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FCC-ee Collider Design Overview

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Following the recommendations of the 2020 update of the European Strategy for Particle Physics (ESPP), CERN, in collaboration with many institutes around the globe, is investigating the feasibility of a 100 TeV centre-of-mass hadron collider with an electron-positron collider as a pre-stage.

This study builds upon the conceptual design reports delivered by the Future Circular Collider (FCC) study in 2019, which address the general design and performance expectations of both machines.

Over the course of five years, and in time for the 2025 update of the ESPP, the FCC Feasibility study is now closely investigating a potential implementation of such accelerators in a 100 km long tunnel in the Geneva basin.

Amongst other objectives, the study focuses on the demonstration of the feasibility of building the tunnel and surface areas, optimisation of the collider and injector designs, and supporting R&D for key components of the machines.

In this presentation, an overview of the design of the electron-positron collider FCC-ee will be given.

The FCC-ee aims to deliver electron-positron collision at centre-of-mass energies ranging from 88 GeV to 365 GeV and with record luminosity.

Achieving the targeted performance relies on a number of key concepts, such as the use of top-up injection and a crab waist collision scheme.

Progress on the design of these and other systems and changes implemented since the publication of the conceptual design report will be covered in this presentation.

In-person participation

Yes

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