Contents

Preface					
CHAPTER	1 SPECTRAL THEORY OF SCHRÖDINGER OPERATORS				
	1.1	Definition of the Hamiltonian	1		
	1.2	General remarks concerning the spectral analysis of the Hamiltonian	é		
	1.3	Absence of positive eigenvalues: a heuristic argument	8		
		Notes	16		
CHAPTER	2 S	TURM-LIOUVILLE OPERATORS			
	2.1	Hilbert space theory	21		
	2.2	The theory of Weyl and Titchmarsh	25		
	2.3	The spectral function	30		
	2.4	Classification of points of the spectrum	35		
	2.5	Spectra for varying boundary conditions	37		
	2.6	The Inverse Spectral Theorem	40		
	2.7	Two conjectures concerning $\sigma_{\mathbf{p}}$	41		
		Notes	46		
CHAPTER	3 I	NTERVALS OF CONTINUOUS SPECTRUM			
	3.1	Introduction	51		
	3.2	The case $\lim \sup q(x) = 0$	54		
	3.3	The square-integrable nature of y'	60		
	3.4	Integral conditions	64		
	3.5	The case $q(x) \rightarrow -\infty$	67		
	3.6	Periodic q(x)	73		
	3.7	Various extensions	75		
		Notes	ρı		

CHAPTER 4 POTENTIALS WITH EIGENVALUES IN THE CONTINUOUS SPECTRUM

			
	4.1	A construction yielding square-integrable solutions	89
	4.2	A resonance phenomenon	93
	4.3	Addition of new eigenvalues by double commutation	96
	4.4	Inverse spectral theory	101
	4.5	Step functions	109
	4.6	Best-possible results	112
		Notes	116
CHAPTER	5 V	IRIAL THEOREMS	
	5.1	Introduction	119
	5.2	A proof using the infinitesimal generator of dilations	120
	5.3	Examples	133
	5.4	A proof using the group of dilations	139
		Notes	152
CHAPTER		OCAL CONDITIONS FOR ABSENCE OF EIGENVALUES IN EXTERIOR OMAINS	
	6.1	Historical remarks	157
	6.2 6.3	An identity and the existence of certain energy integrals A fundamental criterion for the nonexistence of L^2 -sol-	165
		utions	170
	6.4	Various extensions	185
	6.5	A unique continuation theorem	191
	6.6	Examples	195
		Notes	201
CHAPTER	? 7 D	OMAINS WITH A BOUNDARY EXTENDING TO INFINITY	
	7.1	A domain with an infinite boundary where $-\Delta$ has an	
		eigenvalue	207
	7.2	Absence of eigenvalues under global assumptions	218
	7.3	Local assumptions involving a boundary condition	223
	7.4	Local assumptions without a boundary condition	229
	. • .	Notes	233

APPENDIX 1	MISCELLANEA ON SOBOLEV SPACES AND RELATIVE BOUNDEDNESS	237
APPENDIX 2	PROOFS OF HARDY'S AND SCHEEFFER'S INEQUALITIES	250
APPENDIX 3	PROOF OF A VIRIAL RELATION	257
REFERENCES		260
INDEX		280