Welcome to BNL

Hong Ma
Chair, Physics Department
Brookhaven National Lab
Nov 20, 2024

Uncovering New Laws of Nature at the EIC

Brookhaven National Laboratory, Upton, NY, USA
November 20-22, 2024

Organizing Committee Members:

- Elke Aschenauer (BNL)
- Hooman Davoudiasl (co-chair, BNL)
- Sally Dawson (co-chair, BNL)
- Abhay Deshpande (BNL/SBU)
- Yoshitaka Hatta (BNL)
- Simonetta Liuti (Virginia)
- Frank Petriello (Argonne/Northwestern)
- Jianwei Qiu (JLab)
- Robert Szafron (BNL)
- Raju Venugopalan (BNL)

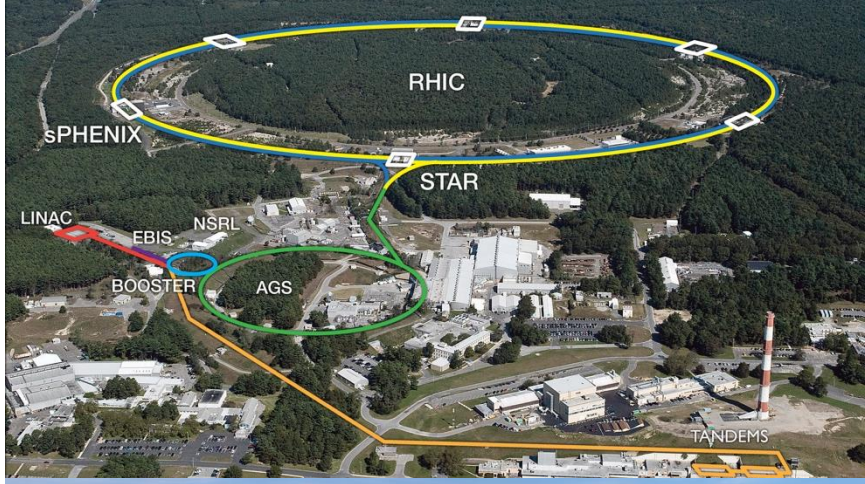
Registration Deadline: October 31, 2024

(Early registration ends September 30, 2024)

https://www.bnl.gov/hepeic/
HEPEIC@bnl.gov

Brookhaven National Laboratory
A Multipurpose DOE Office of Science Lab

- Managed for the U.S Department of Energy (DOE) by Brookhaven Science Associates. BSA is a partnership between Stony Brook University and Battelle.
- Vision: To accelerate pathways to scientific discovery and technological innovation that transform the world.
  - Pull together large teams from labs, industry, universities
  - Builds, operates large facilities
- People
  - 2,900 staff
  - 140 joint faculty
  - 500 students
  - 4,400 facility users and guests
  - 30,000+ program participants annually for science education and workforce development
- Budget: $750 million in FY23
- Regional economic impact
  - Supports over 4,700 jobs in New York State
  - Strong relationship with New York State: $400M invested by NYS since 2013
  - New Long Island Railroad station bordering campus



Science Initiatives

1. Understanding the Building Blocks of the Universe

- Imaging the interior of nucleons and nuclei
- Exploring the fundamental elements of the universe

2. Leading in Discovery with Light-Enabled Science

- NSLS-II Upgrade to deliver best-in-the world brightness
- NSLS-II Experimental Tools III

