

PiTP 2024

“Ultra-Quantum Matter”



Welcome!

Organizers

**Michael
Hermele**

**Nathan
Seiberg**

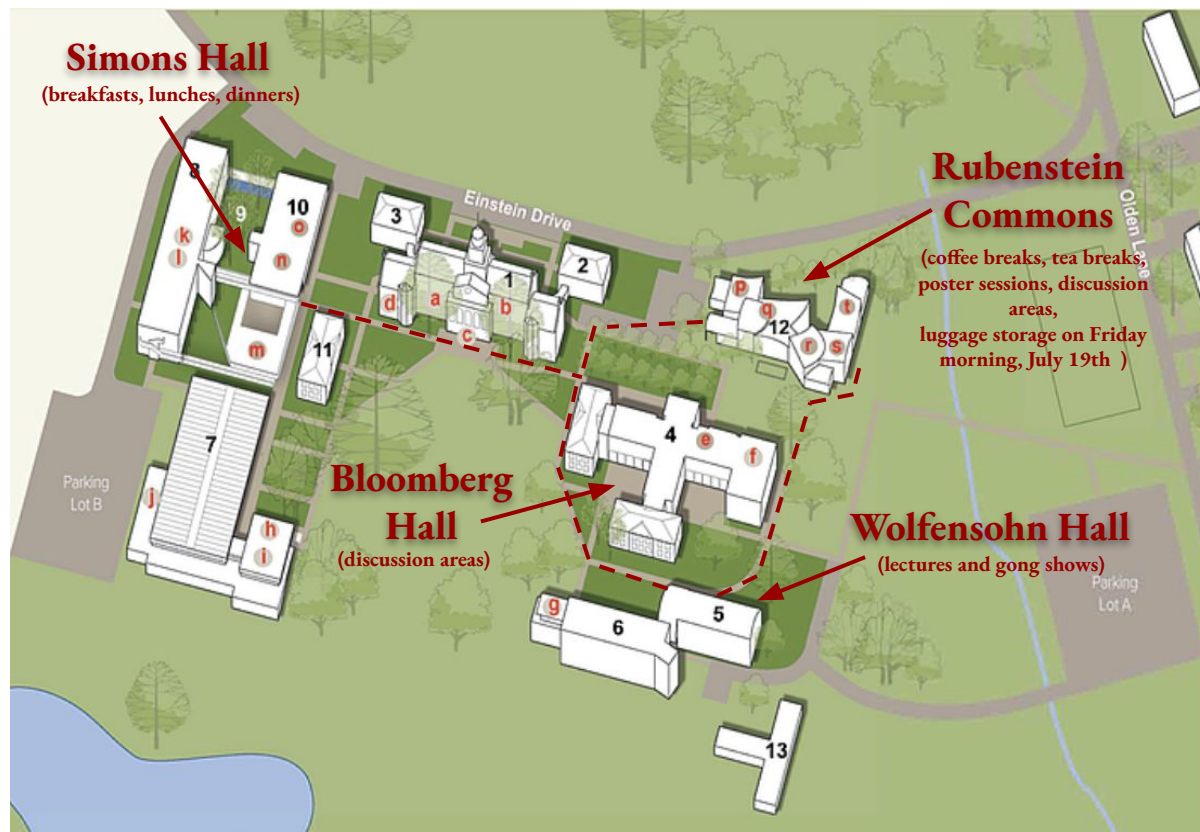
**Ashvin
Vishwanath**

Academic Staff

Amanda Cenker, Lisa Fleischer, Michelle Sage,
Audrey Smerkanich, Emily Smerkanich

If you have any questions, email: pitp@ias.edu

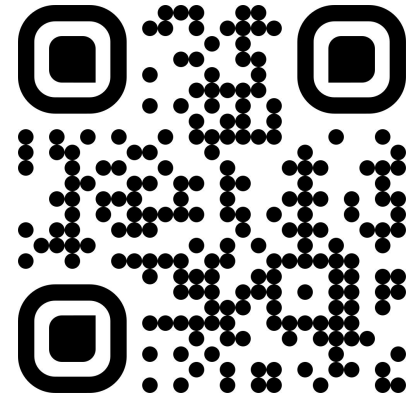
IAS Campus Map



PiTP 2024 Schedule

- The PiTP 2024 schedule is available on The PiTP website and will be updated as necessary
- A daily schedule will be posted on the bulletin boards in the lobbies of Wolfensohn and Bloomberg Halls

PiTP 2024 website:



<https://www.ias.edu/pitp>

PiTP 2024
“Ultra-Quantum Matter”

All lectures in Wolfensohn Hall unless noted otherwise

Week #1 - July 8 – 12

(As of 07/04/24-3)

