

PHY612: THEORETICAL PARTICLE PHYSICS

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- Standard Model (almost)
 - Overview of the Standard Model gauge theory
 - Electroweak symmetry breaking & the hierarchy problem
 - Electroweak radiative corrections & precision tests: the little hierarchy problem
 - Flavour sector
 - * Flavour & CP violation, K , B
 - * Neutrinos
- Extensions of the Standard Model
 - Grand Unified Theory
 - Supersymmetry
 - Extra Dimensions
- Collider Phenomenology (focus on LHC)
 - Basics of hadronic collisions
 - Review of analytic techniques to compute observables
 - Numerical tools to compute observables at LHC