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Titolo	Complex Behaviour of Glassy Systems [[electronic resource] ] : Proceedings of the XIV Sitges Conference Sitges, Barcelona, Spain, 10–14 June 1996 / / edited by Miguel Rubi, Conrado Perez-Vicente
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Disciplina	530.4/13
Soggetti	Condensed matter Physics Quantum computers Spintronics Quantum physics Statistical physics Dynamical systems Condensed Matter Physics Mathematical Methods in Physics Numerical and Computational Physics, Simulation Quantum Information Technology, Spintronics Quantum Physics Complex Systems
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Nota di contenuto	Entropy, fragility, “landscapes”, and the glass transition -- Computer simulation of models for the structural glass transition -- Microscopic dynamics in glasses in relation to that shown by other complex systems -- Microscopic dynamics of A1C60 compounds -- Dynamics of a supercooled Lennard-Jones system: Qualitative and quantitative tests of mode-coupling theory -- An ideal glass transition in supercooled water? -- Glass transition in the hard sphere system -- Slow dynamics of glassy systems -- Classical and quantum behavior in mean-field

glassy systems -- Complexity as the driving force for glassy transitions -- A solvable model of a glass -- On the long times, large length scale behaviour of disordered systems -- Hexatic glass -- Slow dynamics and aging in spin glasses -- Ultrametric structure of finite dimensional spin glasses -- Entropy crisis in a short range spin glass -- Chiral and spin order in XY spin glass -- A metal-insulator transition as a quantum glass problem -- Quantum spin glasses -- Fermionic quantum spin glass transitions -- Polymer winding numbers and quantum mechanics -- Localized flux lines and the bose glass -- Structural studies of magnetic flux line lattices near critical transitions -- Phase diagram, vortex dynamics and dissipation in thin films and superlattices of 1:2:3 superconducting cuprates -- Monte carlo study of a three-dimensional vortex glass model with screening -- Equilibrium phase transitions in Josephson junction arrays -- An experimentally realizable weiss model for disorder-free glassiness -- Randomly charged polymers -- Copolymer melts in disordered media -- Cross-linked polymer chains: Scaling and exact results -- Magnetic properties of geometrically frustrated systems -- Fractal growth with quenched disorder -- Data clustering and the glassy structures of randomness -- A kinetic description of disorder.

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### Sommario/riassunto

For the first time this subject, including many systems of interest in Condensed Matter Physics, is treated in an unified way. Complexity emerges as one of the main ingredients dictating the collective behaviour of many systems. Glassy systems constitute one of the most interesting fields of Condensed Matter Physics for which also a considerable amount of experimental data and industrial applications have been collected during the last twenty years. Systems exhibiting glassy behaviour are for example: real glasses, spin glasses, vortex flasses in superconductors, protein folding, etc. In this book the reader can see how the present theoretical understanding of these subjects is based on similar techniques and approaches hopefully allowing to develop a unifying structure that underlies the physical mechanism.

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