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(I) Effective Field Theory for QCD Factorization

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The interpretation of experimental results in particle physics is complicated by the fact that essentially all experimental probes of short distance physics are complex multi-scale processes, and so our ability to interpret experiments depends on our ability to factorize the physics at different distance scales. A simple example is the factorization of hadronic cross sections into short-distance scattering amplitudes and long-distance parton distribution functions, but for more complex situations with additional scales the issue of factorization can be significantly more involved.

Effective Field Theory (EFT) is a general approach in which only the degrees of freedom relevant at a particular length scale are included as degrees of freedom in the theory, and provides a systematically improvable approach to factorization. For collider physics, the appropriate EFT goes under the name of "Soft-Collinear Effective Theory"(SCET). In this talk I'll discuss a recent, simple formalism for SCET and discuss its application to the study of power corrections to various processes.

Keyword-1

Effective Field Theory

Keyword-2

QCD

Keyword-3

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