

# The 2024 International Workshop on the High Energy Circular Electron Positron Collider

Contribution ID: 46

Type: **Poster**

## **Title: Study of Synchrotron Background in the CEPC Accelerator**

*Wednesday, 23 October 2024 22:03 (1 minute)*

**Abstract:** The Circular Electron Positron Collider (CEPC) presents a significant opportunity for advancing high-energy physics research, but its operation also brings about challenges related to synchrotron background radiation. This study focuses on characterizing and mitigating the synchrotron background produced within the CEPC accelerator environment. Synchrotron radiation, primarily generated by the bending and focusing of electron and positron beams, poses potential risks to both detector performance and beam stability.

In this work, we perform comprehensive simulations using advanced particle tracking and radiation modeling tools – CEPESW, to quantify the synchrotron radiation flux and energy distribution across MDI regions of the CEPC.

Our findings aim to enhance the understanding of synchrotron radiation behavior in the CEPC and contribute to the development of effective mitigation strategies, ensuring optimal performance and longevity of the accelerator and its detectors.

**Primary author:** 唐, 彦邦 (IHEP)

**Presenter:** 唐, 彦邦 (IHEP)

**Session Classification:** Poster

**Track Classification:** Detector and System: 11: MDI & Integration