Contribution ID: **1474** Contribution code: **WEPB084** Type: **Poster Presentation**

Design of normal-conducting quadrupoles for the spin rotator section in the EIC electron storage ring

Wednesday 4 June 2025 16:00 (2 hours)

The insertion region IR6 in the Electron Storage Ring of the planned Electron Ion Collider facility at Brookhaven National Laboratory includes a section to rotate the electron spin into or out of the longitudinal direction. This section consists of superconducting solenoids, and normal conducting dipoles and quadrupoles. The geometry and field gradient requirements of the quadrupoles pose a challenge in their design with regards to yoke saturation and thereby field quality. Electromagnetic design of one such quadrupole is the focus of discussion in this article. The design process involves optimization of the pole tip, yoke and conductor size using two and three-dimensional finite element method tools.

Footnotes

Paper preparation format

LaTeX

Region represented

America

Funding Agency

Work supported by Brookhaven Science Associates, LLC under Contract No. DE-SC0012704 with the US Department of Energy

Author: SINGH, Harshita (Brookhaven National Laboratory (BNL))

Co-authors: WITTE, Holger (Brookhaven National Laboratory); MARX, Daniel (Brookhaven National Laboratory); MONTAG, Christoph (Brookhaven National Laboratory)

Presenter: MONTAG, Christoph (Brookhaven National Laboratory)

Session Classification: Wednesday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T09 Normal Conducting Magnets