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Quarkonia as tools to study the multi-dimensional structure of the nucleon

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Quarkonia, which are bound states of heavy-quark and antiquark, among other things, are useful laboratories to study the interplay between perturbative and nonperturbative aspects of QCD. The hard scale or the production lets us probe the perturbative side of QCD and the formation of heavy quarkonium states involve the nonperturbative side. In this seminar I am going to talk about quarkonia from a theoretical perspective. We will look at effective theories such as SCET and NRQCD that are necessary to describe the quarkonia production process and the TMD factorization in the framework of NRQC. We will also look at various models for representing the heavy quarkonium states and focus on the short expansion. Finally, I will show an overview of the TMD calculation strategy in this type of process and give a brief discussion about the newly introduced TMD Shape functions.

Thursday, October 19th, 11H:30

Theoretical physics seminar room (3rd floor)

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