

## Heavy-flavour jets substructure with Soft Drop

*Tuesday, 30 July 2024 17:00 (20 minutes)*

In this talk, we discuss hadronic jets that are tagged as heavy-flavoured, i.e. they contain either beauty or charm. In particular, we consider heavy-flavour jets that have been groomed with the Soft Drop algorithm. In order to achieve a deeper understanding of these objects, we apply resummed perturbation theory to jets initiated by a massive quark and we perform analytic calculations for two variables that characterize Soft Drop jets, namely the opening angle and the momentum fraction of the splitting that passes Soft Drop. We compare our findings to Monte Carlo simulations. Furthermore, we investigate the correlation between the Soft Drop energy fraction and alternative observables that aim to probe heavy-quark fragmentation functions. Finally, we discuss recent fixed-order calculations with fragmentation functions for the  $Z + h^\pm$  and the  $W + D$  processes within the NNLOJET framework.

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**Session Classification:** Heavy Flavours

**Track Classification:** Heavy Flavours