

# eeFACT 2025 - 70th ICFA Advanced Beam Dynamics Workshop on High Luminosity Circular e+e-Colliders



Contribution ID: 63

Type: **Invited Oral Presentation**

## First view at alignment tolerances in the FCCee Interaction Region

*Tuesday 4 March 2025 17:40 (30 minutes)*

The FCC-ee is a next-generation high-luminosity electron-positron collider designed for beam energies between 45.6 and 182.5 GeV. Achieving its ambitious performance objectives relies on precise optics tuning. This study addresses the challenges of magnet misalignments, gradient errors and stringent alignment tolerances in the Interaction Region (IR). Utilizing the pyAT framework, correction algorithms were applied to restore the lattice configuration in presence of realistic IR errors, followed by stability testing under operational conditions. The findings offer critical insights into alignment strategies, correction methods, and their influence on beam dynamics, contributing to the development of the FCC-ee.

### Footnotes

### Funding Agency

### I have read and accept the Privacy Policy Statement

Yes

**Primary author:** JAGABATHUNI, Satya Sai (European Organization for Nuclear Research)

**Co-authors:** Dr CARLIER, Felix (Ecole Polytechnique Fédérale de Lausanne); LIUZZO, Simone (European Synchrotron Radiation Facility)

**Presenter:** JAGABATHUNI, Satya Sai (European Organization for Nuclear Research)

**Session Classification:** Magnets, IR, Alignment

**Track Classification:** WG10 : Magnets, IR, Alignment