

Physics at the FCC: a story of synergy and complementarity

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CERN has launched in 2014 the design study of Future Circular Colliders, including a High Luminosity e+e- collider (FCC-ee) running from the Z pole to above the top pair production threshold. Follow a 100 TeV pp and heavy ion collider (FCC-hh) able to reach an unprecedented energy scale and possibly an e-p collider. The FCC-ee offers a broad discovery potential based on a combination of precision Electroweak Measurements, high statistics quark and lepton flavour physics, searches for rare phenomena and new particles, and Higgs model-independent coupling measurements. The FCC-hh can observe the production new particles with Standard Model couplings up to ~30 TeV, but is also an extremely abundant factory for W, Z top and Higgs, allowing searches for rare phenomena and a number of precision measurements including those of the triple Higgs and ttH couplings. The ep option would offer unprecedented reach in structure functions and high statistics of Higgs production. The synergy and complementarity of the FCC machines making the FCC complex a compelling option for the future of Collider Physics.

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