

Thesis Proposal for the Master's Degree in Physics

Title: Study of semi-hard collision processes at the LHC and future colliders

Abstract (max 10 lines): Hadronic processes characterized by a center-of-mass energy much larger than the intrinsic hard scale of the process (such as a large transverse momentum or mass) are referred to as “semi-hard” processes. Their theoretical description through standard perturbation theory misses large logarithms of the energy, which compensate the smallness of the coupling and must therefore be resummed to all orders. This resummation procedure has been known for some time and involves expressing the cross section of a given process in a factorized form, comprising a universal Green’s function and a process-specific “impact factor.” The proposal is to calculate impact factors for new processes and to numerically compute the corresponding cross sections.

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Laboratory where the thesis is carried out:

Group of Theoretical Physics of Fundamental Interactions

Any participating external structures: -

Type of thesis:

- Research (theoretical)