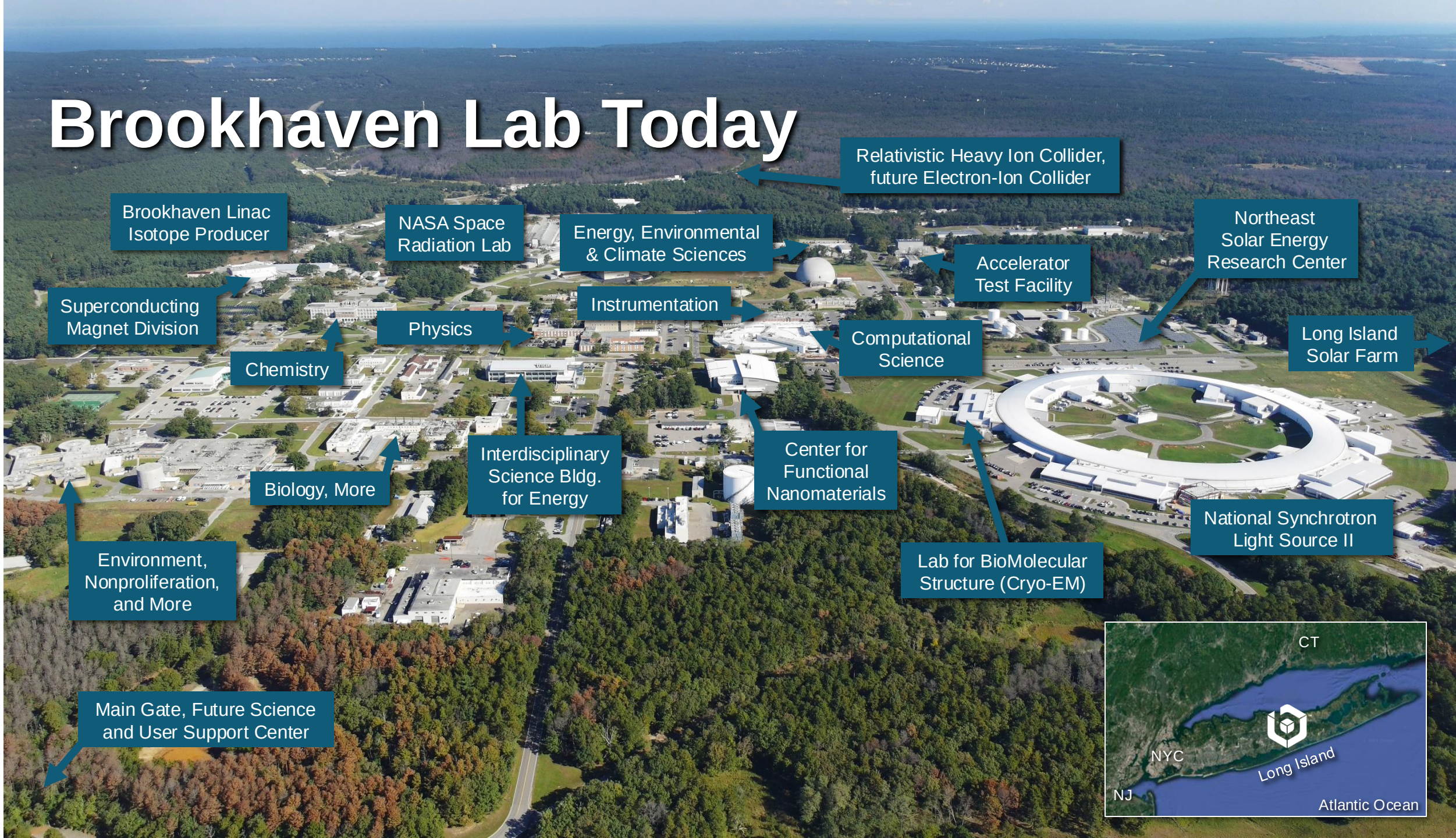
3. Developing Next-Generation Information Science and Technologies

- Towards distributed quantum computing
- Energy efficient materials and supporting CHIPS
- AI for autonomous facilities

