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Jet flavour tagging at FCC-ee

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Jet flavour identification algorithms are of paramount importance to maximise the physics potential of the Future Circular Collider (FCC). As one example, out of the extensive FCC-ee physics program, flavour tagging is crucial for the Higgs program, given the dominance of hadronic decays of the Higgs boson. A highly efficient discrimination of b, c, strange, and gluon jets allows to access novel decay modes that cannot be identified at the LHC, adding quantitatively new dimensions to the Higgs physics programme. In this contribution, we will present new jet flavour identification algorithms based on machine leargning (ML) techniques that exploit particle level information, and its application to FCC-ee physics events. Beyond an excellent performance on b- and c-quark tagging, it is able to discriminate also jets from strange quarks hadronization, opening the way to improve the sensitivity to the Higgs to strange coupling. The impact of different detector design assumptions on the flavour tagging performance is assessed using the two baseline detector concepts, IDEA and CLD.

In-person participation

Yes

Primary author: D'ENTERRIA, David (CERN)

Presenter: GAUTAM, Kunal (VUB)

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