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Soggetti	Atoms Physics Physical chemistry Atomic, Molecular, Optical and Plasma Physics Physical Chemistry
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Nota di contenuto	The phase behaviour of colloid-polymer and colloid-colloid mixtures -- Dynamics of crystallization in model hard sphere suspensions -- Structure of dna mesophases -- Charge structure in electrolytes and polyelectrolytes. Experimental evidence and interpretation -- Ferrofluids. Hydrodynamical and statistical aspects -- Ferrofluids : Magneto-optic effects in time dependent magnetic fields -- Colloidal stability influence on rheology of magnetic fluids -- NMR and dynamics in polymeric systems. Melts, gels and blends -- Weakly charged polyelectrolytes solutions -- Order through disorder: Entropy-driven phase transitions -- Polydisperse complex fluids -- Monte Carlo simulation of liquid n-alkanes -- Transport in electrolytes using the mean spherical approximation: Electrical conductance and self-diffusion coefficient as a function of concentration in solutions -- Computer simulation of macromolecules in solution: Modelling of solvent effects on ions in water -- Orientational freezing within the effective liquid approach -- Rheology of textured materials -- Physical modelling using microparticles -- Bridging in grafted layers : Statics and kinetics -- Stress relaxation in diblock copolymers -- A molecular

theory for spatially inhomogeneous, concentrated solutions of rod-like liquid crystal polymers -- Intermittency patterns of fluctuations in disaggregating systems -- Void fraction dynamics in fluidization -- Micelles and microemulsions -- Froths and foams -- Clustering and relaxation in oil-continuous microemulsions -- Neutron scattering experiments on nonaqueous electrolyte solutions -- Nematogenic fluids in shear flow: A laboratory for nonequilibrium physics -- Dynamic structure factor of sponge phases -- Liquid crystal formation in semiflexible polymer solutions: effects of chain stiffness, electrostatic interaction, and polydispersity.

Sommario/riassunto

This set of survey talks presented to graduate students serves as a thorough exposition of the subject. The study of complex fluids (with internal structure) is important for theoretical purposes but also, and maybe even more so, for applied research. The reader will find papers on colloid mixtures, the structure of DNA mesophases, ferrofluids, chain dynamics, liquid crystals, computer simulations of macromolecules, fluidization, emulsions, relaxations and many other related topics.