1. Record Nr. UNINA9910954264403321

Autore	Gotze Wolfgang <1937->
Titolo	Complex dynamics of glass-forming liquids : a mode-coupling theory / / Wolfgang Gotze
Pubbl/distr/stampa	Oxford ; ; New York, : Oxford University Press, 2009
ISBN	0191553042 9780191553042
Edizione	[1st ed.]
Descrizione fisica	xi, 641 p. : ill
Collana	International series of monographs on physics ; ; 143
Disciplina	532/.0533
Soggetti	Viscosity Mode-coupling theory Equations of motion Complex fluids Molecular dynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references (p. [621]-633) and index.
Nota di contenuto	Intro -- Contents -- Preface -- 1 Glassy dynamics of liquids-facets of the phenomenon -- 1.1 Stretching of the dynamics -- 1.2 Power-law relaxation -- 1.3 Superposition principles -- 1.4 Two-step relaxation through a plateau -- 1.5 The cage effect -- 1.6 Crossover phenomena -- 1.7 Hard-sphere systems: the paradigms -- 1.8 Hard-sphere systems with short-range attraction -- 2 Correlation functions -- 2.1 The evolution of dynamical variables -- 2.2 Correlation-function description of the dynamics -- 2.3 Spectral representations -- 2.4 Memory-kernel descriptions of correlators -- 2.4.1 Zwanzig-Mori equations -- 2.4.2 Models for correlation functions -- 2.5 Linear-response theory -- 2.6 The arrested parts of correlation functions -- 3 Elements of liquid dynamics -- 3.1 Preliminaries -- 3.1.1 Homogeneous isotropic systems without chirality -- 3.1.2 Densities and density fluctuations -- 3.2 Tagged-particle dynamics -- 3.2.1 Basic concepts and general equations -- 3.2.2 Tagged-particle diffusion -- 3.2.3 The friction coefficient -- 3.2.4 The cage effect and glassy-dynamics precursors of the velocity correlations -- 3.3 Densities and currents in simple liquids -- 3.3.1 Definitions and

general equations -- 3.3.2 Transverse-current diffusion -- 3.3.3 The generalized-hydrodynamics description of transverse-current correlations -- 3.3.4 Visco-elastic features and glassy-dynamics precursors of the transverse-current correlators -- 3.3.5 Representations of the density correlators in terms of relaxation kernels -- 3.3.6 Sound waves and heat diffusion -- 3.3.7 Visco-elastic features and glassy-dynamics precursors of the density-fluctuation correlators -- 4 Foundations of the mode-coupling theory for the evolution of glassy dynamics in liquids -- 4.1 Self-consistent-current-relaxation approaches -- 4.1.1 The factorization ansatz.
4.1.2 Self-consistency equations for density correlators -- 4.2 A mode-coupling theory -- 4.2.1 Equations of motion and fixed-point equations -- 4.2.2 Mode-coupling-theory models -- 4.2.3 The basic version of microscopic mode-coupling theories -- 4.2.4 An elementary mode-coupling-theory model -- 4.3 Glass-transition singularities -- 4.3.1 Regular and critical states -- 4.3.2 Examples for bifurcation diagrams -- 4.3.3 Classification of the critical states -- 4.3.4 Correlation arrest near A[sub(2)] singularities -- 4.3.5 Density-fluctuation arrest in hard-sphere-like systems -- 4.3.6 Arrest in systems with short-ranged-attraction -- 4.4 Dynamics near glass-transition singularities -- 4.4.1 Relaxation through plateaus -- 4.4.2 Below-plateau relaxation -- 4.4.3 Structure and structure relaxation -- 4.4.4 Descriptions of some glassy-dynamics data -- 5 Extensions of the mode-coupling theory for the evolution of glassy dynamics of liquids -- 5.1 Extensions of the MCT for simple systems -- 5.1.1 MCT equations for the glassy shear dynamics -- 5.1.2 Glassy-relaxation features of shear correlations -- 5.1.3 MCT equations for the tagged-particle dynamics -- 5.1.4 Idealized transitions from diffusion to localization -- 5.1.5 Glassy-dynamics features of tagged-particle motions -- 5.2 A mode-coupling theory for mixtures of spherical particles -- 5.2.1 The equations of motion -- 5.2.2 Density-fluctuation arrest -- 5.2.3 Hard-sphere mixtures -- 5.2.4 Sodium-disilicate melts -- 5.3 A mode-coupling theory for molecular liquids -- 5.3.1 A theory for interaction-site-density correlators -- 5.3.2 Systems of symmetric dumbbells -- 5.3.3 Glassy Rouse dynamics -- 5.4 Some addenda -- 6 Asymptotic relaxation laws -- 6.1 Dynamics of the first-scaling-law regime -- 6.1.1 Reformulation of the MCT equations of motion -- 6.1.2 The critical dynamics.
6.1.3 Asymptotic description of the A[sub(2)]-bifurcation dynamics -- 6.1.4 The scaling-limit description of the generic liquid-glass-transition dynamics -- 6.1.5 Extended scaling-limit description of the generic A[sub(2)]-bifurcation dynamics -- 6.2 Dynamics of the second-scaling-law regime -- 6.2.1 Equations of motion for the second-scaling-law regime -- 6.2.2 The second-scaling-law description of the liquid dynamics -- 6.2.3 Asymptotic corrections for the second scaling limit -- 6.3 Relaxation near higher-order singularities -- 6.3.1 Correlation arrest near higher-order singularities -- 6.3.2 Logarithmic relaxation -- A: Mathematical miscellanies -- A.1 Laplace transforms -- A.2 Fourier transforms -- A.3 Positive-definite and positive-analytic functions -- A.4 Harmonic-oscillator correlators -- A.5 Matrix correlators -- A.6 Product correlators -- A.7 Power-law variations -- A. 8 Logarithmic variations -- B: Symmetries of fluctuation correlators -- C: Smoothened correlators -- D: Theorems on MCT equations -- D.1 Convergence of the approximant sequences -- D.2 Completely monotonic approximants -- D.3 The maximum-eigenvalue inequality -- D.4 Further properties of stability matrices -- Bibliography -- Index -- A -- B -- C -- D -- E -- F -- G -- H -- I -- K -- L -- M -- N -- O -- P -- Q -- R -- S -- T -- U -- V -- W -- Y -- Z.

