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Pileup mitigation (ATLAS)

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Simultaneous proton-proton collisions, or pileup, at the LHC has a significant impact on jet reconstruction, requiring the use of advanced pileup mitigation techniques. Pileup mitigation may occur at several stages of the reconstruction process, and ATLAS uses a combination of schemes, including constituent reconstruction methods, constituent-level pileup-mitigation techniques, and jet-level pileup-mitigation algorithms. This talk describes the two constituent-reconstruction methods for jets used on ATLAS: TopoClustering and Particle Flow. This talk also has a first look at the performance of several constituent-level pileup mitigation techniques on ATLAS, including Constituent Subtraction, Voronoi Subtraction, SoftKiller, and the Cluster Vertex Fraction. Finally, other developments in tagging pileup jets is discussed, such as the forward jet vertex tagger (fJVT), which uses jet shapes and topological information to tag jets.

Presenter: ROLOFF, Jennifer Kathryn (Harvard University (US))

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