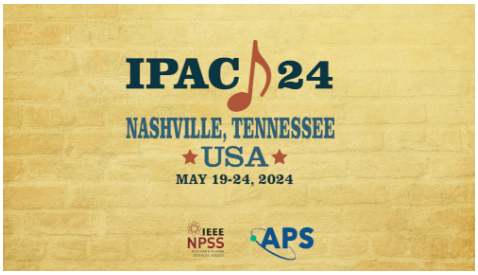


Contribution ID: **1976** Contribution code: **MOPC04** Type: **Poster Presentation**

# Study of orbital effects on EIC detector synchrotron radiation background

*Monday, 20 May 2024 16:00 (2 hours)*

Synchrotron radiation could contribute to detector background significantly, especially when the electron beam deviates from the design orbit. Without effective control, synchrotron radiation could impede physics data taking or even damage detector components. One of the key contributors to suppress synchrotron radiation in the Electron-Ion Collider IR is to control the electron orbit upstream the detectors. Therefore, it is imperative to define the tolerance of orbit errors in the IR which requires studying the orbital effects on synchrotron radiation. In this report, we will present the studies of orbital effects on synchrotron radiation background in EIC IR, including beam offsets introduced by upstream dipole, correctors, and quadrupole offsets.

## Footnotes

## Funding Agency

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

## Paper preparation format

LaTeX

## Region represented

North America

**Primary author:** LIU, Chuyu (Brookhaven National Laboratory)

**Co-authors:** HETZEL, Charles (Brookhaven National Laboratory (BNL)); MONTAG, Christoph (Brookhaven National Laboratory); DREES, Kirsten (Brookhaven National Laboratory); SULLIVAN, Michael (SLAC National Accelerator Laboratory); SHMAKOVA, Vera (Brookhaven National Laboratory (BNL))

**Presenter:** LIU, Chuyu (Brookhaven National Laboratory)

**Session Classification:** Monday Poster Session

**Track Classification:** MC1: Colliders and other Particle and Nuclear and Physics Accelerators: MC1.A01 Hadron Colliders