

Quantum Field Theory

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Contents

I	Formalism	2
1	Path integral	3
2	Algebraic quantum field theory	4
3	Conformal field theory	5
II	Gauge theory	6
4	Yang-Mills theory	7
5	Supersymmetry	8
6	Particles	9
III		10
7		11
8		12
9		13
IV	Quantum gravity	14

Part I

Formalism

Chapter 1

Path integral

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

Chapter 2

Algebraic quantum field theory

Wightman axiom

Chapter 3

Conformal field theory

Part II

Gauge theory

Chapter 4

Yang-Mills theory

Chapter 5

Supersymmetry

Chapter 6

Particles

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

Part III

Chapter 7

Phase transition, Ginzburg Landau theory, Thermal states, Phonon, Quantum Hall effect,

Chapter 8

Chapter 9

Part IV

Quantum gravity