4. Addressing Environmental and Societal Challenges

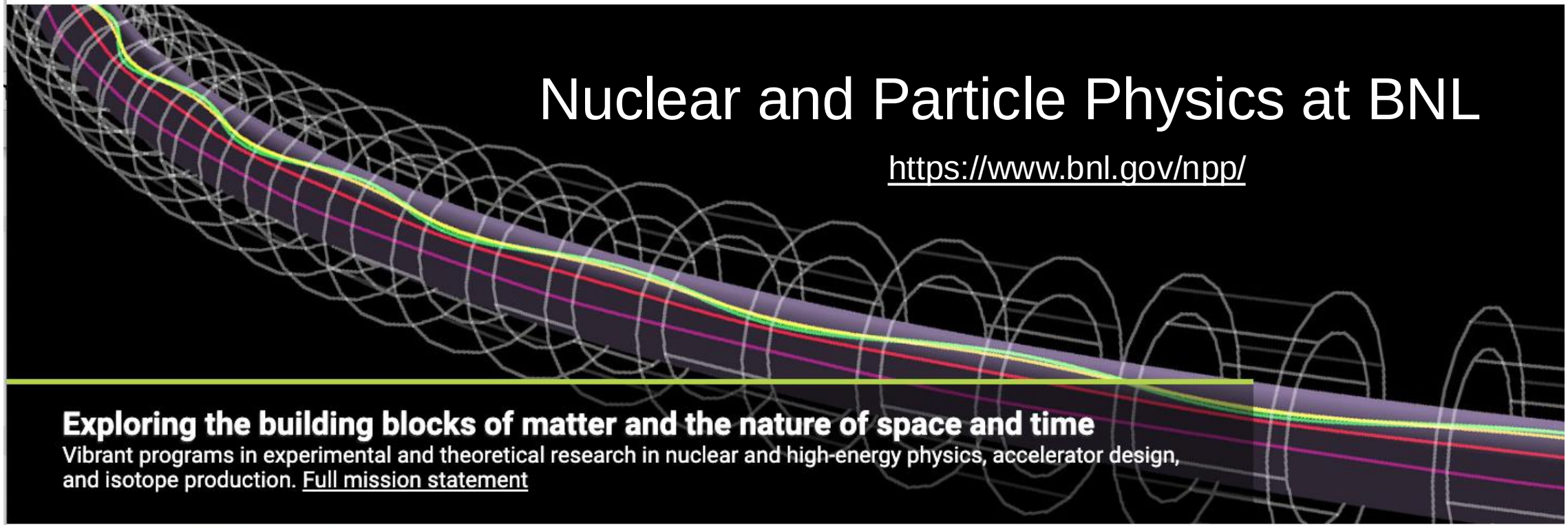
- Protecting the bio-economy
- Carbon-Free Energy
- Climate Science and a “cloud in a box”
- Isotope production to meet the nation’s needs

Brookhaven Lab Today



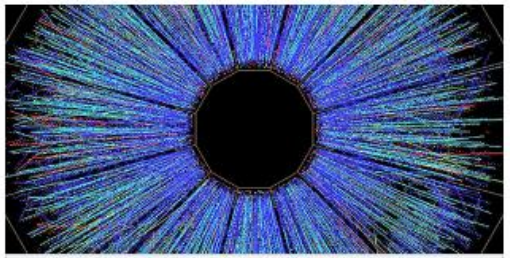
Nuclear and Particle Physics at BNL

https://www.bnl.gov/npp/



Exploring the building blocks of matter and the nature of space and time

Vibrant programs in experimental and theoretical research in nuclear and high-energy physics, accelerator design, and isotope production. Full mission statement



Nuclear Physics

Our nuclear physics program investigates how nuclear matter emerges from quarks and gluons produced at the Relativistic Heavy Ion Collider (RHIC). We are designing and constructing the Electron-Ion Collider (EIC), a tool for determining how the structures of the proton and neutron emerge from their quarks and gluons.

Particle Physics

Brookhaven Lab leads global particle physics experiments to explore the fundamental constituents of nature to discover phenomena that signal physics beyond the Standard Model. We are advancing studies of the Higgs boson, and revealing mysteries of neutrinos and the secrets of the cosmos.

Accelerator Science

The Collider-Accelerator Department designs and constructs new particle accelerator facilities in support of the Laboratory's mission. It supports the experimental program through design, construction, and operation of beam transports to experiments and supplies expertise for detector and research needs.

Isotope Research

The Isotope Research and Production Department prepares radioisotopes for the nuclear medicine community and develops new radioisotopes for nuclear medicine investigators. The program conducts irradiations for non-isotope applications and explores opportunities for new products and radioisotope applications.

