Lecture 0 - Intro to PHYS 741

- Who am I?

Tim Cohen (he/him) tim.cohen@epfl.ch

Associate Prof @ University of Oregon (on leave)

Staff @ CERN/EPFL for 6 years (since 2022)

I identify as a "phenomenologist"

My research interests:

- Physics beyond the Standard Model
- Effective Field Theory
- Naturalness, LHC, DM / Astroparticle
- Anything to do with "fundamental physics"

Look me up on inspire!

- Writing a QFT book w/ Markus Luty

- Course philosophy: relativity + quantum mechanics $\overset{\text{Weinberg}}{\Leftrightarrow}$ QFT

  QFT is EFT

- Course goals: Theoretical foundations of the Standard Model

- This course has benefit that we will develop and use full machinery of QFT
- We will make some contact with phenomenology and experiment
- But critical message: theoretical physics is meaningless without experiment!

Course Materials

QFT: Peskin + Schroeder, Srednicki, Schwartz, Weinberg (!)

Particle Physics:
- Cheng and Li
- Donoghue, Golowich, Holstein
- Grossman and Nir
- Peskin
- Larkoski

} less technical

- Teaching assistants: Majid Ekhterachian (majid.ekhterachian@epfl.ch) and Stefan Stelzl (stefan.stelzl@epfl.ch)

Primary lecture w/ me

Tuesdays 13:15 - 16:00 (w/ coffee break) in BSP 727

Problem sessions w/ Majid / Stefan

Tuesdays 16:15 - 17 in BSP 727

Grade determined by

- H/W assignments (+, 0, - grading scheme)
- Oral final exam TBD