

Contents

Theory of Operator Algebras II

Preface	XIX
----------------	------------

Chapter VI

Left Hilbert Algebras	1
------------------------------	----------

§ 0 Introduction	1
§ 1 Left Hilbert Algebras and Right Hilbert Algebras	2
§ 2 Tomita Algebras	22
§ 3 Direct Integral of Left Hilbert Algebras and Tomita Algebras	28

Chapter VII

Weights	40
----------------	-----------

§ 0 Introduction	40
§ 1 Weights and Semi-Cyclic Representations	40
§ 2 Left Hilbert Algebras and Weights	58
§ 3 The Plancherel Weight and the Fourier Algebra	65
§ 4 Weights on a C^* -Algebra	88

Chapter VIII

Modular Automorphism Groups	91
------------------------------------	-----------

§ 0 Introduction	91
§ 1 Modular Automorphism Group of a Weight	92
§ 2 The Centralizer of a Weight	97
§ 3 The Connes Cocycle Derivative	106
§ 4 Tensor Product and Direct Integrals of Weights	133

Chapter IX

Non-Commutative Integration	141
------------------------------------	------------

§ 0 Introduction	141
§ 1 Standard Form of a von Neumann Algebra	142
§ 2 Measurable Operators and Integral for a Trace	167

§ 3	Bimodules, Spatial Derivatives and Relative Tensor Products	186
§ 4	Conditional Expectations and Operator Valued Weights	210

Chapter X

Crossed Products and Duality 237

§ 0	Introduction	237
§ 1	Crossed Products and Dual Weights	238
§ 2	Duality for Crossed Products by Abelian Groups	257
§ 3	Equivariant Disintegration	279
§ 4	Induced Covariant System and Crossed Product	290

Chapter XI

Abelian Automorphism Group 311

§ 0	Introduction	311
§ 1	Spectral Analysis	312
§ 2	Connes Spectrum $\Gamma(\alpha)$	332
§ 3	Derivations and Inner Automorphisms	352

Chapter XII

Structure of a von Neumann Algebra of Type III 363

§ 0	Introduction	363
§ 1	Structure of a von Neumann Algebra of Type III, Part I	364
§ 2	Structure of Factors of Type III_λ , $0 < \lambda < 1$	380
§ 3	Structure of Factors of Type III_0	384
§ 4	The Flow of Weights	403
§ 5	Action of $\text{Int}(\mathcal{M})$ on \mathfrak{W}_0 and \mathfrak{S}_*	421
§ 6	Structure of a von Neumann algebra of Type III, Part II – Functoriality and the Characteristic Square	437

Appendix 463

Bibliography 491

Notation Index 509

Subject Index 513



<http://www.springer.com/978-3-540-42914-2>

Theory of Operator Algebras II

Takesaki, M.

2003, XXII, 518 p., Hardcover

ISBN: 978-3-540-42914-2