Time:	Monday, July 8th	Tuesday, July 9th	Wednesday, July 10th	Thursday, July 11th	Friday, July 12th
8:00 - 9:00 am	Breakfast (Simons Hall)	Breakfast (Simons Hall)	Breakfast (Simons Hall)	Breakfast (Simons Hall)	Breakfast (Simons Hall)
8:00 - 9:00 am	Registration (Wolfensohn Hall)				
9:00 – 9:15 am	Welcome and Introduction				
9:15 – 10:30 am	“Tensor Networks” Ignacio Cirac				
9:00 – 10:15 am		“Effective field theories in condensed matter” Dam Thanh Son	“Tensor Networks” Ignacio Cirac	“Effective field theories in condensed matter” Dam Thanh Son	“Generalized symmetry -- a bird- eye perspective” Xiao-Gang Wen
10:30 – 11:00 am	Break (Rubenstein Commons)				
10:15 – 11:00 am		Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)
11:00 am – 12:15 pm	“Quantum Phase Transitions of Metals” Subir Sachdev	“Quantum Phase Transitions of Metals” Subir Sachdev	“Effective field theories in condensed matter” Dam Thanh Son	“Quantum Phase Transitions of Metals” Subir Sachdev	Carolyn Zhang
12:30 – 1:30 pm	Lunch (Simons Hall)	Lunch (Simons Hall)	Lunch (Simons Hall)	Lunch (Simons Hall)	Lunch (Simons Hall)
1:30 - 3:15 pm	Open	Gong Show	Open	Poster Session (Rubenstein Commons)	Open
3:15 – 3:45 pm	Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)
3:45– 5:00 pm	“Higher Berry Phase” Shinsei Ryu	“Tensor Networks” Ignacio Cirac	“Mixed-state quantum phases” Meng Cheng	“Non-invertible symmetries” Shu-Heng Shao	“Non-invertible symmetries” Shu-Heng Shao
5:30 – 7:00pm	Dinner (Simons Hall)	Dinner (Simons Hall)	Dinner (Simons Hall)	Dinner (Simons Hall)	Dinner (Simons Hall)



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Week #2 - July 15 – 19

Time:	Monday, July 15th	Tuesday, July 16th	Wednesday, July 17th	Thursday, July 18th	Friday, July 19th
8:00 – 9:00 am	Breakfast (Simons Hall)	Breakfast (Simons Hall)	Breakfast (Simons Hall)	Breakfast (Simons Hall)	Breakfast (Simons Hall)
9:00 – 10:15 am	"Introduction to moiré materials" Eslam Khalaf	"Introduction to moiré materials" Eslam Khalaf	"The Physics of LDPC codes" Vedika Khemani	"The Physics of LDPC codes" Vedika Khemani	"Duality in the Symmetry Topological Field Theory Framework" Xie Chen
10:15 – 11:00 am	Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)
11:00 am – 12:15 pm	"Applications of Flux-Insertion and Large Gauge Invariance: from Luttinger theorem to conductivity sum rules" Masaki Oshikawa	Raquel Queiroz	"Introduction to moiré materials" Eslam Khalaf	"Duality in the Symmetry Topological Field Theory Framework" Xie Chen	"Applications of Flux- Insertion and Large Gauge Invariance: from Luttinger theorem to conductivity sum rules" Masaki Oshikawa
12:30 – 1:30 pm	Lunch (Simons Hall)	Lunch (Simons Hall)	Lunch (Simons Hall)	Lunch (Simons Hall)	Lunch (Simons Hall)
1:30 - 3:15 pm	Open	Gong Show	Open	Poster Session (Rubenstein Commons)	
3:15 – 3:45 pm	Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)	Break (Rubenstein Commons)	
3:45– 5:00 pm	"Non-invertible symmetries" Shu-Heng Shao	"The Physics of LDPC codes" Vedika Khemani	"Duality in the Symmetry Topological Field Theory Framework" Xie Chen	"Applications of Flux-Insertion and Large Gauge Invariance: from Luttinger theorem to conductivity sum rules" Masaki Oshikawa	
5:30 – 7:00pm	Dinner (Simons Hall)	Dinner (Simons Hall)	Pool/Pizza Party (97 Olden Lane) (5:30 – 8:30 pm)	Dinner (Simons Hall)	



Overflow Space

- The talks will be livestreamed to the **Bloomberg Hall** seminar room (entrance level)

Gong Shows & Poster Sessions

- **Gong Shows** — each Tuesday 1:30-3:15 pm in Wolfensohn Hall
- **Poster Sessions** — each Thursday 1:30-3:15 pm in Rubenstein Commons Meeting Room 5

Informal Discussions

- **Bloomberg Hall** seminar room, while no streaming (entrance level)
- **Bloomberg Hall** physics library (upstairs)
- **Bloomberg Hall** common room (entrance level)
- **Rubenstein Commons** meeting rooms 1, 4, and 5
- **Slack channel** (you should have received the link)

Pool & Pizza Party!

Wednesday, July 17th

5:30 - 8:30 pm

Director's Home (97 Olden Lane)

Pizza, Ice Cream, Swimming, Lawn Games

Additional Information

- **IT Help Session** — Monday, July 8
during morning & afternoon breaks, Wolfensohn Lobby
- **Group Photo** — Wednesday, July 17
time TBA, location TBA

Please Wear Your Name Badge

Name badges will be required for all meals!

Breakfast: 8:00 - 9:00 am

Lunch: 12:30 - 1:30 pm

Dinner: 5:30 - 6:30 pm

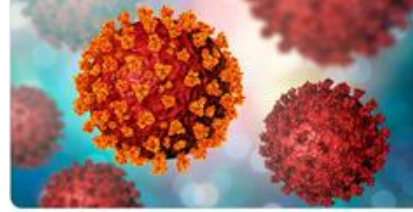
Daily lunch menus are available here: <https://www.ias.edu/dining/lunch>

Health Information

- IAS COVID information —

<https://www.ias.edu/human-resources/covid-19-procedure>

Increase in cases worldwide



- Lyme Disease information —

<https://www.princetonnj.gov/299/Lyme-Disease>



- Weather advisories

<https://www.weather.gov/>



Let's have fun