
Contents

	<i>Preface</i>	vii
<i>1</i>	<i>Fourier Transformation and Sobolev Spaces</i>	<i>1</i>
	Introduction	1
1.1	Functions in \mathbb{R}^n	2
1.2	Fourier transformation and distributions in \mathbb{R}^n	9
1.3	Sobolev spaces	17
	Exercises	23
	Notes on Chapter 1	27
<i>2</i>	<i>Pseudodifferential Symbols</i>	<i>28</i>
	Introduction to Chapters 2 and 3	28
2.1	Definition and approximation of symbols	29
2.2	Oscillatory integrals	32
2.3	Operations on symbols	37
	Exercises	43
<i>3</i>	<i>Pseudodifferential Operators</i>	<i>47</i>
3.1	Action in \mathcal{S} and \mathcal{S}'	47
3.2	Action in Sobolev spaces	52
3.3	Invariance under a change of variables	58
	Exercises	61
	Notes on Chapters 2 and 3	67

4	<i>Applications</i>	69
	Introduction	69
4.1	Local solvability of linear differential operators	70
4.2	Wave front sets of solutions of partial differential equations	76
4.3	The Cauchy problem for the wave equation	83
	Exercises	89
	Notes on Chapter 4	94
	 <i>Bibliography</i>	 97
	 <i>Index of Notation</i>	 103
	 <i>Index</i>	 107