1.	Record Nr.	UNISA996466720403316
	Titolo	Ergodic Concepts in Stellar Dynamics [[electronic resource]] : Proceedings of an International Workshop Held at Geneva Observatory University of Geneva, Switzerland, 1–3 March 1993 / / edited by V.G. Gurzadyan, D. Pfenniger
	Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 1994
	ISBN	3-540-48386-1
	Edizione	[1st ed. 1994.]
	Descrizione fisica	1 online resource (XVI, 302 p.)
	Collana	Lecture Notes in Physics, , 0075-8450 ; ; 430
	Disciplina	523.8
	Soggetti	Statistical physics
		Dynamical systems
		Observations, Astronomical
		Astronomy—Observations
		Astrophysics
		Physics
		Mathematical analysis
		Analysis (Mathematics)
		Complex Systems
		Astronomy, Observations and Techniques
		Astrophysics and Astroparticles
		Mathematical Methods in Physics
		Numerical and Computational Physics, Simulation
		Analysis
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Bibliographic Level Mode of Issuance: Monograph
	Nota di contenuto	Structural and dynamical forms of elliptical and dwarf galaxies -- Some clues about the dynamics of globular clusters from high-resolution observation -- Diffusion of stellar orbits in the galactic disk -- Ergodic methods in stellar dynamics -- On a notion of weak stability and its relevance for celestial mechanics and molecular dynamics -- Recent developments in the dynamics of nonlinear Hamiltonian systems with

many degrees of freedom -- Numerical exploration of the circular billiard with gravity -- Ergodicity and mixing in gravitating systems -- Chaotic itineracy and clustered motion in globally coupled symplectic map system -- Lyapunov analysis of stable chaos in self-gravitating many body systems -- Stability of the modified Konishi-Kaneko system -- Mixing transformations of N particles conserving almost all classical integrals -- Symplectic integration without roundoff error -- Discreteness noise versus force errors in N-body simulations -- Core motions and global chaotic oscillations -- N-body systems: Computer image and reality -- The approach to integrability in N-body systems with a central point mass -- On the non-trivial concept of relaxation in N-body systems -- Gravothermal oscillations -- Recent results on the stability of anisotropic stellar systems -- The stability of the solar system -- The one-dimensional three-body problem: Numerical simulations -- Order and chaos in "collisionless" numerical simulations -- On the permissible percentage of chaotic orbits in various morphological types of galaxies -- Minimum energy states of a self-gravitating system -- Effective collision term induced by coarse-graining -- Theoretical and numerical investigation of the stability of flattened galaxies -- The evolution of orbits in the stellar disk as a purely discontinuous random process -- Interacting spherical stellar systems -- How faithful are n-body simulations of disc galaxies? — artificial suppression of stellar dynamical instabilities -- SPH simulations of the gas flow in normal spiral galaxies -- Regular orbits and cantori in the potential of the barred galaxy NGC 936 -- The role of stochastic motion in a central field with a bar-like perturbation -- A hierarchical model of patchy-structured galaxies and evolutionary processes -- Evolution of clusters of galaxies -- Smoothing of the cosmic background radiation by multiple gravitational scattering -- Angular momentum of galaxies within the local supercluster -- 10 problems the solutions of which can seriously influence stellar dynamics -- Comments on "10 key problems".

| Sommario/riassunto | Advances in the dynamics of stellar systems have been made recently by applying mathematical methods of ergodic theory and chaotic dynamics, by numerous computer simulations, and by observations with the most powerful telescopes. This has led to a considerable change of our view on stellar systems. These systems appear much more chaotic than was previously thought and subject to various instabilities leading to new paths of evolution than previously thought. The implications are fundamental for our views on the evolution of the galaxies and the universe. Such questions are addressed in this book, especially in the 8 review papers by leading experts on various aspects of the N-body problem, explaining at the graduate/postgraduate level the concepts, methods, techniques and results. |