

BREA NEWS

<https://bera.bnl.gov/brea/>

Volume 24, Issue 1

January/February 2024

BREA Meetings

BREA meetings are held on the second Tuesday of every month (except for August), at 1 p.m. EST. All BREA members are invited to attend and participate.

With the BNL site still closed to retirees, Zoom meetings via video link have become routine. Contact any officer for help to join a meeting.

Meeting Schedule

January 9, 2023

February 13, 2023

March 12, 2024

BREA Officers

President

Arnold Moodenbaugh
moodenba@optonline.net

Vice President

Andrew Feldman
andrew_j_feldman@outlook.com

Secretary

Laura Miller
lj96miller@outlook.com

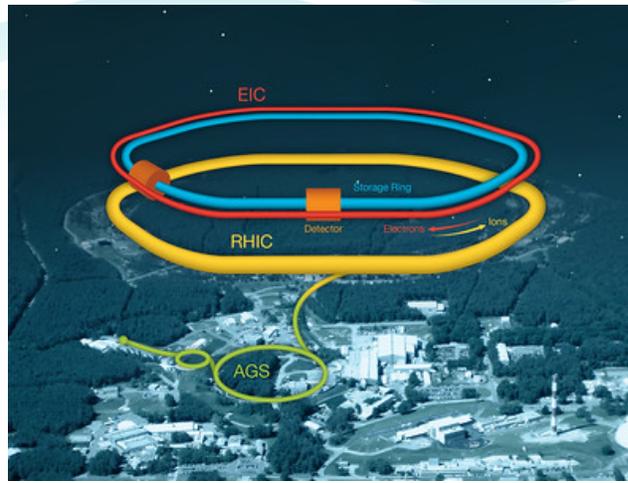
Treasurer

Louise Hanson
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Newsletter Editor

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BNL will host the next major nuclear physics user facility, the one-of-a-kind, \$1.7 to \$2.8 billion Electron-Ion Collider. See article pages 2-3.

From the President

by Arnie Moodenbaugh, moodenba@optonline.net

To fellow BREA Members,

I hope you've had a good holiday season.

In December 2023, BERA Supervisor Adam Merone emailed retirees about new charges for those of us using the pool and weight room on site. Starting January 2, 2024, use of the gym will be \$30 per year. The pool will be \$25 per month or \$60 for 3 months or \$5 per day. These charges will help pay for lifeguards and gym attendants, who are not BNL employees and instead are hired directly by BERA. Seeing things in context, I can understand the need to share costs with users. BERA's funding is tight.

At our December meeting, we noted that a fire damaged the main building of the Tesla Science Center at Wardencllyffe in Shoreham. The members present voted to contribute \$1,000 to that organization as a sign of support.

Our January meeting will take place on Tuesday, January 9, 2024, at 1 p.m. EST. We plan to originate the meeting at BNL, with ZOOM access as well as in-person attendance for members. Adam Merone has been helpful in arranging this meeting, and we appreciate his effort. Details of ZOOM access and BNL location will be provided in the meeting announcement and agenda that will be emailed to you the first week of January. Since attendance in the conference room may be limited,

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Looking Forward: The Electron-Ion Collider

As the new year begins, Brookhaven Lab, in collaboration with Thomas Jefferson National Accelerator Facility, is looking forward to constructing the EIC, short for Electron-Ion Collider. EIC will be the nation's next major nuclear physics facility, the only such collider in the world.

“This is the opportunity of a lifetime!” pronounced new BNL Director JoAnne Hewett at her first all-hands meeting in August 2023.

EIC's estimated cost is \$1.7 to \$2.8 billion, and the facility is expected to open for users in the early 2030s.

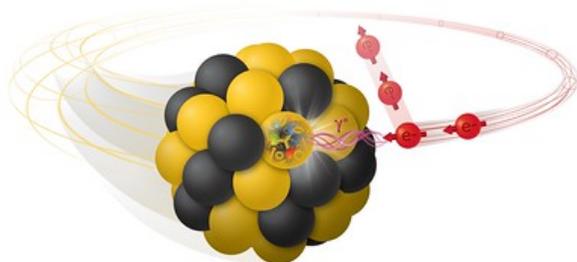
The EIC design will make use of existing ion sources, a pre-accelerator chain, a superconducting magnet ion storage ring, and other infrastructure of the Relativistic Heavy Ion Collider (RHIC). A new electron source and electron accelerator and storage rings will be added inside the existing collider tunnel so that interactions (collisions) can take place at points where the stored ion and electron beams cross.

