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Factorization and Resummation of Soft Dropped D2

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In experimental studies which use boosted taggers, groomers are typically used to reduce sensitivity to wide angle soft radiation. It is therefore important to understand the behavior of these groomers to all orders in QCD. In this talk, I will discuss the factorization of groomed two prong substructure observables, focusing in particular on the D_2 observable. I will show that for a particular groomer, soft drop, this observable can be factorized to all orders in perturbation theory. I will discuss theoretical and experimental advantages and disadvantages of soft dropped D_2 as a tagger, as well as present numerical results. This analysis sheds considerable light into the behavior of groomed substructure observables and their calculability.

Summary

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