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Probing higher order DGLAP evolution with Energy Correlators and OmniFold

Modern machine learning (ML) techniques allow us to rethink how the the high dimensional features of jets can be optimally used to probe the strong interaction. Recently a new class of jet substructure observables, the energy correlators (EECs), have been introduced to study the statistical properties inside jets and enable first principle ways to do physics in the complicated LHC environment. We demonstrate the high dimensional potential of a recently proposed ML-based analysis method, OmniFold, to experimentally study the field theoretic observables EECs. In particular, we show with Dire simulation that EECs can probe the higher order effects of DGLAP evolution, which can be precisely analyzed through OmniFold.

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