This book is a collection of articles devoted to the theory of linear operators in Hilbert spaces and its applications. The subjects covered range from the abstract theory of Toeplitz operators to the analysis of very specific differential operators arising in quantum mechanics, electromagnetism, and the theory of elasticity; the stability of numerical methods is also discussed. Many of the articles deal with spectral problems for not necessarily selfadjoint operators. Some of the articles are surveys outlining the current state of the subject and presenting open problems.



AMS on the Web

| Victor Borisovich Lidskii (1924–2008)<br>MICHAEL LEVITIN AND DIMITRI VASSILIEV   | 1   |
|--|-----|
| In Memory of Victor Borisovich Lidskii (1924–2008) ISRAEL GOHBERG  | 7   |
| List of Publications by V. B. Lidskii  | 13  |
| Eigenvalue Inequalities for Mixed Steklov Problems RODRIGO BANŨELOS, TADEUSZ KULCZYCKI, IOSIF POLTEROVICH, AND BARTŁOMIEJ SIUDEJA              | 19  |
| The Analog of the Limiting Absorption Principle in Homogenization of Periodic Elliptic Operators M. Sh. Birman and T. A. Suslina               | 35  |
| On a Class of Nonselfadjoint Periodic Boundary Value Problems with Discrete Real Spectrum LYONELL BOULTON, MICHAEL LEVITIN, AND MARCO MARLETTA | 59  |
| Spectral Instability of Semiclassical Operators NILS DENCKER   | 67  |
| Estimates of Solutions to Some Weighted Systems Defined on $\mathbb{R}^N$ JACQUELINE FLECKINGER AND NA WEI                                     | 89  |
| On Guided Electromagnetic Waves in Photonic Crystal Waveguides<br>PETER KUCHMENT AND BENG-SEONG ONG  | 99  |
| Spectral Inequalities for a Class of Nonelliptic Operators ARI LAPTEV AND FABIAN PORTMANN  | 109 |
| On the Near Periodicity of Eigenvalues of Toeplitz Matrices MICHAEL LEVITIN, ALEXANDER V. SOBOLEV, AND DAPHNE SOBOLEV                          | 115 |
| Green's Kernels for Transmission Problems in Bodies with Small Inclusions V. Maz'ya, A. Movchan, and M. Nieves                                 | 127 |
| Lower Bound on the Density of States for Periodic Schrödinger Operators<br>SERGEY MOROZOV, LEONID PARNOVSKI, AND IRINA PCHELINTSEVA            | 161 |
| On Some Open Problems in Spectral Theory EUGENE SHARGORODSKY   | 173 |