:45 **Josh Ruderman**: Production Mechanisms for Dark Matter
- 9:50-10:35 **Cora Dvorkin**: Cosmological Probes of Dark Matter: Current Status and Prospects for the Future
- 10:40-11:00** Coffee break
- 11:00-11:45 **Scott Tremaine**: Astrophysics of Fuzzy Dark Matter
- 11:50-12:35 **Kfir Blum**: Ultra-Light Dark Matter vs. Galactic Rotation Curves
- 12:40-2:15** Lunch at PCTS
- 2:15-3:00 **Nima Arkani Hamed**: TBA
- 3:05-4:00** Conclusion