The Standard Model of Particle Physics: Theory and Experiment
Fall 2002
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I. Outline of Content

- Introduction and Basics
- Quantum Field Theory
- Gauge Theory and QED
- Standard Electroweak Model
- Strong Interaction: QCD
- CP violation
- Neutrinos
- Ideas and Prospects for Physics beyond the Standard Model

II. Schedule

- lecture: 3 hours per week, 9:15-11:00 Wednesday, 9:15-10:00 Friday
- additional hour: Friday 10:15-11:00 to be used as needed or desired for supplementary material, discussion of exercises and problems, questions

III. Homework Problems/Exercises will appear on the web

IV. Literature

- I.J.R. Aitchison and A.J.G. Hey, Gauge Theories in Particle Physics (2nd ed., Adam Hilger, 1989)
- F. Mandl and G. Shaw, Quantum Field Theory (Wiley, 1993)
- M.E. Peskin and D.V. Schroeder, an Introduction to Quantum Field Theory (Addison-Wesley, 1995)
- L.H. Ryder, Quantum Field Theory (2nd ed., CUP 1996)
- O. Nachtmann, Elementary Particle Physics (Springer, 1990)
- F. Halzen and A.D. Martin, Quark & Leptons (Wiley, 1984)
- V.D. Barger and R.J.N. Phillips, Collider Physics (Addison-Wesley, 1997)
- D.H. Perkins, Introduction to High Energy Physics (Cambridge University Press, 2000)

V. Office Hours: after the lectures