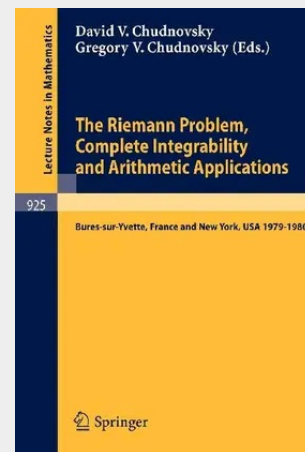


The Riemann Problem, Complete Integrability and Arithmetic Applications

Proceedings of a Seminar Held at the Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette, France and at Columbia University, NY, USA 1979-1980

Continuous exponents of spin correlation functions of inhomogeneous layered ising models.- to holonomic quantum fields.- Planar ising ferromagnet: correlation functions and the inverse scattering method.- Infinite component φ -models and instanton solutions.- Infinite component two-dimensional completely integrable systems of KdV type.- The representation of an arbitrary, two-dimensional completely integrable system as the common action of two commuting one-dimensional Hamiltonian flows.- Self-duality of Yang-Mills fields and of gravitational instantons.- On proving the nonintegrability of a Hamiltonian system.- Classical solutions in nonlinear Euclidean field theory and complete integrability.- Hamiltonian structure of isospectral deformation equations. Elliptic curve case.- Quantum Hamiltonians associated with finite-dimensional Lie algebras and factorized s-matrices.- Classical and quantum operator nonlinear schrodinger equation. I.- Trace identities for the Schrödinger operator and the WKB method.- Zeta functions of the quartic (and homogeneous anharmonic) oscillators.- On trace formula.- Resolvent and trace identities in the one dimensional case.- The devil's stair case transformation in incommensurate lattices.- The convergence of padé approximants and their generalizations.- Note on generalized jacobi polynomials.- Multidimensional hermite interpolation and Padé approximation.- Hermite-padé approximations to exponential functions and elementary estimates of the measure of irrationality of π .- Criteria of algebraic independence of several numbers.- Rational approximation for non-linear ordinary differential equations.

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