

# CONTENTS

<b>1. Introduction</b> .....	1
<b>2. Preliminaries</b> .....	9
2.1. Noncommutative $L^p$ -spaces and operator spaces .....	9
2.2. Matrix ordered operator spaces .....	12
2.3. Relations between matricial orderings and norms .....	16
2.4. Positive and completely positive maps on noncommutative $L^p$ -spaces ...	17
2.5. Completely positive maps on commutative $L^p$ -spaces .....	19
2.6. Markov maps and selfadjoint maps .....	20
<b>3. Decomposable maps and regular maps</b> .....	23
3.1. Preliminary results .....	23
3.2. On the infimum of the decomposable norm .....	27
3.3. The Banach space of decomposable operators .....	28
3.4. Reduction to the adjoint preserving case .....	32
3.5. Decomposable vs regular on Schatten spaces .....	36
3.6. Decomposable vs regular on approximately finite-dimensional algebras ..	39
3.7. Modulus of regular operators vs $2 \times 2$ matrix of decomposable operators .	46
3.8. Decomposable vs completely bounded .....	50
<b>4. Decomposable Schur multipliers and Fourier multipliers on discrete groups</b> ....	59
4.1. Twisted von Neumann algebras .....	59
4.2. Complementation for Schur multipliers and Fourier multipliers on discrete groups .....	62
4.3. Description of the decomposable norm of multipliers .....	66
<b>5. Approximation by discrete groups</b> .....	71
5.1. Preliminaries .....	71
5.2. Different notions of groups approximable by discrete groups .....	73
5.3. The case of second countable compactly generated locally compact groups	78
<b>6. Decomposable Fourier multipliers on non-discrete locally compact groups</b> .....	81
6.1. Generalities on Fourier multipliers on unimodular groups .....	81
6.2. The completely bounded homomorphism theorem for Fourier multipliers	92
6.3. Extension of Fourier multipliers .....	95

6.4. Groups approximable by lattice subgroups .....	96
6.5. Examples of computations of the density .....	108
6.6. Pro-discrete groups .....	119
6.7. Amenable groups and convolutors .....	125
6.8. Description of the decomposable norm of multipliers .....	127
<b>7. Strongly and CB-strongly non decomposable operators .....</b>	<b>133</b>
7.1. Definitions .....	133
7.2. Strongly non regular completely bounded Fourier multipliers on abelian groups .....	134
7.3. Strongly non regular completely bounded convolutors on non-abelian groups .....	147
7.4. CB-strongly non decomposable Schur multipliers .....	148
7.5. CB-strongly non decomposable Fourier multipliers .....	150
7.6. CB-strongly non decomposable operators on approximately finite-dimen. algebras .....	155
<b>8. Property <math>(\mathcal{P})</math> and decomposable Fourier multipliers .....</b>	<b>161</b>
8.1. A characterization of selfadjoint contractively decomposable multipliers ..	161
8.2. Factorizability of some matrix block multipliers .....	164
8.3. Application to the noncommutative Matsaev inequality .....	170
<b>Bibliography .....</b>	<b>173</b>