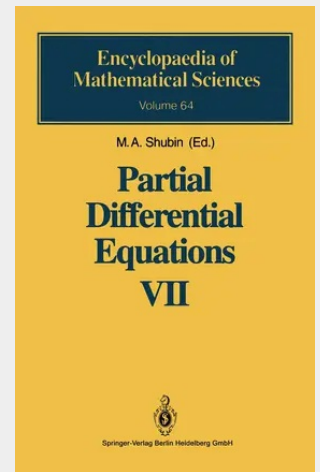


Partial Differential Equations VII

Spectral Theory of Differential Operators

§18 Operators with Almost Periodic Coefficients. 186 18. 1. General Definitions. Essential Self-Adjointness. 186 18. 2. General Properties of the Spectrum and Eigenfunctions. 188 18. 3. The Spectrum of the One-Dimensional Schrödinger Operator with an Almost Periodic Potential. 192 18. 4. The Density of States of an Operator with Almost Periodic Coefficients. 197 18. 5. Interpretation of the Density of States with the Aid of von Neumann Algebras and Its Properties. 199 §19 Operators with Random Coefficients. 206 19. 1. Translation Homogeneous Random Fields. 207 19. 2. Random Differential Operators. 212 19. 3. Essential Self-Adjointness and Spectra. 214 19. 4. Density of States. 217 19. 5. The Character of the Spectrum. Anderson Localization 220 §20 Non-Self-Adjoint Differential Operators that Are Close to Self-Adjoint Ones. 222 20. 1. Preliminary Remarks. 222 20. 2. Basic Examples. 225 20. 3. Completeness Theorems. 226 20. 4. Expansion and Summability Theorems. Asymptotic Behaviour of the Spectrum. 228 20.5. Application to Differential Operators. 230 Comments on the Literature. 234 References. 236 Author Index 262 Subject Index 265 Preface The spectral theory of operators in a finite-dimensional space first appeared in connection with the description of the frequencies of small vibrations of mechanical systems (see Arnold et al. 1985). When the vibrations of a string are considered, there arises a simple eigenvalue problem for a differential operator. In the case of a homogeneous string it suffices to use the classical theory 6 Preface of Fourier series.

§18 Operators with Almost Periodic Coefficients. 186 18. 1. General Definitions. Essential Self-Adjointness. 186 18. 2. General Properties of the Spectrum and Eigenfunctions. 188 18. 3. The Spectrum of the One-Dimensional Schrödinger Operator with an Almost Periodic Potential. 192 18. 4. The Density of States of an Operator with Almost Periodic Coefficients. 197 18. 5. Interpretation of the Density of States with the Aid of von Neumann Algebras and Its Properties. 199 §19 Operators with Random Coefficients. 206 19. 1. Translation Homogeneous Random Fields. 207 19. 2. Random Differential Operators. 212 19. 3. Essential Self-Adjointness and Spectra. 214 19. 4. Density of States. 217 19. 5. The Character of the Spectrum. Anderson Localization 220 §20 Non-Self-Adjoint Differential Operators that Are Close to Self-Adjoint Ones. 222 20. 1. Preliminary Remarks. 222 20. 2. Basic Examples. 225 20. 3. Completeness Theorems. 226 20. 4. Expansion and Summability Theorems. Asymptotic Behaviour of the Spectrum. 228 20.5. Application to Differential Operators. 230 Comments on the Literature. 234 References. 236 Author Index 262 Subject Index 265 Preface The spectral theory of operators in a finite-dimensional space first appeared in connection with the description of the frequencies of small vibrations of mechanical systems (see Arnold et al. 1985). When the vibrations of a string are considered, there arises a simple eigenvalue problem for a differential operator. In the case of a homogeneous string it suffices to use the classical theory 6 Preface of Fourier series.



106,99 €

99,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783540546771

Medium: Buch

ISBN: 978-3-540-54677-1

Verlag: Springer Netherlands

Erscheinungstermin: 14.12.1994

Sprache(n): Englisch

Auflage: 1. Auflage 1994

Serie: Encyclopaedia of Mathematical Sciences

Produktform: Gebunden

Gewicht: 1270 g

Seiten: 274

Format (B x H): 155 x 235 mm

