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Mass aware jet clustering with Variable-R and a soft drop veto

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We present results using an optimized jet clustering with variable R, where the jet distance parameter R depends on the mass and transverse momentum p_T of the jet. The jet size decreases with increasing p_T, and increases with increasing mass. This choice is motivated by the kinematics of hadronic decays of highly Lorentz boosted top quarks, W, Z, and H bosons. The jet clustering features an inherent grooming with soft drop and a reconstruction of subjets in one sequence. These features have been implemented in the Heavy Object Tagger with Variable R (HOTVR) algorithm, which we use to study the performance of jet substructure tagging with different choices of grooming parameters and functional forms of R.

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