## Towards Higgs and Z boson plus jet at NLL+ matched to NLO

Tuesday 5 November 2024 12:10 (20 minutes)

Recent analyses on high-energy inclusive Higgs-boson rates in proton collisions, matched with the state of-theart fixed-order  $N^3LO$  accuracy, have shown that the impact of high-energy resummation corrections reaches 10% at the FCC nominal energies. This supports the statement that electroweak physics at 100 TeV is expected to receive relevant contributions from small-*x* physics. In this talk we will present novel predictions for rapidity and transverse-momentum distributions sensitive to the emission of a Higgs boson accompanied by a jet in proton collisions, calculated within the NLO fixed order in QCD and matched with the next-to leading energy-logarithmic accuracy and beyond (NLL/NLO<sup>+</sup>). We will also highlight first advancements in the extension of our analysis to the *Z*-boson case. According to our knowledge, this represent a first and novel implementation of a matching procedure in the context of the high-energy resummation for rapidity-separated two-particle final states. We come out with the message that the improvement of fixed-order calculations on Higgs- and Z-boson plus jet distributions is a core ingredient to reach the precision level of the description of observables relevant for Higgs and electroweak physics at current LHC energies as well as at nominal FCC ones.

## **Primary track**

## Is the speaker a PhD student or post-doc?

Yes - I need some financial support (fee reduction) to attend Higgs 2024

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