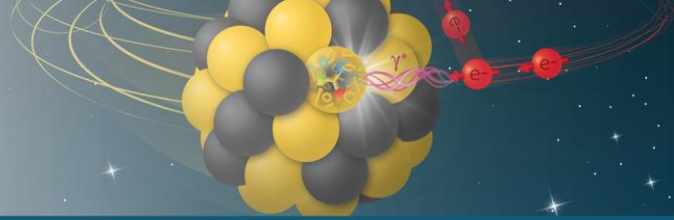


# Electron-Ion Collider



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Date: December 5, 2024

To: G. Fries, BNL; D. Harding, FNAL; P. Berrutti, BNL

From: Kevin Smith, EIC Deputy Technical Director

Signed by:

*Kevin Smith*

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Subject: Charge for EIC CD-3B Dipole System Requirements Review – December 13, 2024

The Electron-Ion Collider (EIC) is a major new facility 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. The Electron Storage Ring (ESR) for the EIC requires two new design copper coil/steel core accelerator dipole magnets, designated the D1/D3 dipole and the D2 dipole. Both magnets will be produced in several hundred-piece quantities.

The purpose of this System Requirements Review (SRR) is to ensure that the D1/D3 and D2 dipole designs have their basis in an appropriate set of requirements and interface definitions. An SRR ensures that system requirements and interfaces are properly defined, that requirements are validated to ensure that they are correctly flowed down from their parents, and that nothing is missing or inaccurately defined with respect to stakeholder needs.

The committee is asked to respond to the following charge questions:

1. Is the physics methodology used for the development of the requirements sufficient, and does it provide appropriate rationale for each requirement?
2. Does the Systems Engineering process adequately capture, control and communicate the requirements?
3. Are all appropriate Stakeholders and Subject Matter Experts properly aligned on all requirements and is there an unambiguous single source of truth which communicates them to all members of the EIC team?
4. With respect to the lines of inquiry and criteria provided, as well as committee expectations and experience, are the D1/D3 and D2 dipole requirements adequate to ensure that the magnet designs will deliver the functionality and performance required for the ESR?

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

cc: J. Fast, L. Lari, C. Montag, S. Nagaitsev, T. Russo, A. Seryi, K. Smith, J. Tuozzolo,  
K. Wilson, J. Yeck