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# Jet substructure measurements in proton-proton collisions with ALICE

*Monday 26 July 2021 15:30 (15 minutes)*

Jets can be used to test our understanding of quantum chromodynamics (QCD). Specifically, jet-substructure observables measured in proton-proton (pp) collisions constrain perturbative (p)QCD calculations, as well as non-perturbative physics effects such as hadronization, and serve as a baseline to compare to measurements in heavy-ion collisions, where a deconfined state of matter is expected to be formed. The significant scale difference between the parton

from the hard-scattering process and the hadrons measured in the detector creates a large phase space for the jet formation and evolution. Consequently, no single measurement can fully constrain the jet behavior, and a suite of observables needs to be studied simultaneously. In this talk we present an overview of recent charged-jet substructure and jet shape measurements from pp collisions in ALICE, including generalized angularities of groomed and inclusive jets, angular distances between different jet axes, and the radial distributions of heavy-flavour jets identified by the presence of a  $D^0$  meson or  $\Lambda_c$  baryon among its constituents. An iterative declustering technique is also used to trace all branching of the charm quark revealing the dead-cone effect for the first time in hadronic collisions. These new results provide new insights into the evolution of jets by comparing our measurements to predictions from different event generators and pQCD calculations.

## Collaboration / Activity

ALICE

## First author

## Email

**Primary authors:** COLLABORATION, ALICE; KUCERA, Vit (CERN)**Presenter:** KUCERA, Vit (CERN)**Session Classification:** T06: QCD and Hadronic Physics**Track Classification:** QCD and Hadronic Physics