

Representation Theory

Ikhan Choi

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Part I

Finite group representations

Chapter 1

Character theory

Chapter 2

Symmetric groups and general linear groups

Chapter 3

Brauer theory

Part II

Lie groups

Chapter 4

Lie correspondence

Lie's three theorems Baker-Campbell-Hausdorff formula

Chapter 5

Classical groups

SL_2 , SO , SU

Chapter 6

Representations of compact groups

unitary representation fundamental group obstruction infinite dimension: Peter Weyl projective representations

Part III

Lie algebras

Chapter 7

Semisimplicity

killing forms, cartan subalgebra

Chapter 8

Root systems

dynkin digram real forms

Chapter 9

Representations of Lie algebras

universal enveloping algebra, pbw theorem, verma module highest weight theorem

Part IV

Quantum groups

Chapter 10

Hopf algebras

Chapter 11