

## Performance and calibration of boosted $H(bb)$ tagging, including applications in physics analysis with ATLAS

*Wednesday, August 4, 2021 3:00 PM (15 minutes)*

The physics programme at ATLAS involves a variety of Standard Model and Beyond Standard Model resonances decaying to two b-quarks, or to a pair of bosons, including the Higgs Boson. In order to identify these resonances at high momentum, ATLAS has developed a boosted  $X\rightarrow bb$  tagger, a new NN-based tagging algorithm which combines the flavour information of up to three sub-jets associated to the large-R jet capturing the decays of these particles. This talk presents the Monte Carlo performance for the boosted  $X\rightarrow bb$  tagger and the corresponding calibration strategy using the full Run-2 dataset gathered by ATLAS and comparing to simulation. Foreseen results include the signal tagging efficiencies derived using  $Z(\rightarrow bb)+jets$  and  $Z(\rightarrow bb)+\gamma$  events, and background mistag rates measured using  $t\bar{t}$  and  $g\rightarrow bb$  splitting in multi-jet events. This talk also presents measurements of Higgs boson properties using signatures for boosted jets containing two heavy-flavour hadrons and results of searches for high-mass resonances with at least one highly boosted Higgs boson in the final state, reconstructed via single large-radius jets and dedicated flavour tagging techniques.

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