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Options for energy frontier electron-hadron scattering at CERN (15' + 5')

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The design and recent developments are presented for a Large Hadron Electron Collider (LHeC) combining the HL-LHC hadron (p,A) beams with a new electron beam of about 60 GeV energy achieved in a racetrack energy recovery linac configuration. This electron accelerator is also considered as a default for the electron-hadron configuration of the FCC currently under study. The talk will focus on recent studies for achieving around 10^{34} cm^{-2}s^{-1} luminosity with the LHeC, making that a competitive future Higgs facility, the design of a demonstrator of the ERL principle specific for the LHeC, and it also presents first studies of the FCC-he configuration.

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