UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Introduction to Soft-Collinear Effective Theory

2122-86R-IntroSCETh

Title

Introduction to Soft-Collinear Effective Theory

Teacher(s)

Dott. Matthias Neubert

Language

English

Short description

Short Description:

I. Motivation

II. Effective field theory in a nutshell:

III. Heavy-quark effective theory (HQET):

IV. Soft-collinear effective theory (SCET):

V. Properties of the SCET Lagrangian:

VI. Matching of the 2-jet current:

VII. The Sudakov form factor in SCET

VIII. Renormalization-group evolution equations

IX. Decoupling of ultra-soft gluons

X. Applications of SCET

XI. Collinear anomaly

XII. Drell-Yan production at small transverse momentum

Prerequisites

Introductory course on Quantum Field Theory at the level of Peskin & Schroeder

Textbook and teaching resource

T, Becher, A. Broggio and A. Ferroglia: Introduction toe SCET (arXiv:1803.04310)

Handwritten lectures notes (in color) will be distributed during the course.

CFU / Hours

CFU / 20 hours (8 two-hour lectures plus 2 two-hour tutorials)

Teaching period

May 16 until June 1, four days per week (two days in the third week)