

Plenary Talk

PV IV Thu 9:00 PVa

Roadmap for Accelerator Development in Response to the 2020 Update of the European Strategy for Particle Physics

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The European Strategy for Particle Physics was updated in 2020 and emphasizes two interrelated high-priority future initiatives. It encourages the *particle physics community* to *ramp up its R&D effort focused on advanced accelerator technologies, in particular that for high-field superconducting magnets*, and it requests that *Europe, together with its international partners, should investigate the technical and financial feasibility of a future hadron collider at CERN with a centre-of-mass energy of at least 100 TeV and with an electron-positron Higgs and electroweak factory as a possible first stage.* Both requests

are well aligned with the proposed Future Circular Collider (FCC) program, which consists of a luminosity-frontier high-energy electron-positron collider (FCC-ee) as first stage, followed by an energy-frontier hadron collider (FCC-hh) as second stage. Such integrated FCC project promises the most far-reaching physics program for the post-LHC era, and it could serve the particle physics community through the end of the 21st century. Among other innovative accelerator technologies, the Strategy Update explicitly mentions bright muon beams and energy recovery linacs (ERLs), either of which could be an integral component of later FCC additions or upgrades. This presentation will summarize the conceptual designs of FCC-ee and FCC-hh, covering the machine concepts and the R&D plan for key technologies, and some of the proposed future additions or upgrades.