EIC Resource Review Board Mandate & Meeting Goals

Haiyan Gao, Associate Laboratory Director
Nuclear and Particle Physics, BNL
David Dean, Deputy Director for Science, TJNAF

RRB meeting April 3,2022

Electron-Ion Collider

BROOKHAVEN NATIONAL LABORATORY Jefferson Lab U.S. DEPARTMENT OF ENERGY | Office of Science

The Electron-Ion Collider

Project Design Goals

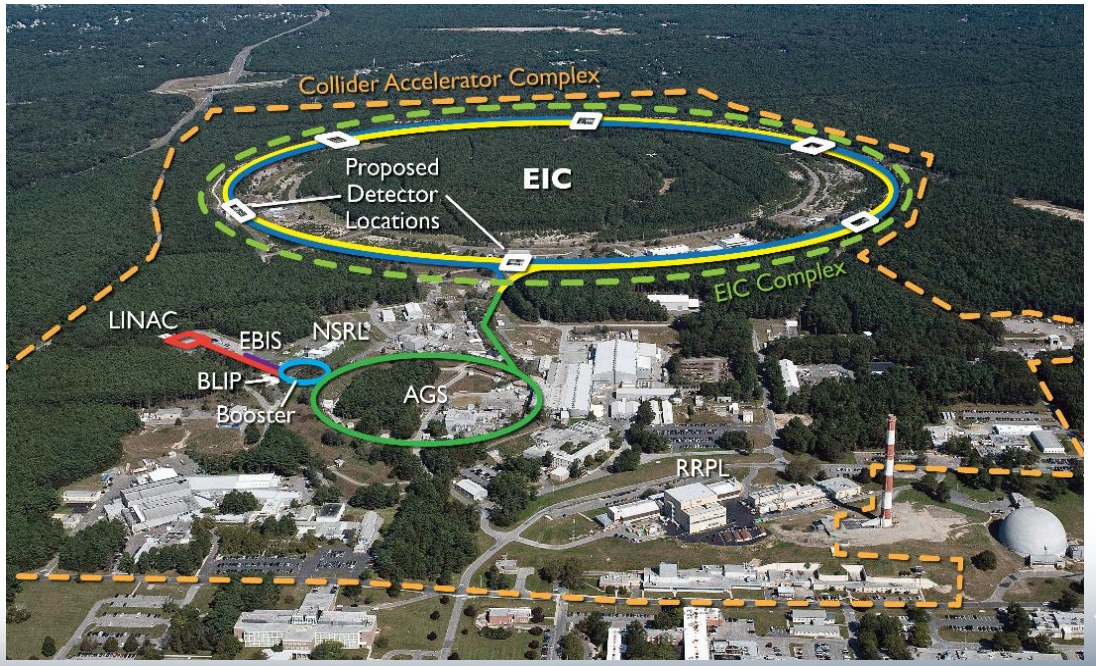
- High Luminosity: L= 10^{33}–10^{34}cm^{-2}sec^{-1}, 10–100 fb^{-1}/year
- Highly Polarized Beams: ~70%
- Large Center of Mass Energy Range: E_{cm} = 20–140 GeV
- Large Ion Species Range: protons – Uranium
- Large Detector Acceptance and Good Background Conditions
- Accommodate a Second Interaction Region (IR)

•Conceptual design scope and expected performance meet or exceed U.S. Nuclear Science Advisory Committee Long Range Plan (2015) and the EIC White Paper requirements endorsed by U.S. National Academy of Sciences (NAS 2018)

NAS 2018: An EIC can uniquely address three profound questions about

nucleons—neutrons and protons—and how they are assembled to form the nuclei of atoms:

- How does the **mass** of the nucleon arise?
- How does the **spin** of the nucleon arise?
- What are the emergent properties of dense systems of gluons?



