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New insights on strong coupling extractions from Soft Collinear Effective Theory

Tuesday 3 May 2022 18:30 (20 minutes)

I will discuss the application of Soft Collinear Effective Theory (SCET) to the extraction of the strong coupling constant from e+e- event shape distributions, where state-of-the-art results exhibit a few sigma discrepancy with respect to the PDG world average. After briefly introducing event shape distributions and the SCET resummation formalism we use to study them, I will then focus on the canonical 'Thrust' variable, and on the phenomenological treatment of non-perturbative effects stemming from the soft sector. In particular, I will show that equivalently well-defined schemes for combining perturbative resummed and fixed-order contributions together with non-perturbative effects (notably renormalon cancellations) can lead to significant shifts in the extracted values of the strong coupling, when studying two-parameter fits in the dijet region. I also hope to briefly discuss novel (non-)perturbative extraction opportunities using the 'Angularities' class of observables, which generalizes the Thrust variable.

Submitted on behalf of a Collaboration?

No

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