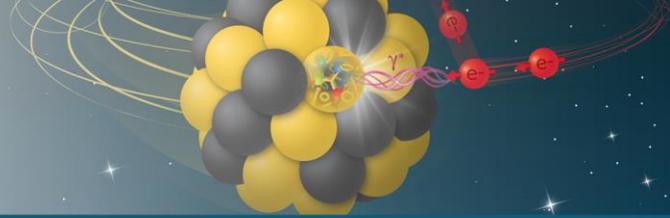


Electron-Ion Collider



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March 28, 2025

To: B. Bradu (CERN), J. Casas-Cubillos (CERN), ~~S. Seberg~~ (BNL), S. Yang (JLAB)
From: Kevin Smith, EIC Deputy Technical Director *Kevin Smith*
Subject: Charge—HSR Cryostat Modifications for the ~~38E3FAB95ABA4DD...~~
Beam Screen Cooling System Preliminary Design Review - April 24-25, 2025

The Electron-Ion Collider (EIC) is a major new facility, fully international in character, being designed and built at the U.S. Department of Energy's (DOE) Brookhaven National Laboratory (BNL) in partnership with the Thomas Jefferson National Accelerator Facility. As Part of the modifications to the existing RHIC rings, an actively cooled amorphous carbon-coated beam screen will be installed in the cold beampipes. The beam screen serves to reduce resistive losses and the resulting heat load to the 4K cryogenic system and to reduce secondary electron yield to limit potential electron cloud instability.

As part of this effort the beam screen cooling circuit will need to be incorporated into the existing RHIC cryostats. This will be done by tapping into the existing magnet cooling lines and adding piping to supply and control the cryogenic cooling flow to the beam screens during cooldown and the 80K degassing mode.

We would appreciate your assistance in assessing our readiness and preliminary design maturity for the Beam Screen Cryostat Modifications. The committee is asked to respond to the following charge questions:

1. Are the Beam Screen Cryostat Modifications and Arc Beam Screen Cryogenic Cooling Circuit requirements sufficiently defined, understood, and documented for this phase of the design?
2. Does the Arc Beam Screen Cryogenic Cooling Circuit design and Cryostat Modifications meet the requirements?
3. Are the interfaces and requirements defined and documented?
4. Are the design analysis, simulations, drawings and specifications, and work plans, sufficient for this phase of the design?
5. Are the quality and acceptance plans adequate for this phase of the design?
6. Is the overall design maturity sufficient to proceed with the final design phase?

We would appreciate receiving the committee's report within 14 days of the review's conclusion.

cc: L. Lari, B. Gallagher, C. Hetzel, S. Nagaitsev, V. Ptitsyn, T. Russo, A. Seryi, K. Smith, R. Than, J. Tuozzolo, K. Wilson, J. Yeck