

The LHeC and FCC-eh experimental program

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Leveraging the novel concept of ERLs, we present the LHeC and FCC-eh that allow the exploration of electron-hadron interactions above TeV scale. The presented design of the electron accelerator is based on two superconducting linear accelerators in a racetrack configuration that can produce lepton beam energies in excess of 50 GeV. In energy recovery mode, the accelerator is capable of reaching luminosities in excess of $10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ with an energy footprint of around 100 MW for the electron accelerator. The proposed collider concept enables luminosity values high enough for a general-purpose experimental program. While the envisaged physics results have the potential to empower the HL-LHC or FCC-hh physics results, they also include flagship EW, Higgs, QCD and top quark measurements beyond current precision, and complementary BSM searches. New thematic ep/eA@CERN WGs are pursued with the HL-LHC and the EIC programs.

Alternate track

1. Detectors for Future Facilities, R&D, Novel Techniques

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