

PHY612: THEORETICAL PARTICLE PHYSICS

S. Dawson and M.C. Gonzalez-Garcia

12:50-2:10 TuTh: Semester starts Feb 1st

- Week 1 Feb 1/3
Introduction to Quantum Field Theory: Lagrangians, Dirac Equation, QED for electrons
- Week 2 Feb 8/10
Kinematics, cross sections, observables
Global symmetries, chiral symmetries
- Week 3 Feb 15/17
Introduction to Lie Algebra and gauge theories Abelian and Non-Abelian gauge theories
- Week 4 Feb 22/24
Strong Interactions and QCD
- Week 5 March 1/3
Deep inelastic scattering. α_s scaling
- Week 6 March 8/10
Parton Model
- Week 7 March 15/17
Weak Interactions: μ decay, K decay
- Week 8 March 22/24
The Standard Model and the Higgs Mechanism
- Week 9 March 29/31
Tests of SM: Precision Measurements and physics at the Z pole
- Week 10 April 5/7
Higgs Physics
- Week 11 April 12/14
Flavour Physics in the Standard Model: CKM and B Physics
- Spring Break** (April 18-24)
- Week 12 April 26/28
Neutrinos
- Week 13 May 3/5
Beyond the Standard Model: MSSM
- Week 14 May 10/12
Beyond the Standard Model