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Nota di contenuto	On the Finite-Size Excitonic Instability in Interacting Graphene Quantum Dots -- Two-Dimensional Lattice Fermions with Random Gap -- Dielectric Constant and Screened Interactions in AA Stacked Bilayer Graphene -- Graphene Bloch Equations -- Transport through a Coulomb Blockaded Majorana Nanowire -- On the Electron-Phonon Interactions in Graphene -- Tunneling Conductance in Correlated Graphenes -- Landau Levels and Edge States in Graphene with Strong Spin-Orbit Coupling -- Wave Packet Propagation through Randomly Distributed Scattering Centers in Graphene -- Are Scattering Properties of Networks Uniquely Connected to their Shapes? -- Particle Dynamics in Kicked Quantum Networks -- Breathing Star Graph -- Time-Independent Nonlinear Schrödinger Equation on Simplest Networks -- 1/(N - 1) Expansion for an SU(N) Impurity Anderson Model: a New Large-N Scheme Based on a Perturbation Theory in U -- OPV Tandems

	with CNTS – Why are Parallel Connections better than Series Connections -- Optimization of Carrier Harvest in Meg Based Hybrid Solar Cells -- Thermoelectric Nanowire Arrays Response to Illumination -- Special Features of Thermoelectric Phenomena in Granulated Semiconductors -- Thermoelectricity in Ternary Rare-Earth Systems -- Simulation of Random Telegraph Noise in Nanometer nMosfet Induced by Interface and Oxide Trapped Charge -- Anyon Bosonized 2D Fermions or a Single Boson Physics of Cuprates: Experimental Evidences.
Sommario/riassunto	Maintaining and improving energy security is one of the biggest challenges worldwide. The NATO ARW conference in Tashkent, October 2012, was devoted to discussing visions and concepts that are currently discussed in different research fields. Leading scientists have written concise contributions to introduce the reader to this exciting topic. The present volume summarizes the discussions at the conference.