**Charge to EIC Detector Advisory Committee – 5th Meeting October 19-21, 2022**

The EIC Detector Advisory Committee (DAC) provides advice to the EIC project managed by BNL in partnership with Thomas Jefferson National Accelerator Facility (TJNAF) on the experimental equipment and the scientific collaboration. This includes advice on the suitability of the experimental equipment for the EIC science, on cost, schedule and technical risk of detector components and design choices, and relative importance of technical tasks, on evaluation of complementary EIC detector technologies and the complete detector proposals, on collaboration formation, on detector integration, detector-interaction region integration, and detector commissioning, and on EIC-related detector R&D.

The roadmap to the next phase(s) of EIC remains rapid. Critical Decision-One (CD-1) was awarded on June 29 2021 and allowed for release of Project Engineering and Design (PED) funds. This initiated the next phases of design of accelerator and detector. With the recent EIC funding from the Inflation Reduction Act, the EIC project aims for CD-2/3A (baseline approval and start of long-lead procurements) early 2024 and CD-3 (start of construction) one year later.

The March 2021 DAC meeting concentrated on the transition from the successful 2011-2021 EIC-related generic detector R&D program (<https://wiki.bnl.gov/conferences/index.php/EIC_R%25D>) to the Project detector R&D program, and on giving advice for opportunities and priorities for a generic EIC detector R&D program. Since that time,

* The EIC Project has started the project detector R&D late Summer 2022.
* Jefferson Lab, in association with Brookhaven National Lab and the DOE Office of Nuclear Physics, has restarted a generic detector R&D program to address the scientific requirements for measurements at the future Electron Ion Collider. This program is overseen by a dedicated advisory panel.

For the EIC project detector R&D, there were some that we could not initiate yet, for various reasons. These include the forward electromagnetic and hadronic calorimetry that was on hold to allow a change of detector technology, the Silicon MAPS/ITS3 sensors that moved in the proposal process from generic to EIC project detector R&D, and the various ASICs-related R&D that were collected for consideration at a recent August 29 electronics/DAQ subsystem status review. We intend to start contracts for these pending your upcoming DAC meeting and deliberations.

In late 2021 and early 2022, the DAC provided advice to an ad-hoc Detector Proposal Advisory Panel for the EIC detector proposal and selection process. See <https://www.bnl.gov/eic/cfc.php> and <https://www.bnl.gov/dpapanelmeeting/>. This process concluded that from the three submitted proposals ATHENA and ECCE satisfied the requirements, and that many collaborators were involved in multiple proposals. It was strongly encouraged for the three proto-collaborations to move forward together based on ECCE as the reference design for the project detector. Since that time the ATHENA and ECCE collaborations have merged in the new EPIC detector collaboration.

The 5th DAC meeting will span October 19-21 and will be used to inform the committee on the progress and status of the EIC project, on the progress and status of the EPIC detector since the DPAP process, but will mainly concentrate on the status of the various EIC project detector R&D projects that have started and review the plans and requests for the upcoming year.

For the October 2022 DAC meeting we welcome your guidance and advice on the following topics:

* The status and progress of the EIC Project.
* The status and progress of the EPIC detector and collaboration following the consolidation and optimization process after the DPAP.
* The status, progress and plans for the EIC project detector R&D that has been initiated recently (eRD101-105, eRD108, eRD110-112).
* The plans for the EIC project detector R&D that have not been started yet, for various reasons (eRD106-107, eRD109, and the new eRD113)
* Further planning for the outyears of the EIC Project detector R&D as documented in the “Assessment of R&D Needs for an EIC Detector” (EIC Detector R&D) document.
* What do you see as priorities for the proposed EIC-related Project detector R&D?

References:

DAC Meeting Agenda 19th – 21st: <https://indico.bnl.gov/event/17159/>

FY23 detector R&D proposals: <https://wiki.bnl.gov/conferences/index.php/ProjectRandDFY23>

FY22 detector R&D: <https://wiki.bnl.gov/conferences/index.php/ProjectRandDFY22>

EIC Detector R&D plan:

<https://brookhavenlab.sharepoint.com/:b:/s/eRHIC/dac/EbW5yq6lSvhNnWEqTNC-xNEB4hiKMzYW93almUKXdJWlBw?e=t2xa88>

Generic EIC-related Detector R&D Program: <https://www.jlab.org/research/eic_rd_prgm>

Received proposals: <https://www.jlab.org/research/eic_rd_prgm/receivedproposals>