

## TABLE OF CONTENTS

CHAPTER 1. FOURIER MULTIPLIERS ON $L_p$ .	5
1. Preliminaries and definition.	5
2. Basic properties.	7
3. The Carlson - Beurling inequality.	17
4. Periodic multipliers.	19
5. van der Corput's lemma.	24
References.	28
CHAPTER 2. BESOV SPACES.	30
1. Definition.	30
2. Embedding results.	33
3. An equivalent characterization.	38
4. Two examples.	43
5. An interpolation property.	46
6. Two special operator estimates.	48
References.	49
CHAPTER 3. INITIAL VALUE PROBLEMS AND DIFFERENCE OPERATORS.	51
1. Well posed initial value problems.	51
2. Finite difference operators and stability.	55
3. Accuracy and convergence.	63
References.	67
CHAPTER 4. THE HEAT EQUATION.	68
1. Convergence estimates in $L_p$ .	68
2. Inverse results.	76
3. Convergence estimates from $L_1$ to $L_\infty$ .	82
4. Smoothing of initial data.	84
References.	89

CHAPTER 5. FIRST ORDER HYPERBOLIC EQUATIONS.	91
1. The initial value problem for a symmetric hyperbolic system in $L_p$ .	91
2. Stability in $L_p$ of difference analogues of $\partial u / \partial t = \partial u / \partial x$ .	96
3. Growth in the unstable case.	102
4. Convergence estimates.	107
5. Convergence estimates in a semi-linear problem.	113
References.	129
CHAPTER 6. THE SCHRÖDINGER EQUATION.	132
1. $L_p$ estimates for the initial value problem.	132
2. Growth estimates for finite difference operators.	135
3. Convergence estimates in $L_p$ .	138
4. Inverse results.	142
5. Convergence estimates from $L_1$ to $L_\infty$ .	146
References.	151
INDEX	152