

BROOKHAVEN FORUM 2025

Launching the Second Century of Quantum Physics

October 22-24, 2025

Brookhaven National Laboratory

Early Registration Deadline:
July 15, 2025

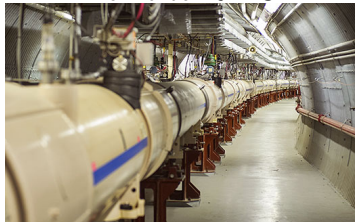
General Registration Deadline:
Oct 1, 2025

Organizing Committee

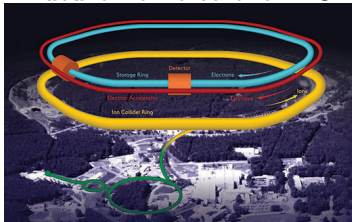
Peter Boyle (BNL)
Liza Brost (BNL)
Hooman Davoudiasl (BNL)
Sally Dawson (BNL)
Peter Denton (BNL, co-chair)
Xin Qian (BNL)
Neelima Sehgal (SBU)
Anze Slosar (BNL)
Amarjit Soni (BNL)
Robert Szafron (BNL, co-chair)
Michel Hernandez Villanueva (BNL)

Welcome to Brookhaven National Lab!

Home to RHIC



Future home to the EIC



Home to NSLS-II



Research in chemistry, biology, nanotechnology, AI, quantum computing, ...

Play important roles in DUNE and short-baseline program, ATLAS, and the Vera Rubin Observatory

Organizers

Peter Denton
(co-chair)
pdenton@bnl.gov

Robert Szafron
(co-chair)
rszafron@bnl.gov

Nicole Kelly
nkelly@bnl.gov

This meeting is held under the lab's code of conduct:
www.bnl.gov/conduct/external

Please upload slides well in advance of session

Lunch

Lunch is on your own

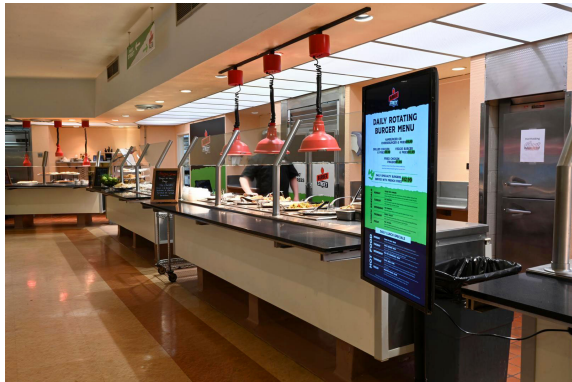
We have a cafeteria at Berkner Hall

10 minute walk

maps.app.goo.gl/qhhw1QtZ8Ae5ivDa6

Can also preorder online:

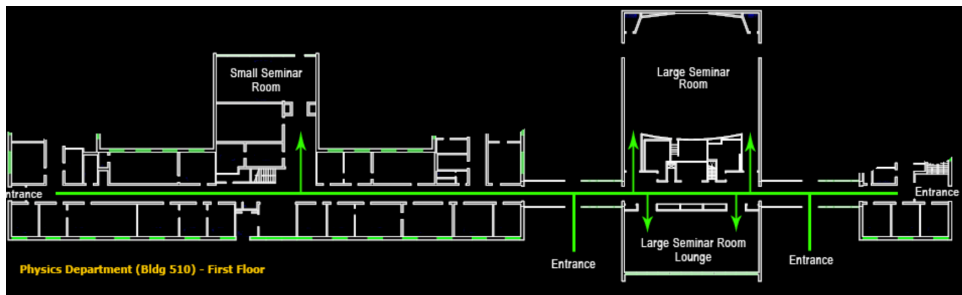
bnlrollinghost.hrpos.heartland.us/order



Parallel talk locations

Some are here in the large seminar room

Some are in the small seminar room



Thanks!

The rest of the organizing committee:

Peter Boyle

Liza Brost

Hooman Davoudiasl

Sally Dawson

Xin Qian

Neelima Sehgal

Anze Slosar

Amarjit Soni

Michel Hernandez Villanueva

Invaluable administrative help:

Nicole Kelly

Founding the Brookhaven Forum:

Amarjit Soni

Hooman Davoudiasl

One hundred years of quantum mechanics: 1925

July: “On the quantum-theoretical reinterpretation of kinematical and mechanical relationships” by Heisenberg

The “Umdeutung” paper

September: “Quantum mechanics” appears for the first time

Zur Quantenmechanik.

Von **M. Born** und **P. Jordan** in Göttingen.

(Eingegangen am 27. September 1925.)

What quantum phenomena will we find
in the next hundred years?

Upcoming plenary talks

9:10 AM

Physics Opportunities at Future Colliders

Karri DiPetrillo

9:50 AM

Searching for New Physics at the Electron-Ion Collider

Brian Batell

Upcoming plenary talks

11:00 AM

Particle Physics Meets Quantum Information

Ian Low

11:40 AM

Recent BSM Results from ATLAS and CMS (remote)

Michael Hank

Parallel sessions begin at 2 PM

Upcoming parallel tracks

	LHC (ch: E. Brost) Large Seminar Room (here)	Neutrinos (ch: J. Jo) Small Seminar Room
2:00	Shaouly Bar-Shalom	Anna Suliga
2:18	Clara Lavinia Del Pio	Sam Carey
2:36	Spencer Ellis	Karan Kumar
2:54	Amartya Sengupta	Lynn Tung
3:12	Mira Varma	Vu Chi Lan Nguyen

Upcoming colloquium

4:00 PM

Centennial Celebration: Quantum Mechanics, Quantum Field Theory, and More

Tao Han

Large Seminar Room

Upcoming plenary talks

9:00 AM

Novel Directions in Dark Matter Direct Detection

Carlos Blacno

9:40 AM

Theory Status of the Muon Anomalous Magnetic Moment in the Fall of 2025

Thomas Blum

(ch. P. Boyle)

Upcoming plenary talks

10:50 AM

Origin of Ultrahigh Energy Cosmic Rays in Binary Neutron Star Mergers, and the Fascinating Physics it Entails (remote)

Glennys Farrar

11:40 AM

Recent advances in Higgs physics and the Standard Model from ATLAS and CMS

Cristina Ana Mantilla Suarez

(ch. P. Boyle)

Parallel sessions begin at **1:40 PM**

Immediately after parallels: conference photo

4:00 PM Colloquium:

Wave Dark Matter

Lam Hui

6:30 PM Conference Dinner:

Desmond's, 20 minute drive

Find a friend if you do not have a car

maps.app.goo.gl/9NCsR4Fx3NiHhHDA6

Upcoming plenary talks

9:00 AM

The Strong Force Could Have Heated the Universe's First Moment

Kim Berghaus

9:40 AM

Open questions in Neutrino Physics and How (Not) to Answer Them

Bhupal Dev

(ch. H. Davoudiasl)

Upcoming plenary talks

10:50 AM

Physics of Neutrinoless Double Beta Decay (remote)

Karsten Heeger

11:30 AM

Short Baseline Neutrino Experiments:
What We've learned and Where We're Going

Mark Ross-Lonergan

(ch. H. Davoudiasl)