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Nota di contenuto	Preface; CONTENTS; Part A Classical Hamiltonian Dynamics; Resonant interaction of charged particles with electromagnetic waves A. A. Vasiliev, A. V. Artemyev, A. I. Neishtadt, D. L. Vainchtein and L. M. Zelenyi; 1. Introduction; 2. Main equations; 3. Single wave (non-relativistic case); 3.1. Normal propagation; 3.2. Oblique propagation; 4. Effects of the second wave; 4.1. Parallel propagation; 4.2. Nonparallel propagation; 5. Relativistic case; 6. Discussion and conclusions; Acknowledgments; References Superrelativistic charged particles acceleration by electromagnetic waves: Self-consistent model A. V. Artemyev, L. M. Zelenyi, and V. L. Krasovsky1. Introduction; 2. Wave-particle interaction; 3. Self-consistent approach; 4. Discussion and conclusions; Acknowledgments; References; Control of atomic transport using autoresonance D. V. Makarov, M. Yu. Uleysky and S. V. Prants; 1. Introduction; 2. Basic equations; 3. Classical dynamics; 4. Numerical simulation; 4.1. Classical autoresonance; 4.2. Quantum autoresonance; 5. Conclusion; Acknowledgments; References

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2.2. From Kramers-Moyal expansion to the Fokker-Planck equation3. Quasistationary states; 3.1. Botzmann-Gibbs expectations; 3.2. How to recognize QSSs?; 3.3. Large-time disintegration of QSSs; 4. Stochastic hypothesis; 5. A practical example: The Hamiltonian Mean Field model; 5.1. Averaging the Fokker-Planck equation; 5.2. Destruction of the inner structure; 6. Conclusion; References; Anomalous transport and phase space structures B. Meziani, O. Ourrad and X. Leoncini; 1. Introduction; 2. Motion in two waves; 3. Decay of particles into islands of stability; 4. Conclusion; Acknowledgements
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6. State alternation

Sommario/riassunto

The main goal is to offer readers a panorama of recent progress in nonlinear physics, complexity and transport with attractive chapters readable by a broad audience. It allows readers to gain an insight into these active fields of research and notably promotes the interdisciplinary studies from mathematics to experimental physics. To reach this aim, the book collects a selection of contributions to the CCT11 conference (Marseille, 23 - 27 May 2011).