

Asrtparticle Physics:

- An introduction and brief historical overview of elementary particles
- Symmetry principles, gauge theories of fields and gravitation
- Standard Model of particle physics
- Supersymmetry and Grand unification of strong, weak and electromagnetic forces
- The problem of fermion families and CP violation
- Baryon and lepton number violation
- Neutrino physics
- The Early Universe: from inflation to baryogenesis, nucleosynthesis and structure formation
- Dark matter. Observational evidence and direct/indirect experimental search