

High-precision QCD physics at FCC-ee

Thursday 18 July 2024 16:45 (15 minutes)

The CERN Future Circular Collider (FCC) is a post-LHC project aiming at direct and indirect searches for physics beyond the SM in a new 91 km tunnel. In addition, the FCC-ee offers unique possibilities for high-precision studies of the strong interaction in the clean $e+e-$ environment, thanks to its broad span of c.m. energies from the Z pole to the top-pair threshold, and its huge integrated luminosities yielding 10^{12} and 10^8 jets from Z and W decays, respectively, as well as 10^5 pure gluon jets from Higgs decays. Selected studies of the impact of FCC-ee on improving our understanding of QCD will be summarized including: (i) α_s extractions with permil uncertainties, (ii) parton showers and jet properties (udsg discrimination, event shapes, multijet rates, jet substructure,...), (iii) heavy-quark jets (dead cone, charm-bottom separation, gluon-to-QQbar splitting,...); and (iv) nonperturbative QCD phenomena (color reconnection, baryon and strangeness production,...).

Alternate track

I read the instructions above

Yes

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