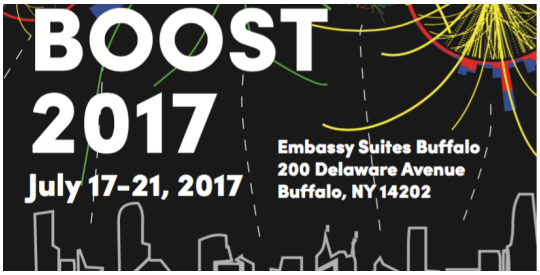

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A study of jet mass distributions with grooming

Tuesday, July 18, 2017 2:00 PM (20 minutes)

We perform a phenomenological study of the invariant mass distribution of hadronic jets produced in pp collisions, in conjunction with a groomer, in particular the modified MassDrop Tagger (equivalent to Soft Drop with angular exponent $\beta = 0$). Our calculation resums large logarithms of the jet mass and includes the full dependence on the groomer's energy threshold $z_{\rm cut}$, and it is matched to fixed-order QCD matrix elements at next-to-leading order. We accounted for non-perturbative contributions by including a correction factor derived from Monte Carlo parton-shower simulations. Furthermore, we consider two different possibilities for the jet transverse momentum: before or after grooming. We show that the former should be preferred for comparisons with upcoming experimental data essentially because the mMDT transverse momentum spectrum is not collinear safe.

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