The computers and smartphones we use every day depend on what we learned about the atom in the last century. All information technology – and much of our economy today – relies on understanding the electromagnetic force between the atomic nucleus and the electrons that orbit it. The science of that force is well understood, but we still know little about the microcosm within the protons and neutrons that make up the atomic nucleus. That's why Brookhaven Lab is building EIC – to look inside the nucleus and its protons and neutrons.

Within EIC, collisions of electrons with protons and nuclei will reveal the arrangement of the quarks and gluons that make up the protons and neutrons of nuclei. The force that holds quarks together,
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*BNL Director JoAnne Hewett at all-hands meeting in August 2023
– photo by Kevin Coughlin, BNL Senior Technical Photographer*



As electrons collide with ions at the Electron-Ion Collider (EIC), they will scatter off the quarks within the proton or nucleus. Particles ejected from the collision by these scattering interactions strike various components of a detector. Scientists study the patterns and characteristics of the particles produced to tease out the internal structure of the protons and ions, including the distribution of the quarks and gluons.

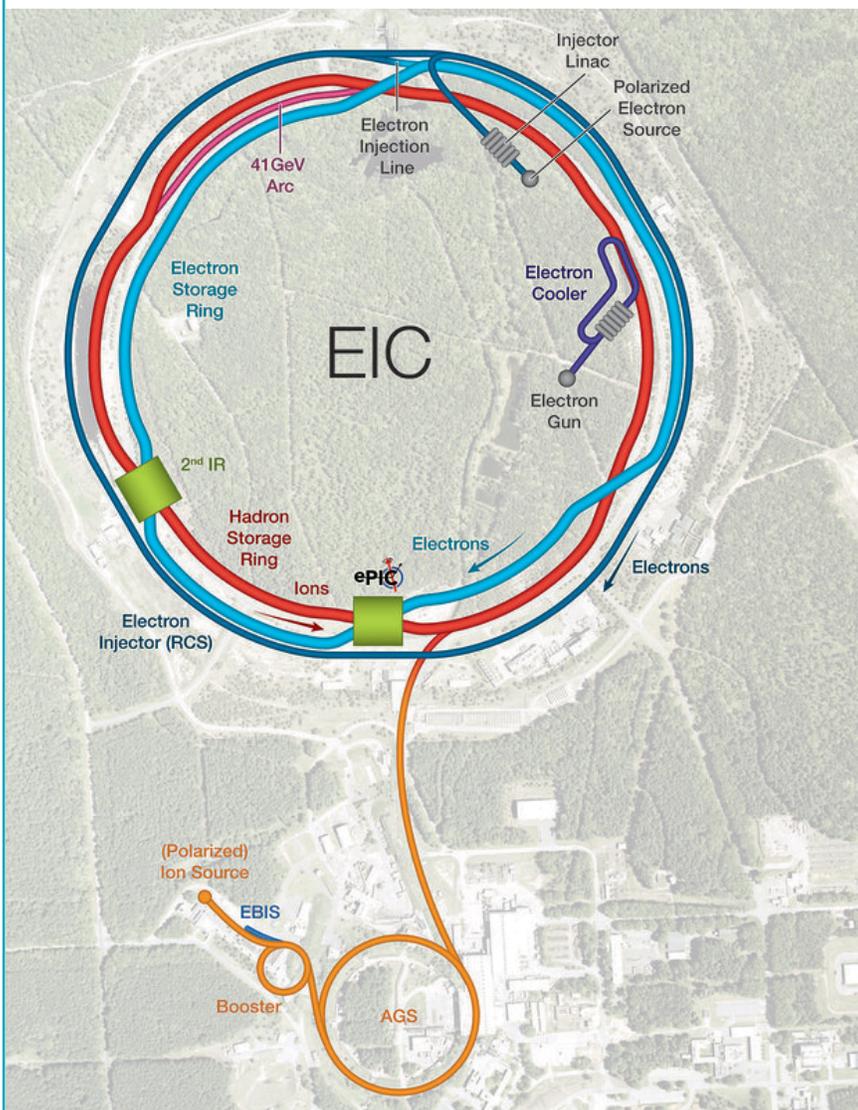
– all schematics by Tiffany Bowman, graphic designer

carried by the gluons, is the strongest force in nature. EIC will allow us to study this “strong nuclear force” and the role of gluons in the matter within and all around us. What we learn from EIC could power the technologies of tomorrow. Moreover, the facility will certainly inspire the next generation of scientific explorers, engineers, and tech-savvy workers needed to address some of the nation’s greatest challenges.

