TRR 257 - Particle Physics Phenomenology
after the Higgs Discovery

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On phase-space integrals with Heaviside functions

Wednesday, June 8, 2022 3:00 PM (30 minutes)

In this talk I discuss peculiarities that arise in the computation of real-emission contributions to observables that contain Heaviside functions. Specifically I will discuss the calculation of the zero-jettiness soft function in SCET at next-to-next-to-next-to-leading order in perturbative QCD. The Heaviside functions prevent a direct use of multi-loop methods based on reverse unitarity. I will present a way to bypass this problem and illustrate key aspects of the calculation. Finally I will present some results for various non-trivial contributions to the zero-jettiness soft function.

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