Double Ring Design Based on Existing RHIC Facility

The Electron-Ion Collider - Fully International in Character

EIC user group formed in 2016, 1362 collaborators, 36 countries, 267 institutions

Key milestones

- DOE CD-0 (Approve Mission Need) December 2019
- DOE EIC site selection of BNL (Jan 2020)
- BNL-TJNAF partnership formed in 2020
- DOE CD-1 (Approve Alternative Selection and Cost Range) June 2021
- Project detector design selected March 2022
- ePIC collaboration formed July 2022
- ePIC leadership elected Feb 2023
- EIC-RRB meeting today

Discovery science; accelerator and detector technologies, computing; developing talent and building capacity

Resources Review Board (RRB)

- A Resources Review Board (RRB) is planned in support of the EIC experimental program (detector and computing)
- RRB modeled after similar bodies adopted on international experiments in nuclear and particle physics
- Several meetings with funding agencies where very positive input was collected from Stakeholders in view of an EIC RRB
- Aim of today's meeting is to present the draft RRB model and solicit input from Stakeholders about the role and composition of the RRB **(draft RRB charter shared prior to this meeting and will be discussed next)**
- First meeting of the RBB planned Spring 2023 **(we are here today April 3, 2023)**

Presented at the Pre-RRB meeting Oct 12-13, 2022, by Maria Chamizo-Llatas

Stakeholders: US DOE, EIC funding agencies, EIC Users Group, ePIC Collaboration

EIC RRB Draft Charter

Purpose

The purpose of the Electron-Ion Collider Resources Review Board (EIC-RRB) is to provide coordination among the different funding partners during both the detector development and construction phase of the project and during the operations of the experiments that follow. **The RRB will focus on the construction, commissioning, and initial operations in its early years.** The RRB shall provide oversight of resources utilized for detector construction and planning, **which is the ePIC detector in the EIC project scope.** The RRB will function as the body that reaches agreement on scope entailed in common projects, as appropriate, which shall be funded by members of the RRB. The RRB will be responsible for annually agreeing on and endorsing **ePIC detector commitments** from the members. The RRB will monitor progress toward overall **ePIC** detector funding and construction. At the appropriate time, the RRB will include in its purview common computing needs of the EIC detector(s).

The RRB Charter should be reviewed and updated as the EIC moves from construction towards operations, **and as the needs of the program evolve.**

EIC RRB Draft Charter

Membership

BNL and TJNAF, as the co-hosts for the EIC Experimental Program, will invite funding agencies to appoint delegates to serve as members of the RRB during the construction phase of the project. The EIC Project Director shall be ex officio on the RRB.

The RRB shall consist of one representative from each funding agency that supports institutions who collaborate on the EIC detector(s) **including software and computing** (e.g., in-kind and/or workforce). In this initial phase, flexibility will be applied to membership on the RRB, with likely contributors to the detectors and experiments being candidates for initial membership.

RRB members may delegate participation for a given meeting. Members may also designate one Principal Investigator as an observer at each RRB meeting.

The BNL Associate Laboratory Director (ALD) for Nuclear and Particle Physics and the TJNAF Deputy Director for Science will serve as standing members of the RRB.

EIC RRB Draft Charter

Co-Chairs

The Co-Chairs shall convene meetings, set meeting agendas, and determine objectives for the RRB. The Co-Chairs shall report to the EIC Project Director on the activities and recommendations of the RRB and keep the EIC Advisory Board informed.

The US Co-Chair shall serve two-year terms and shall rotate between the BNL ALD for Nuclear and Particle Physics and the TJNAF Deputy Director for Science.

There will also be one Co-Chair from a non-DOE funding agency. International partner agencies shall decide on their election/rotational scheme for the international Co-Chair. A chair-line will be established for the international funding agencies (consisting of a Co-Chair and a Co-Chair-Elect). The first international Co-Chair will assume the role by the invitation of BNL and TJNAF as co-hosts for the EIC Experimental Program.

US Co-Chair: Haiyan Gao (BNL)
International Co-Chair: Diego Bettoni (Italy, INFN)

EIC RRB Draft Charter

Meetings

The RRB will meet twice per year; at least one of these meetings will be in person and will be held in Washington, DC, or a location near BNL or TJNAF during initial phases of the project. The meetings will consist of open sessions and executive (member-only) sessions. Special meetings of the RRB may be called as needed.

Meetings will provide an opportunity for members to conduct the business of the RRB, as described in the Purpose above. Minutes of these meetings will be distributed to the EIC Project and to the EIC Advisory Board. The EIC project staff at BNL and/or TJNAF provides administrative support to the RRB Co-Chairs and meetings.

The Chair of the EIC Advisory Board will be invited to the RRB meetings.

Charter Approval and Amendments

The Charter will be established at the initial meeting of the EIC-RRB. A supermajority (2/3) of RRB members will approve the Charter and amendments.