

Lecture Notes in Mathematics

Edited by A. Dold and B. Eckmann

582

J. M. G. Fell

FB Mathematik TUD



58201669

Induced Representations and Banach *-Algebraic Bundles

with an Appendix due to A. Douady
and L. Dal Soglio-Héault



Fachbereich Mathematik
Technische Hochschule Darmstadt
Bibliothek

Inv.-Nr. B 16.115

Springer-Verlag
Berlin · Heidelberg · New York 1977

TABLE OF CONTENTS

	Page
Introduction	1
CHAPTER I: THE ABSTRACT INDUCING PROCESS AND ABSTRACT IMPRIMITIVITY	
§1. Operator inner products	28
§2. Duality for operator inner products	36
§3. Hermitian modules	43
§4. Rigged modules and the abstract inducing process	47
§5. General properties of abstract induction	54
§6. The regional topology of representations and the continuity of the inducing process	60
§7. Imprimitivity bimodules	72
§8. The abstract Imprimitivity Theorem	81
§9. Topological versions and examples of the abstract Imprimitivity Theorem	87
CHAPTER II: BANACH $*$ -ALGEBRAIC BUNDLES	
§10. Banach bundles	99
§11. Banach $*$ -algebraic bundles	112
§12. Examples	125
§13. The cross-sectional algebra	133
§14. $*$ -Representations	140
§15. The integrated form of a $*$ -representation	150
§16. Positive functionals on the cross-sectional algebra	153
§17. When do enough $*$ -representations exist?	160
§18. The bundle C^* -completion	168
§19. Bundle structures for C^* -algebras	172
§20. The regional topology of $*$ -representations of bundles	179

CHAPTER III: INDUCED REPRESENTATIONS AND IMPRIMITIVITY
FOR BANACH $*$ -ALGEBRAIC BUNDLES

§21. The framework of the induction process in the bundle context. Positivity with respect to a Banach $*$ -algebraic bundle	193
§22. Equivalent conditions for positivity	200
§23. The induced Hilbert bundle	207
§24. The action of \mathbb{B} on the induced Hilbert bundle	214
§25. The definition of the induced representation	222
§26. The Mackey and Blattner descriptions of induced representations of groups	227
§27. \mathbb{B} -positive $*$ -representations and the bundle C^* -completion	236
§28. Elementary properties of induced representations of Banach $*$ -algebraic bundles	246
§29. Transformation bundles	259
§30. Systems of imprimitivity	265
§31. The canonical imprimitivity bimodule	271
§32. The Imprimitivity Theorem for Banach $*$ -algebraic bundles	279
§33. Conjugation of $*$ -representations	299
Appendix: The existence of continuous cross-sections of Banach bundles	324
Bibliography	336
Index of terminology	341