

Cambridge University Press

978-0-521-28975-7 - Introduction to the Representation Theory of Compact and Locally

Compact Groups

Alain Robert

Table of Contents

[More information](#)

C O N T E N T S

Foreword	vii
Conventional notations and terminology	ix

PART I : REPRESENTATIONS OF COMPACT GROUPS

1. Compact groups and Haar measures	p. 3
<i>Exercises</i>	11
2. Representations, general constructions	13
<i>Exercises</i>	20
3. A geometrical application	21
<i>Exercises</i>	28
4. Finite-dimensional representations of compact groups (Peter-Weyl theorem)	29
<i>Exercises</i>	38
5. Decomposition of the regular representation	40
<i>Exercises</i>	51
6. Convolution, Plancherel formula & Fourier inversion	53
<i>Exercises</i>	61
7. Characters and group algebras	63
<i>Exercises</i>	76
8. Induced representations and Frobenius-Weil reciprocity	78
<i>Exercises</i>	89
9. Tannaka duality	90
10. Representations of the rotation group	95
<i>Exercises</i>	107

Cambridge University Press

978-0-521-28975-7 - Introduction to the Representation Theory of Compact and Locally Compact Groups

Alain Robert

Table of Contents

[More information](#)

vi

PART II : REPRESENTATIONS OF LOCALLY COMPACT GROUPS

11.	Groups with few finite-dimensional representations	111
	<i>Exercises</i>	116
12.	Invariant measures on locally compact groups and homogeneous spaces	117
	<i>Exercises</i>	126
13.	Continuity properties of representations	128
14.	Representations of G and of $L^1(G)$	133
	<i>Exercises</i>	144
15.	Schur's lemma : unbounded version	145
	<i>Exercises</i>	150
16.	Discrete series of locally compact groups	151
	<i>Exercises</i>	162
17.	The discrete series of $Sl_2(\mathbb{R})$	164
	<i>Exercises</i>	171
18.	The principal series of $Sl_2(\mathbb{R})$	172
19.	Decomposition along a commutative subgroup	179
	Appendix: Note on Hilbertian integrals	185
20.	Type I groups	187
	<i>Exercises</i>	193
21.	Getting near an abstract Plancherel formula	194
	Epilogue	201
	References	202
	Index	204