1.	Record Nr.	UNINA9910257405403321
	Titolo	Fourth Granada Lectures in Computational Physics : Proceedings of the 4th Granada Seminar on Computational Physics Held at Granada, Spain, 9–14 September 1996 / / edited by Pedro L. Garrido, Joaquin Marro
	Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 1997
	ISBN	3-662-14148-5
	Edizione	[1st ed. 1997.]
	Descrizione fisica	1 online resource (XIV, 322 p. 66 illus.)
	Collana	Lecture Notes in Physics, , 1616-6361 ; ; 493
	Disciplina	530.0113
	Soggetti	Mathematical physics System theory Mathematical Methods in Physics Theoretical, Mathematical and Computational Physics Complex Systems
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Bibliographic Level Mode of Issuance: Monograph
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	A variational approach to exciton-phonon coupling -- The power of cooperation -- Microscopic computer simulation of fluids -- Nonequilibrium potential in reaction-diffusion systems -- An introduction to the mathematical theory of neural networks -- The statistical mechanics of absorbing states -- On the self-organization of migrating individuals -- Recent progress in the study of irreversible transitions in reaction systems -- Critical behavior of an evolution model -- Simulation of phase behavior of fluids in gels -- Mesoscopic descriptions of fluids -- Description of growth models with density equations -- Langevin approach to synthetic turbulence and applications -- Irreversible adsorption of colloidal particles -- Probability distribution function for the random sequential adsorption of aligned and unaligned hard-squares -- Resonance phenomena induced by correlated parametric noise -- Magnetic relaxation via competing dynamics -- Atomic dynamics in liquid alkali metals. A theoretical study -- Electronic structure of delta-doped quantum well as a function of temperature -- Neural networks with fluctuating synapses -- Local field distribution in attractor neural networks: Effect

of the stimulus -- A field theoretical study of a lattice gas in two planes -- A regularization of the nonstationary two-body problem under the Maneff perturbing potential -- Pattern formation in catalytic processes: Phase-field model.

Sommario/riassunto	The methods developed to deal with the computational aspects of physi- cal problems are useful in an increasing number of situations, from chem- istry, biology and geology to engineering, communications and economics. In fact, computational physics has evolved into a trans-disciplinary field now concerned with the creative use of computers in scientific research. More- over, computational methods often help students to develop a deeper under- standing of key concepts, and enhance their problem-solving abilities. There- fore, computational physics is recognized as having an important educational value, and educators face the task of outlining appropriate curricula to take advantage of these unique features. This is an important motivation for the publication of the contents of the Seminar on Computational Physics which is held in Granada every two years. The seminar aims at bringing together small groups of students and active researchers on different aspects of computational physics. It is part of the doctoral programme of the University of Granada. The proceedings of the previous editions were published as II Granada Lectures in Computational Physics (World Scientific, Singapore 1993) and Third Granada Lectures in Computational Physics (Lecture Notes in Physics, vol. 448, Springer, Berlin 1995) by the same editors. The present book contains the invited lecture notes and a very brief account of contributions by participants at the 4th Granada Seminar on Computational Physics (Granada, Spain, 9-14 September 1996).