

Contents

Preface	ix
I Plenary talks	1
J.E. Avron and A. Elgart: An adiabatic theorem without a gap condition	3
M.Sh. Birman and T.A. Suslina: Two-dimensional periodic Pauli operator. The effective masses at the lower edge of the spectrum	13
J.-M. Combes: Spectral problems in the theory of photonic crystals	33
P. Exner, E.M. Harrel, and M. Loss: Optimal eigenvalues for some Laplacians and Schrödinger operators depending on curvature	47
F. Gesztesy, K.A. Makarov, and S.N. Naboko: The spectral shift operator	59
A. Jensen: On the scattering operator for the Schrödinger equation with a time-dependent potential	91
S.T. Kuroda and H. Nagatani: $\mathcal{H}_2$ -construction and some applications	99
P.A. Martin: Scattering with time periodic potentials and cyclic states	107
E. Mourre: Some geometry related to decay properties of the resolvent of a class of symmetric operators	117
L. Pastur: On some asymptotic formulas in the strong localization regime of the theory of disordered systems . . .	129
R. del Rio and A. Poltoratski: Spectral measures and category .	149
J. Yngvason: Quantum dots. A survey of rigorous results	161

II Session talks	181
R. Adami and A. Teta: A simple model of concentrated nonlinearity	183
F. Bentosela, P. Exner, and V.A. Zagrebnov: Anomalous electron trapping by magnetic flux tubes and electric current vortices	191
J. Brasche: On the absolutely continuous energy distribution of a quantum mechanical system in a bounded domain . . .	197
T. Cheon and T. Shigehara: Some aspects of generalized contact interaction in one-dimensional quantum mechanics .	203
M. Demuth: Traces and trace norms for semigroup differences . .	209
P. Duclos, P. Šťovíček, and O. Váňa: About a resolvent formula	221
E. Elizalde: The determinant anomaly in low-dimensional quantum systems	227
L. Erdős: Linear Boltzmann equation as the weak coupling limit of the random Schrödinger equation	233
A. Fedotov and F. Klopp: Coexistence of different spectral types for almost periodic Schrödinger equations in dimension one	243
F. Germinet: Dynamical localization for random Schrödinger operators and an application to the almost Mathieu operator	253
V.A. Geyler and K.A. Pankrashkin: On fractal structure of the spectrum for periodic point perturbations of the Schrödinger operator with a uniform magnetic field	259
Ch.-A. Guerin and M. Holschneider: A Weyl-Berry formula for the scattering operator associated to self-similar potentials on the line	267
F. Kleespies: Localization and Lifshitz tails for random quantum waveguides	275
D. Krejčířík: Birman-Schwinger analysis for bound states in a pair of parallel quantum waveguides with a semitransparent boundary	281
P. Kuchment and S. Levendorskii: On the absolute continuity of spectra of periodic elliptic operators	291
A. Laptev and T. Weidl: Hardy inequalities for magnetic Dirichlet forms	299

P. Lévy: Adiabatic curvature, chaos and the deformation of Riemann surfaces	307
A.K. Motovilov and R. Mennicken: Operator interpretation of resonances arising in spectral problems for 2×2 matrix Hamiltonians	315
H. Neidhardt and V.A. Zagrebnov: On the operator-norm convergence of the Trotter-Kato product formula	323
V. Pivovarchik: A particular case of the inverse problem for the Sturm-Liouville equation with parameter dependent potential	335
Ch. Remling: One-dimensional Schrödinger operators with decaying potentials	343
W. Renger: Stability of limiting absorption under singular perturbations	351
W. Scherer: Existence of averaging integrals for self-adjoint operators	359
G. Stolz: Monotonicity versus non-monotonicity in random operators	365
D. Yafaev: A model in perturbation theory	373
K. Yoshitomi: Band gap of the spectrum in periodically curved quantum waveguides	379
A list of other talks	385
A list of participants	389