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Jet Substructure Analysis with CMS Open Data

In this talk, I present the first analysis of the substructure of jets using the 2010 CMS Open Data. Our analysis is based on 36/pb of 7 TeV proton-proton collisions, where in each event the leading jet has a transverse momentum larger than 150 GeV. We measure classic jet substructure observables like jet mass and multiplicity and compare the results to parton shower generators. We find excellent agreement even before accounting for the impact of detector effects. We then perform a substructure analysis using soft drop declustering to study the two-prong substructure of jets and test the 1->2 splitting function of QCD. I discuss how our analysis strategy can be used as a starting point for other particle physicists to explore novel analysis opportunities that are now possible with this open data release.

Summary

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