Sommario/riassunto	Amorphous condensed matter can exhibit complex motions on time scales which extend up to those relevant for the functioning of biomaterials. The book presents the derivation of a microscopic theory for amorphous matter, which exhibits the evolution of such complex motions as a new paradigm of strongly interacting particle systems.

2. Record Nr. UNINA9910139506603321

Titolo	Bacterial signaling / / edited by Reinhard Kramer and Kirsten Jung
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, c2010
ISBN	9786612472312 9781282472310 1282472313 9783527629237 3527629238 9783527629244 3527629246
Descrizione fisica	1 online resource (517 p.)
Classificazione	570 WE 5340
Altri autori (Persone)	KramerReinhard <1948-> JungKirsten
Disciplina	660.6
Soggetti	Cell interaction Bacteria - Physiology Cellular signal transduction
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Bacterial Signaling; Contents; Preface; List of Contributors; Part I: Intercellular Communication; Introduction; 1 Cell-Cell Communication and Biofilm Formation in Gram-Positive Bacteria; 2 Cell-Cell Communication in Biofilms of Gram-Negative Bacteria; 3 Cell Interactions Guide the Swarming and Fruiting Body Development of Myxobacteria; 4 Communication Between Rhizobia and Plants; 5

Communication Between Pathogens and Eukaryotic Cells; 6 Identification of Bacterial Autoinducers - Methods Chapter; Part II: Transmembrane Signaling; Introduction
7 Outer Membrane Signaling in Gram-Negative Bacteria8 Stimulus Perception and Signaling in Histidine Kinases; 9 Chemotaxis and Receptor Localization; 10 Photoreception and Signal Transduction; 11 Transmembrane Signaling; 12 Sensory Transport Proteins; 13 Regulated Intramembrane Proteolysis in Bacterial Transmembrane Signaling; 14 Protein Chemical and Electron Paramagnetic Resonance Spectroscopic Approaches to Monitor Membrane Protein Structure and Dynamics - Methods Chapter; Part III: Intracellular Signaling; Introduction; 15 Protein Domains Involved in Intracellular Signal Transduction
16 Sensing of Oxygen by Bacteria17 Microbial Sensor Systems for Dihydrogen, Nitric Oxide, and Carbon Monoxide; 18 Signal Transduction by Trigger Enzymes: Bifunctional Enzymes and Transporters Controlling Gene Expression; 19 Regulation of Carbohydrate Utilization by Phosphotransferase System-Mediated Protein Phosphorylation; 20 cAMP Signaling in Prokaryotes; 21 c-di-GMP Signaling; 22 ppGpp Signaling; 23 Sensory RNAs; 24 Signal Transduction by Serine/Threonine Protein Kinases in Bacteria; 25 Regulatory Proteolysis and Signal Transduction in Bacteria
26 Intracellular Signaling and Gene Target Analysis - Methods ChapterIndex

Sommario/riassunto

Providing a comprehensive insight into cellular signaling processes in bacteria with a special focus on biotechnological implications, this is the first book to cover intercellular as well as intracellular signaling and its relevance for biofilm formation, host pathogen interactions, symbiotic relationships, and photo- and chemotaxis. In addition, it deals in detail with principal bacterial signaling mechanisms -- making this a valuable resource for all advanced students in microbiology. Dr. Kr?mer is a world-renowned expert in intracellular signaling and its implications for biotechnology pro