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Impact of Alternative Inputs and Grooming Methods on Large-R Jet Reconstruction in ATLAS JENNIFER ROLOFF, Brookhaven National Laboratory, ATLAS COLLABORATION — During Run 1 of the LHC, the optimal reconstruction algorithm for large-R jets in ATLAS, characterized in terms of the ability to discriminate signal from background and robust reconstruction in the presence of pileup, was found to be anti-kt jets with a radius parameter of 1.0, formed from locally calibrated topological calorimeter cell clusters and groomed with the trimming algorithm to remove contributions from pileup and underlying event. Since that time, much theoretical, phenomenological, and experimental work has been performed to improve both the reconstruction of the jet inputs as well as the grooming techniques applied to reconstructed jets. In this work, an inclusive survey of constituent-level pileup mitigation algorithms, jet inputs, and grooming algorithms is done to study their pileup stability and ability to identify hadronically decaying W bosons within the ATLAS experiment. It is found that compared to the conventional reconstruction algorithm of large-R trimmed jets formed from calorimeter cell clusters, these methods can significantly improve both the pileup stability and background rejection in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector.

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