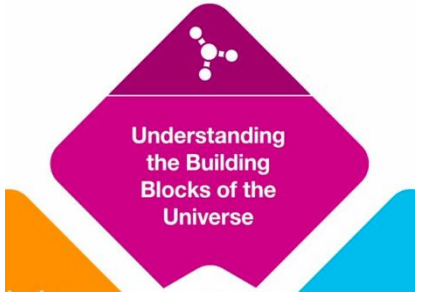
https://www.bnl.gov/eic/

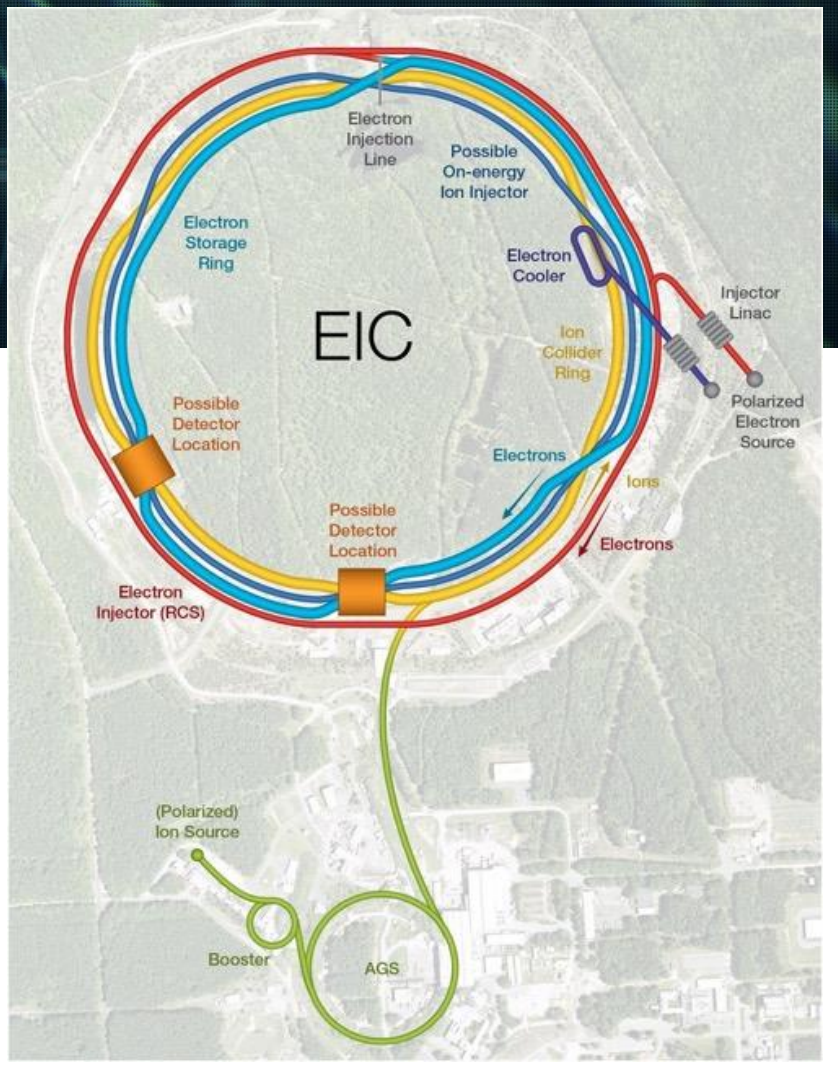
The Electron-Ion Collider

A machine that will unlock the secrets of the strongest force in Nature

- Discovery machine will allow scientists to look inside protons and neutrons and unlock mysteries of the strong force that binds nature's building blocks: quarks and gluons
- Research and development for the EIC will lead to advanced technology and useful applications
- The EIC is being built through a partnership with DOE, Brookhaven, and Thomas Jefferson National Accelerator Facility with additional support from New York State
- The EIC also benefits from participation among international collaborators

EIC is a great opportunity to explore the synergy between Nuclear and Particle Physics, in both the technology and science



