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Nota di contenuto   New inverse spectral problem and its application -- Inverse problem on the entire line and some connected questions of spectral theory -- Qualitative physics in spectral, scattering and decay control -- Ambiguities in inversion potentials for light nuclear ion scattering -- Coupled-channel marchenko inversion in one dimension with thresholds -- One-dimensional inversion in neutron and X-ray reflection -- Non-standard information in optical model analyses -- Numerical method for solving the inverse problem of quantum scattering theory -- The inverse scattering problem for coupled channels with the modified newton-sabatier method -- Energy-dependent potentials obtained by IP inversion -- Modeling of nucleon-nucleon potentials, quantum inversion versus meson exchange pictures -- Inversion potentials for meson-nucleon and meson-meson interactions -- Fixed-energy inversion of polarisation-corrected electron-atom scattering phase-shifts into effective potentials -- Pion nucleus interaction from inverse scattering theory and a test of charge symmetry -- NN potentials with explicit momentum dependence obtained from generalized darboux transformations -- Unitarity and the scattering phase shifts for inversion studies -- Potential reversal and reflectionless impurities in periodic structures -- The method of the weakly conjugate operator -- Solutions to the hierarchy of the

periodic toda lattices -- Spectrum generating algebras and dynamic symmetries in scattering -- Algebraic coupled-channels formalism for heavy ions near the coulomb barrier -- Algebraic scattering theory and light heavy-ion reactions -- Geometrical relation of the SACM -- Phase-equivalent complex potentials -- Exactly solvable models for two-dimensional quantum systems -- Exactly solvable quantum models for investigation of nonadiabatic transitions -- Modified symmetry generators for SO(3, 2) and algebraic scattering theory -- Analytical results on generating phase-equivalent potentials by supersymmetry: Removal and addition of bound states -- Multidimensional inverse scattering with fixed-energy data.

Sommario/riassunto	This volume contains three interrelated, beautiful, and useful topics of quantum scattering theory: inverse scattering theory, algebraic scattering theory and supersymmetrical quantum mechanics. The contributions cover such issues as coupled-channel inversions at fixed energy, inversion of pion-nucleon scattering cross-sections into potentials, inversions in neutron and x-ray reflection, 3-dimensional fixed-energy inversion, inversion of electron scattering data affected by dipole polarization, nucleon-nucleon potentials by inversion versus meson-exchange theory, potential reversal and reflectionless impurities in periodic structures, quantum design in spectral, scattering, and decay control, solution hierarchy of Toda lattices, etc.