



Seminário LIP

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11:30

Diverse phenomenological studies for the LHC

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(LIP)

We have seen in the last decades an enormous effort from the experimental side to measure numerous physical observables and an equally important effort from the Theory community to provide phenomenological predictions for comparison. In this talk, we will focus on two topics which are relevant for LHC phenomenology.

(I) We generally use perturbation theory to compute cross-sections, with α_s (the strong coupling) as the small expansion parameter. At very high energies, the convergence of the perturbative expansion --which is truncated at a certain order in α_s -- is not a priori guaranteed. This is because large logarithms in energy appear in Feynman diagrams to all orders and they need to be resummed properly.

We will present examples of recent phenomenological studies where the use of advanced Monte Carlo techniques takes care of the resummation. The Reggeon, Pomeron and Odderon will be introduced in a friendly, pedagogical manner.

(II) In the second part of the talk, after a short survey of state-of-the-art techniques for the calculation of radiative corrections, we will introduce the Loop-Tree duality method for particle physics phenomenology. This is an approach which allows the computation of cross-sections beyond the tree-level by treating real and virtual radiative corrections on equal footing. We will give a status report of our numerical implementation of the method and we will present non-trivial examples.

Local: Sala de Seminários (311)
LIP, Av. Prof. Gama Pinto, N° 2, 1649-003 Lisboa
<https://indico.lip.pt/event/616/>
(Café e bolinhos 30 min antes)
O evento terá transmissão por streaming:
URL: <https://videocast.fccn.pt/live/lip/seminarios>
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