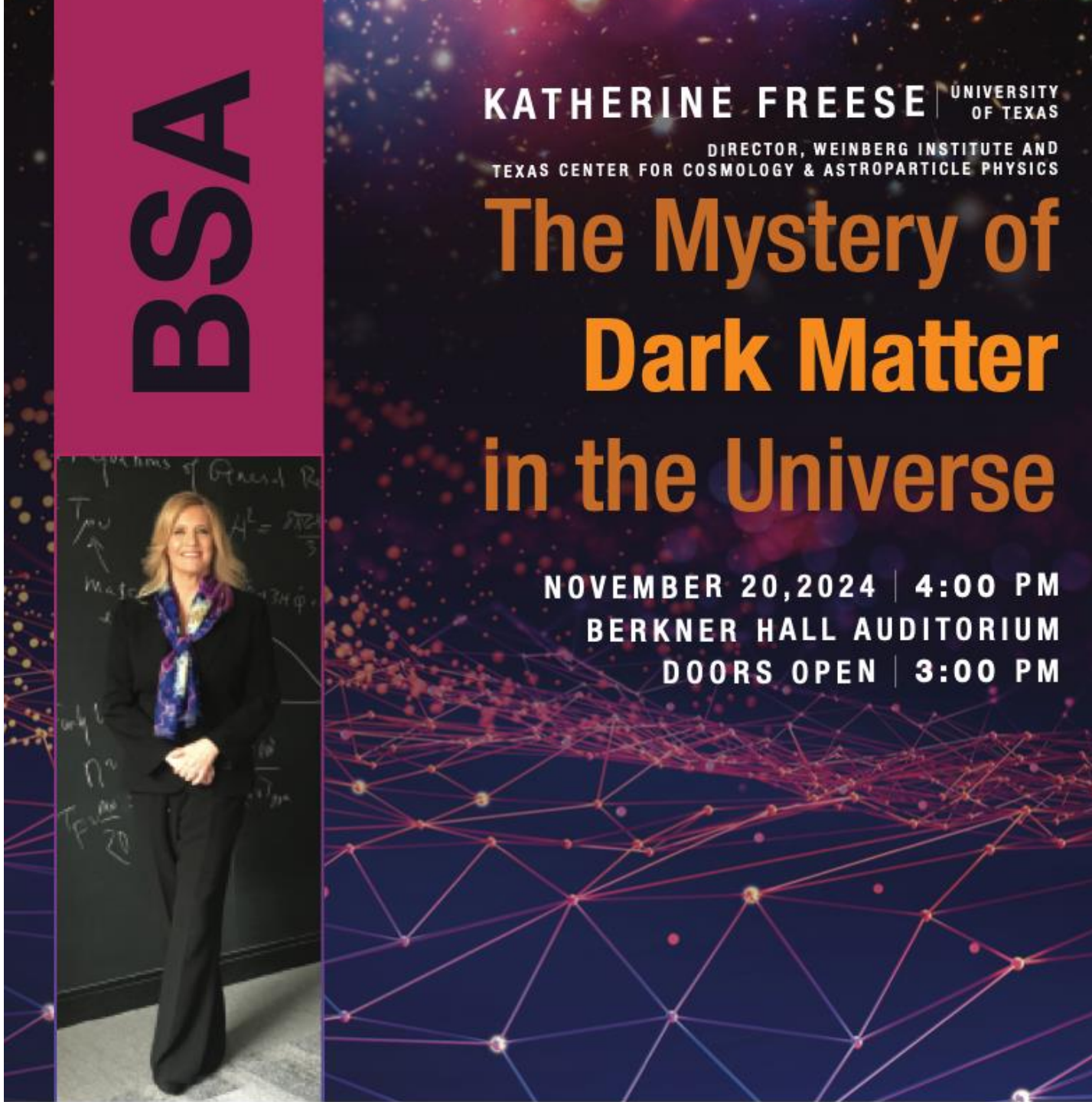


Please join us for the

BSA Distinguished Lecture

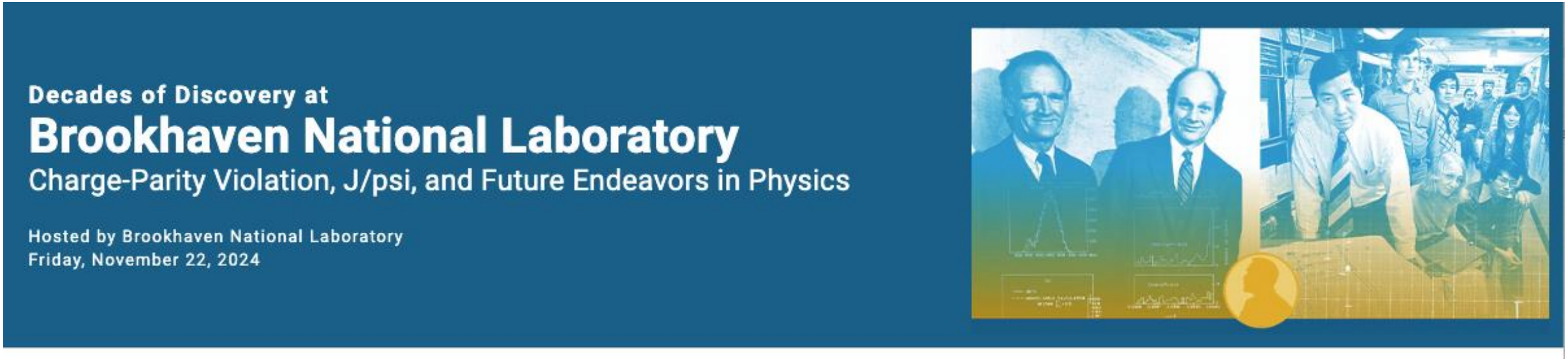
This afternoon at 4pm
in Berkner Hall

Reception
after the lecture



Brookhaven National Laboratory

50/60 Celebration of discovery of J/Psi and CP Violation



Friday afternoon
1pm-7pm

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