

Quantum Field Theory

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Part I

Chapter 1

Perturbative field theory

creation and annihilation operators, Path integral formulation, Field equations, Interacting fields, Feynman diagram

Chapter 2

Particles

Dirac equation and pair production(1941), Wigner classification charge and superselection sectors

Chapter 3

Renormalization group

Chapter 4

Condensed matter physics

phonon, Quantum Hall effect

Phase transition, Magnetic models(ising), Ginzburg Landau theory

Chapter 5

Non-perturbative field theory

Wightman axiom

Chapter 6

Nonabelian gauge theory

Part II

Supersymmetry

Part III

String theory