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Tagging with substructure: Designing robust taggers with high-level observables

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The study of substructure of hadronic jets is key to unlocking further understanding of the physics underlying collisions at the LHC. In the context of precision Standard Model physics, we discuss how substructure variables sensitive to colour flow, such as the Lund Jet Plane, Jet Angularities and Jet Pull projections can be used to develop taggers highly sensitive to the radiation pattern within jets. This can be used, for instance, to build simple but efficient Higgs taggers. Furthermore, despite their relative simplicity, these observables can also be used to construct b-tagging algorithms that can augment standard approaches, mostly based on displaced vertices. Our results are given in terms of tagging performance on simulated data and, when possible, are compared to performance of taggers implemented by experimental collaborations.

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