

Term Paper

Particle Physics Theory at the LHC

Participating Scientists:

- J.Prof. Dr. H. Ita
- Prov.Doiz.Dr. C. Schwinn
- Guest Prof. Dr. F. Febres Cordero

Requirements:

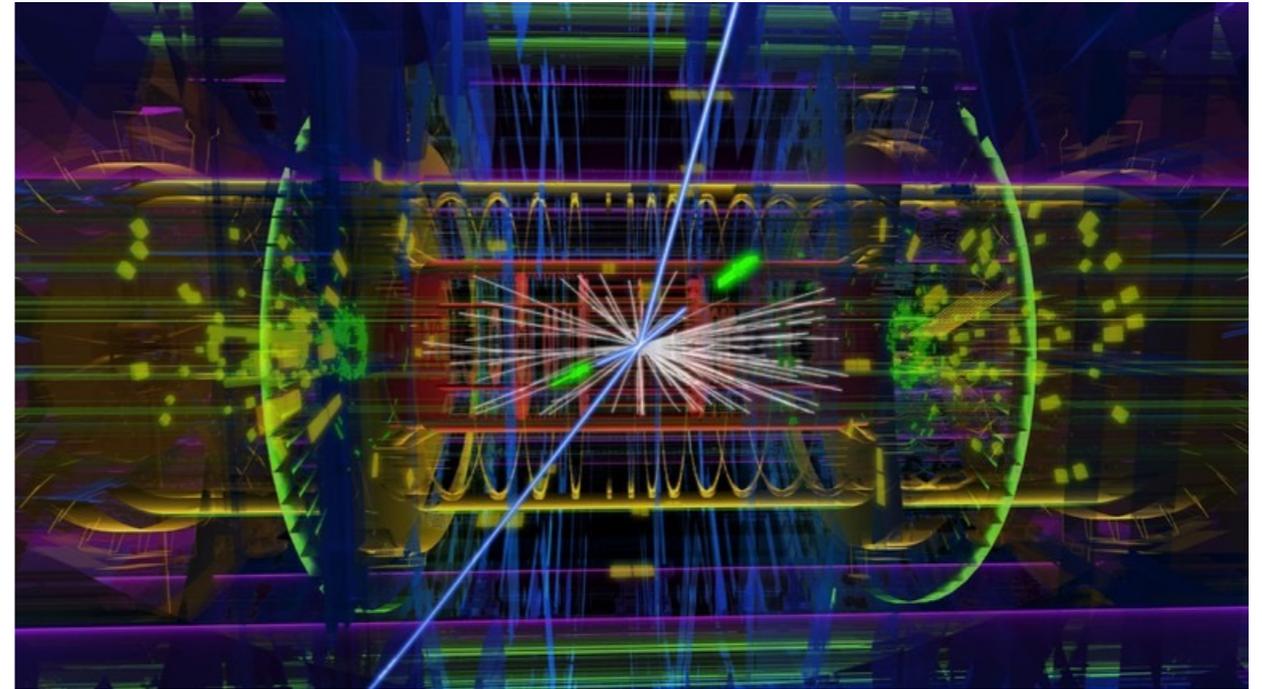
- 45 min talk
- Written: writeup of talk (handed in 2 weeks after talk)

Organisation:

- Wednesday, 12:00-14:00, SR II.
- Webpage: www.qft.physik.uni-freiburg.de/Teaching/TermPaper2015
- Topics distributed on 29.4.2015 !
- First presentation on 13.5.2015

Topics:

- Structure of the Standard Model of Particle Physics
 - Non-abelian gauge theories, Higgs mechanism, spontaneous breaking of symmetries/Goldstone bosons
- QCD at the LHC
 - Parton Model, scaling violation, tests of QCD,
- Higgs Phenomenology
 - Measurements of Higgs properties, Higgs interferometry
- Phenomenology of Vector Boson
 - Production, couplings, b-jets, as background
- Top Physics
 - Mass measurement



Basic Literature:

- Quantum Chromodynamics, High Energy Experiments and Theory, G. Dissertori, I. Knowles and M. Schmelling
- TASI lectures on Collider Phenomenology by Tao Han (see webpage)
- QCD lectures by Michelangelo L. Mangano (see webpage)