Elementary Particle Physics

Lecture Course by

Hrachia Asatrian
Yerevan Physics Institute
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56 hours, 28 Lectures.

Lect 1.Introduction: Elementary particles and their interactions
Lect 2.Spontaneous symmetry breaking.
Lect 3.Glasow-Weinberg-Salam model
Lect 4.Glasow-Weinberg-Salam model, W, Z bosons.
Lect 5.CKM matrix, unitarity triangle.
Lect 6.Wolfenstein parametrization, C, P, T symmetries.
Lect 7.GIM Mechanism, CPT.
Lect 8.CP-violation, direct CP violation.
Lect 9.Heavy quark physics, B-meson decays, rare decays.
Lect 10.Operator product expansion, large logarithms, renormalization group equations.
Lect 11.B factories, super B factories.
Lect 12.Higgs search before LHC.
Lect 13.Higgs search at LHC, discovery of SM Higgs.
Lect 14.Extensions of the Higgs sector.
Lect 15.Neutrino physics.
Lect 16.Neutrio oscillations.
Lect 17.Physics beyond the standard model.
Lect 18.GUT.
Lect 19.SU(5), SU(10).
Lect 20.SUSY.
Lect 21.SUSY extensions of SM.
Lect 22.MSSM.
Lect 23.SUSY GUTS.
Lect 24.SUSY search at LHC.
Lect 25.High energy e+e- collider physics (ILC).
Lect 26.YerPhI and high energy physics ongoing experiments.
Lect 27.Methods for multiloop calculations I.
Lect 28.Methods for multiloop calculations II.