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Nota di contenuto	Quantum Dots -- Thermopower in Quantum Dots -- Kondo Effect in Quantum Dots -- Interpolative Method for Transport Properties of Quantum Dots in the Kondo Regime -- A New Tool for Studying Phase Coherent Phenomena in Quantum Dots -- Quantum Chaos -- Quantum Chaos and Spectral Transitions in the Kicked Harper Model -- Quantum Chaos Effects in Mechanical Wave Systems -- Magnetoconductance in Chaotic Quantum Billiards -- Time-Dependent Phenomena -- Shot Noise Induced Charge and Potential Fluctuations of Edge States in Proximity of a Gate -- Shot-Noise in Non-Degenerate Semiconductors with Energy-Dependent Elastic Scattering -- Transport and Noise of Entangled Electrons -- Shot Noise Suppression in Metallic Quantum Point Contacts -- Driven Tunneling -- Driven Tunneling: Chaos and

Decoherence -- A Fermi Pump -- Transport in Semiconductor Superlattices -- Transport in Semiconductor Superlattices: From Quantum Kinetics to Terahertz-Photon Detectors -- Current Self-Oscillations and Chaos in Semiconductor Superlattices -- Spin Properties -- Spintronic Spin Accumulation and Thermodynamics -- Mesoscopic Spin Quantum Coherence -- Random Systems and Localization -- Numerical-Scaling Study of the Statistics of Energy Levels at the Anderson Transition -- Multiple Light Scattering in Nematic Liquid Crystals -- Two Interacting articles in a Two-Dimensional Random Potential -- Mesoscopic Superconductors, Nanotubes and Atomic Chains -- Paramagnetic Meissner Effect in Mesoscopic Superconductors -- Novel 0D Devices: Carbon-Nanotube Quantum Dots -- Atomic-Size Conductors -- Contributions Presented as Posters -- Observation of Shell Structure in Sodium Nanowires -- Strong Charge Fluctuations in the Single-Electron Box: A Quantum Monte Carlo Analysis -- Double Quantum Dots as Detectors of High-Frequency Quantum Noise in Mesoscopic Conductors -- 1 Large Wigner Molecules and Quantum Dots -- 1 Fundamental Problems for Universal Quantum Computers -- Kondo Photo-Assisted Transport in Quantum Dots -- Shot Noise and Coherent Multiple Charge Transfer in Superconducting Quantum Point-Contacts -- Evidence for Ising Ferromagnetism and First-Order Phase Transitions in the Two-Dimensional Electron Gas -- Mechanical Properties of Metallic One-Atom Quantum Point Contacts -- Nanosized Superconducting Constrictions in High Magnetic Fields -- Interaction-Induced Dephasing in Disordered Electron Systems -- Resonant Tunneling Through Three Quantum Dots with Interdot Repulsion -- Spin-Isospin Textures in Quantum Hall Bilayers at Filling Factor ? = 2 -- Hall Resistance of a Two-Dimensional Electron Gas in the Presence of Magnetic Clusters with Large Perpendicular Magnetization -- Superconductivity Under Magnetic Fields in Nanobridges of Lead -- Effect of the Measurement on the Decay Rate of a Quantum System -- Statistics of Intensities in Surface Disordered Waveguides -- Optical Transmission Through Strong Scattering and Highly Polydisperse Media -- Interference in Random Lasers -- Electron Patterns Under Bistable Electro-Optical Absorption in Quantum Well Structures -- Simulation of Mesoscopic Devices with Bohm Trajectories and Wavepackets -- Chaotic Motion of Space Charge Monopole Waves in Semiconductors Under Time-Independent Voltage Bias -- Improving Electron Transport Simulation in Mesoscopic Systems by Coupling a Classical Monte Carlo Algorithm to a Wigner Function Solver -- Extended States in Correlated-Disorder GaAs/AlGaAs Superlattices -- Non-Linear Charge Dynamics in Semiconductor Superlattices -- Time-Dependent Resonant Tunneling in the Presence of an Electromagnetic Field -- The Interplay of Chaos and Dissipation in a Driven Double-Well Potential -- Monte Carlo Simulation of Quantum Transport in Semiconductors Using Wigner Paths -- Transient Currents Through Quantum Dots -- Ultrafast Coherent Spectroscopy of the Fermi Edge Singularity -- Self-Consistent Theory of Shot Noise Suppression in Ballistic Conductors -- Transfer Matrix Formulation of Field-Assisted Tunneling -- Two-Dimensional Gunn Effect -- An Explanation for Spikes in Current Oscillations of Doped Superlattices -- Beyond the Static Aproximation in a Mean Field Quantum Disordered System -- Quantum-Classical Crossover of the Escape Rate in a Spin System.

Sommario/riassunto

Initially a subfield of solid state physics, the study of mesoscopic systems has evolved over the years into a vast field of research in its own right. Keeping track its rapid progress, this book provides a broad survey of the latest developments in the field. The focus is on statistics

and dynamics of mesoscopic systems with special emphasis on topics like quantum chaos, localization, noise and fluctuations, mesoscopic optics and quantum transport in nanostructures. Written with nonspecialists in mind, this book will also be useful to graduate students wishing to familiarize themselves with this field of research.