1.	Record Nr.	UNISA996466804803316
	Titolo	Classical, Semiclassical and Quantum Dynamics in Atoms [[electronic resource] /] / edited by Harald Friedrich, Bruno Eckhardt
	Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 1997
	ISBN	3-540-69055-7
	Edizione	[1st ed. 1997.]
	Descrizione fisica	1 online resource (VIII, 344 p.)
	Collana	Lecture Notes in Physics, , 0075-8450 ; ; 485
	Disciplina	539.7
	Soggetti	Statistical physics
		Dynamical systems
		Atoms
		Physics
		Quantum computers
		Spintronics
		Quantum physics
		Complex Systems
		Atomic, Molecular, Optical and Plasma Physics
		Quantum Information Technology, Spintronics
		Quantum Physics
		Statistical Physics and Dynamical Systems
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Bibliographic Level Mode of Issuance: Monograph
	Nota di contenuto	The origins of the trace formula -- Quantum fluids and classical determinants -- Semiclassical cross sections -- Resummation and the turning points of zeta functions -- Tunneling and the semiclassical propagator: A new perspective -- Semiclassical floquet spectra without periodic orbits from ?-expansion of floquet matrix -- Spectral statistics of chaotic and disordered systems -- Microwave ionization of hydrogen rydberg atoms: Chaos, symmetry and dynamical localization -- The periodically driven excited hydrogen atom -- Ionization of hydrogen atoms by circularly polarized microwaves -- Classical orbits and quantum waves in natural atoms and in designer atoms --

Semiclassical approaches to atoms in external fields -- Two-electron atoms: From resonances to fragmentation -- Periodic orbit spectra of simple atoms.

Sommario/riassunto	In this book, a number of the world's leading researchers in quantum, classical and atomic physics cooperate to present an up-to-date account of the recent progress in the field. The first part highlights the latest advances in semiclassical theory, whilst the second one is devoted to applications to atomic systems. The authors present the material in pedagogical form to make it easy reading for non-specialists, too. Among the topics treated, the reader will find a new quasiclassical quantization scheme for Hamiltonian dynamics, an application of the semiclassical formalism to photodissociation of small molecules and to the Lorentz gas and discussions of tunneling corrections. Furthermore, one finds papers on chaotic ionization, on the behaviour of hydrogen atoms in external fields, e.g. magnetic or microwave fields.