

Contents

Preface	VI
Introduction	1
0. Basic Notions	1
I. General Properties of Representations	13
1. Invariant Subspaces	13
2. Complete Reducibility of Representations of Compact Groups	22
3. Basic Operations on Representations	30
4. Properties of Irreducible Complex Representations	44
II. Representations of Finite Groups	55
5. Decomposition of the Regular Representation	55
6. Orthogonality Relations	66
III. Representations of Compact Groups	73
7. The Groups SU_2 and SO_3	73
8. Matrix Elements of Compact Groups	80
9. The Laplace Spherical Functions	85
IV. Representations of Lie Groups	93
10. General Properties of Homomorphisms and Representations of Lie Groups	93
11. Representations of SU_2 and SO_3	109
Appendices	117
A1 Presentation of Groups By Means of Generators and Relations	117
A2 Tensor Products	124
A3 The Convex Hull of a Compact Set	129
A4 Conjugate Elements in Groups	131
Answers and Hints to Exercises	133
List of Notations	139
References	141
Index	143