



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Phenomenology of the Standard Model and Lattice QCD

2122-86R-PhSMLQ

Title

Phenomenology of the Standard Model and Lattice QCD

Teacher(s)

Mattia Bruno

Language

English

Short description

Introduction to Lattice QCD:

- scale setting
- spectral representation
- finite volume formalism for amplitudes from Euclidean correlators
- isospin breaking and QED formalism

Lepton phenomenology:

- the anomalous magnetic moment of the muon

- introduction and overview
- the Hadronic Vacuum Polarization
- the Hadronic Light-by-Light contribution

Flavor physics:

- CKM parameters
 - mesonic decay constants, hadronic form factors
- CP violation
 - Neutral kaon oscillations
 - Kaon decays in two pions

QCD phenomenology:

- quark masses and the strong coupling constant

Future prospects:

- charm weak decays, B-physics

CFU / Hours

2 CFU / 16 hours

Teaching period

From May 2nd until May 27th, two days per week. Dates to be fixed before course begins.
