



Contribution ID: 2657 Contribution code: MOPL077

Type: **Poster Presentation**

## First studies of final focus quadrupoles vibrations of the z lattice of FCC-ee

*Monday, 8 May 2023 16:30 (2 hours)*

The proposed FCC-ee machine is a high-energy, high-intensity and high-precision lepton collider which will require to reduce as much as possible the differential motions of its two beams at the interaction points. In this prospect, the vibration impacts of the quadrupoles in the region close to the interaction point are investigated. Considering the z-pole optics design and its dedicated optics simulation under MAD-X, the present paper describes the integration of the dynamics aspects (vibrations mitigation) to render the modelling more realistic towards operation. This simulation is based on the “particle tracking” mode. In this prospect, dynamic characteristics of the designed mechanical assembly are estimated according to an analysis in finite element models. Required transfer functions and realistic temporal sequences along the assembly are thus created and they can be implemented as inputs to the optical simulations to verify that this assembly allows the expected beam parameters. The obtained results on a dedicated cantilever mock-up are presented and the last optics simulations are discussed.

### Funding Agency

### Footnotes

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

Yes

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**Session Classification:** Monday Poster Session

**Track Classification:** MC1: Colliders and other Particle Physics Accelerators: MC1.A26: Machine Detector Interface