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Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1285
Disciplina	515.35
Soggetti	Mathematical physics
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Nota di contenuto	Analytical solutions for ordinary and partial differential equations -- On the ratio of the first two eigenvalues of Schrödinger operators with positive potentials -- Inverse scattering for self-adjoint nth order differential operators on the line -- On the dirichlet index conjecture -- Three-dimensional inverse scattering -- Spectral properties of Schrodinger operators with trapping potentials in the semi-classical limit -- Discrete sets of coherent states and their use in signal analysis -- Information, uncertainty and the singular value decomposition of the filtered fourier transformation -- On Schrödinger operators with von Neumann-Wigner type potentials -- Nonlinear conservative systems -- The initial value problem for the nonlinear equations for zero Mach number combustion -- Longtime solutions for a class of convection diffusion systems -- A closed form for the symbol of the resolvent parametrix of an elliptic operator -- Existence and finite-dimensionality of attractors for the Landau-Lifschitz equations -- The coulomb potential in higher dimensions -- A regularity theorem for differential equations of constant strength -- Intermittent bifurcation of vortex flows -- Remarks on the Scattering problem for nonlinear Schrödinger equations -- Asymptotics of solutions and spectra of perturbed periodic Hamiltonian systems -- Behavior of eigenfunctions and the spectrum of Schrödinger operators -- Shape resonances in quantum mechanics -- Random perturbation theory and quantum

chaos -- Path integral for a Weyl quantized relativistic Hamiltonian and the nonrelativistic limit problem -- Scattering with penetrable wall potentials -- Commutator methods and asymptotic completeness for a new class of stark effect Hamiltonians -- Asymptotics of the Titchmarsh-Weyl m -coefficient for integrable potentials, II -- On the difference between eigenvalues of Sturm-Liouville operators and the semi-classical limit -- Finite element approximation to singular minimizers, and applications to cavitation in non-linear elasticity -- On relating generalized expansions to Fourier integrals -- Link between periodic potentials and random potentials in one-dimensional Schrödinger operators -- Undressing of odd pseudodifferential operators -- Some mathematical aspects of the wavemaker theory -- Integro-differential equations associated with piecewise deterministic processes -- Ambrosetti-Prodi type results in nonlinear boundary value problems -- Transmutation of analytic and harmonic functions -- Some solved and unsolved canonical problems of diffraction theory -- Runge-Kutta schemes and numerical instabilities: The logistic equation -- Structure of positive solutions to $(\Delta + V)u = 0$ in \mathbb{R}^n -- An extension of Lavine's formula for time-delay -- Some open questions in multi-dimensional inverse problems -- Radially symmetric solutions of a Monge-Ampère equation arising in a reflector mapping problem -- Scattering theory for the wave equation on a hyperbolic manifold -- On unsteady flow in a two-dimensional cascade with in-passage shocks -- On the absorption of singularities in dissipative nonlinear equations -- Feedback control for an abstract parabolic equation -- Approximate solution of random differential equation -- Geometric properties and bounds for positive solutions of semilinear elliptic equations -- Asymptotic completeness of multiparticle scattering -- On a multi-dimensional inverse problem related to the Gel'fand-Levitan theory -- Fundamental solution of the Poisson-Boltzmann equation -- Examples of exponential decay of eigenfunctions of magnetic Schrödinger operators -- Spatially localized free vibrations of certain semilinear wave equations on \mathbb{S}^2 : Recent results and open problems.

Sommario/riassunto

The meeting in Birmingham, Alabama, provided a forum for the discussion of recent developments in the theory of ordinary and partial differential equations, both linear and non-linear, with particular reference to work relating to the equations of mathematical physics. The meeting was attended by about 250 mathematicians from 22 countries. The papers in this volume all involve new research material, with at least outline proofs; some papers also contain survey material. Topics covered include: Schrödinger theory, scattering and inverse scattering, fluid mechanics (including conservative systems and inertial manifold theory attractors), elasticity, non-linear waves, and feedback control theory.
