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Conformal Colliders Meet the LHC with Fragmenting Jet Functions (remote)

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Reframing jet substructures in terms of multipoint correlation functions of energy flow light-ray operators offers new means to study the dynamics of QCD jets, providing many interesting phenomenological applications (including QCD fragmentation, track functions, precision measurements, and more) and allowing applications of theoretical developments in the study of conformal field theories.

In order to fully benefit from such a reframing based on energy correlators, it is imperative to develop a theoretical framework to incorporate the complicated initial state of the LHC, which goes beyond what has previously been considered in theoretical studies of energy correlators.

In this talk, I will present a theoretical framework developed using SCET to study energy correlators at the LHC, allowing recent calculations of energy correlators to be seamlessly embedded in the complicated LHC environment.

Using this approach, I will present results for the scaling behavior of multipoint energy correlators and compare with CMS Open Data, opening the door to the quantitative study of energy correlators at the LHC.

Finally, I will discuss the path forward for higher precision calculations at the LHC using the energy correlators.

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