

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

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

Center Postdoctoral Fellows

Ricard Alert 2018-2021
Nathan Benjamin 2018-2021
Vir Bulchandani 2020-2023
Andrew Chael 2019-2022
Amos Chan 2019-2022
Scott Collier 2020-2023
Fani Dosopoulou 2018-2021
Brooke Husic 2021-2023
Elias Most 2020-2023
Vladimir Narovlansky 2019-2022
Sabrina Pasterski 2019-2022
Abhinav Prem 2018-2021
Carolyn Raithel (affiliated) 2020-2023
Frank Schindler 2020-2023
Xinan Zhou 2018-2021

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

<http://pcts.princeton.edu>



Virtual Meeting

Polarized Radiation near Supermassive Black Holes

10-13 May 2021

Organizers

Andrew Chael (Princeton)
Jason Dexter (UC Boulder)
Alejandra Jiménez-Rosales (MPE/Radboud)
Michael Johnson (Harvard)
Lia Medeiros (IAS)
Monika Mościbrodzka (Radboud University)

All times are in EASTERN TIME, PRINCETON, NJ

Polarized Radiation near Supermassive Black Holes

Monday, May 10, 2021

Moderator: Andrew Chael

13 UT/ 9 ET Welcome/Introduction

Plenary 1 (EHT polarization results) 13 UT/ 9 ET

9:10-9:50 A polarimetric view of the Edge of M87's Black Hole

Monika Moscibrodzka

10:00-10:20 General Relativistic Radiative Transfer Methods and Codes

Ben Prather

10:20-10:40 Discriminating Accretion States via Rotational Symmetry in Simulated Polarimetric Images of M87

Daniel Palumbo

10:40-11:00 Break with Open Zoom Breakout Rooms

Plenary 2 (Accretion) 15:00 UT/11:00 ET

Moderator: Chris White

11:00-11:50 Accretion in Event Horizon Telescope Sources

Charles Gammie

11:50-12:10 Ab Initio Horizon-Scale Simulations of Magnetically Arrested Accretion in Sagittarius A* Fed by Stellar Winds

Sean Ressler

12:10-12:30 Unveiling Near-Horizon Physics by Observing Jet/Accretion/Black Hole System Polarization Maps

Richard Anantua

12:30-12:40 Break with Open Zoom Breakout Rooms

12:40-1:00 Speaker Panel/Open Discussion

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Polarized Radiation near Supermassive Black Holes

Tuesday, May 11, 2021

Plenary 3 (Plasma Physics) 13 UT/ 9 ET

Moderator: Bart Ripperda

9:00-9:50 Electron Heating and Acceleration near Supermassive Black Holes

Lorenzo Sironi

9:50-10:10 Particle acceleration in strong turbulence

Martin Lemoine

10:10-10:30 High energy emission from gaps in black hole magnetospheres

Yajie Yuan

10:30-10:40 Lightning Talks

10:40-11:00 Break with Open Zoom Breakout Rooms

Plenary 4 (GR) 15:00 UT/11:00 ET

Moderator: Lia Medeiros

11:00-11:50 Testing General Relativity with Black Hole Images

Feryal Ozel

11:50-12:10 Polarization Whorls: A Signature of High-Spin Black Holes

Delilah Gates

12:10-12:30 Photon ring extraction from GRMHD images

Alejandra Jimenez-Rosales

12:30-12:40 Break with Open Zoom Breakout Rooms

12:40-1:00 Speaker Panel/Open Discussion

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Polarized Radiation near Supermassive Black Holes

Wednesday, May 12, 2021

Plenary 5 (X-ray Polarization) 13 UT/ 9 ET

Moderator: Jason Dexter

9:00-9:50 X-ray Spectropolarimetric Observations of Mass-Accreting Black Holes with IXPE and XL-Calibur
Henric Krawczynski

9:50-10:10 The effect of magnetic fields on the X-ray polarization from black holes
Ilaria Caiazzo

10:10-10:30 Tracking jets from birth to adulthood using GRMHD simulations
Koushik Chatterjee

10:30-10:40 Lightning Talks

10:40-11:00 Break with Open Zoom Breakout Rooms

Plenary 6 (Plasma physics and BH magnetospheres) 15:00 UT/11:00 ET
Moderator: Vladimir Zhdarnkin

11:00-11:50 "Nature or Nurture? The Roles of Rotation and Accretion in M87"
Roger Blandford

11:50-12:10 Synthetic observables from black-hole magnetospheres
Benjamin Crinquand

12:10-12:30 Turbulence and Particle Heating in High-Beta Collisionless Plasmas
Matt Kunz

12:30-12:40 Break with Open Zoom Breakout Rooms

12:40-1:00 Speaker Panel/Open Discussion

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Polarized Radiation near Supermassive Black Holes

Thursday, May 13, 2021

Plenary 7 (Jets) 13 UT/ 9 ET

Moderator: Michael Johnson

9:00-9:50 Inherent and Local Magnetic Field Structures in Jets from Active Galactic Nuclei
Denise Gabuzda

9:50-10:10 Linear Polarization of the Jet of M87 inside the Bondi Radius
Evgenia Kravchenko

10:10-10:30 X-ray polarimetry-timing with IXPE
Adam Ingram

10:30-10:50 Polarimetric Signatures of the Photon Ring
Mina Himwich

10:50-11:00 Lightning Talks

11:00-11:20 Break with Open Zoom Breakout Rooms

11:20-11:30 Announcements/Conference Summary

11:30-12:30 Wrap-up Discussion