



Contribution ID: 660

Type: **Parallel session talk**

Towards a Future Circular Higgs and Electroweak Factory

Tuesday, July 27, 2021 10:50 AM (20 minutes)

A large circular $e+e-$ collider followed by a highest-energy hadron in the same tunnel promises the most far-reaching physics program for the post-LHC era, and such a facility could well serve the particle physics community through the end of the 21st century. Two such projects are presently proposed: The Future Circular Collider, in a global collaboration hosted by CERN, and the combination of Circular Electron Positron Collider and Super Proton-Proton Collider, advanced by IHEP Beijing. Over the centre-of-mass energy range from 90 to about 365 GeV, covering all known heavy elements of the Standard Model, from the Z resonance to the top-quark threshold, the circular $e+e-$ collider offers a high luminosity and exquisite energy efficiency. The high luminosity is maintained by top-up injection from a full-energy booster synchrotron. On the Z pole and at the WW threshold resonant depolarisation will allow for a precision energy calibration at the ppm level. This presentation will summarize and compare the designs of FCC-ee and CEPC, covering the latest accelerator layouts and beam parameters, R&D plans, ongoing prototyping of key technologies, such as for the SRF system, and possible implementation schedules.

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Collaboration / Activity

FCC, FCCIS, I.FAST

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