More on RHIC

Many retirees will remember RHIC construction (1991-1999) and operation (2000-present) during their years at Brookhaven Lab. Over the past two-plus decades, RHIC’s explorations of the inner building blocks of matter have advanced understanding of the quarks and gluons that make up protons and neutrons – and ultimately atomic nuclei.

Collisions of heavy nuclei at RHIC have definitively recreated the conditions of the early universe and revealed that the primordial soup of quarks and gluons, known as a quark-gluon plasma, flows like a nearly perfect liquid. Collisions of polarized protons at RHIC have given deeper insight into the nature of proton spin, a property used in MRI scans but still mysterious in its origins.



Schematic of the planned Electron-Ion Collider (EIC), a discovery machine for unlocking the secrets of the "glue" that binds the building blocks of visible matter in the universe.

As BNL completes the RHIC science mission, the Lab is also well into the design stage for EIC.

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Recent Milestones

On October 4, 2023, the U.S. Nuclear Science Advisory Committee recommended the expeditious completion of the EIC as the highest priority for facility construction in its 2023 long-range plan.

Then in November 2023, the U.S. Department of Energy signed a “statement of interest” with CEA, one of the French funding agencies, expressing their mutual desire to collaborate on the EIC. This is the first step toward building strong international contributions to this important project.

“Given the scale of this project and the importance of the science to the world, it is vital that it be a truly international project,” said BNL Director Hewett.

– Source: www.bnl.gov

Renew BREA Membership

Membership expires on December 31 of every year no matter when you paid your dues (which are requested by January 31 of the following year). To stay on BREA’s mailing list, complete the form below and mail it to me along with your payment. Include your email address so BREA can send you timely information.

If you have questions or if your contact info has changed, email me at hellobylin@yahoo.com.

PLEASE PRINT

Last name: _____ First name: _____ MI: _____

Address: _____

Phone: _____ Email: _____

Membership type:

annual (\$10) 5 years (\$40) Life (\$95)

Date: _____ Check amount: _____

MAKE YOUR CHECK OUT TO BREA

I want to receive BREA News by mail via the U.S. Post Office.

I want to receive BREA News by email only. Do not mail it to me via the U.S. Post Office.

Mail form and check (made out to BREA) to:

Beth Lin, BREA Membership Chair
81 Westchester Drive
Rocky Point, NY 11778

– Beth Lin, Membership Chair
hellobylin@yahoo.com

In Memoriam

We deeply regret to inform you of the passing of the following retirees.

George Bozoki, 93, November 16, 2023
Paula Jean Pozzoli, 63, November 19, 2023

More information may be found at BREA’s website: <https://bera.bnl.gov/brea/>. To post an obituary for a deceased BNL employee or retiree, email information to msrowe.hi@gmail.com or mail it to BREA (see panel below for address).

President’s Message (cont’d from page 1)

please email me if you plan to attend. Those without email can call me at (631) 288-5309 for specifics. Also, be aware that your badges and car stickers may be expired. In order to renew them, you will need identification and/or car registration documents.

Election results for the election of BREA officers will be presented at the January meeting. A big thank you to Beth Lin for receiving and counting the submitted votes, as well as her ongoing work as Membership Chair. We anticipate welcoming incoming Vice President Andy Feldman and Treasurer Louise Hanson, and returning Secretary Laura Miller. We also want to thank BREA's outgoing VP Vinita Ghosh and Treasurer Les Fishbone.

Best wishes for the upcoming year. I look forward to seeing at least some local BREA members at in-person meetings and possibly some organized events in the near future.

– Arnie Moodenbaugh, moodenba@optonline.net

Brookhaven Retired Employees Association

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