

1. Record Nr.	UNINA9910877832303321
Autore	Teraoka Iwao
Titolo	Polymer solutions : an introduction to physical properties // Iwao Teraoka
Pubbl/distr/stampa	New York, : Wiley-Interscience, c2002
ISBN	9786610541751 9781523143955 1523143959 9781280541759 128054175X 9780471460763 0471460761 9780471224518 0471224510
Descrizione fisica	1 online resource (355 p.)
Disciplina	547.7 547/.70454
Soggetti	Polymer solutions Polymers
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	Contents; Preface; 1 Models of Polymer Chains; 1.1 Introduction; 1.1.1 Chain Architecture; 1.1.2 Models of a Linear Polymer Chain; 1.1.3 Real Chains and Ideal Chains; 1.2 Ideal Chains; 1.2.1 Random Walk in One Dimension; 1.2.2 Random Walks in Two and Three Dimensions; 1.2.3 Dimensions of Random-Walk Chains; 1.2.4 Problems; 1.3 Gaussian Chain; 1.3.1 What is a Gaussian Chain?; 1.3.2 Dimension of a Gaussian Chain; 1.3.3 Entropy Elasticity; 1.3.4 Problems; 1.4 Real Chains; 1.4.1 Excluded Volume; 1.4.2 Dimension of a Real Chain; 1.4.3 Self-Avoiding Walk; 1.4.4 Problems; 1.5 Semirigid Chains 1.5.1 Examples of Semirigid Chains 1.5.2 Wormlike Chain; 1.5.3 Problems; 1.6 Branched Chains; 1.6.1 Architecture of Branched Chains; 1.6.2 Dimension of Branched Chains; 1.6.3 Problems; 1.7 Molecular

Weight Distribution; 1.7.1 Average Molecular Weights; 1.7.2 Typical Distributions; 1.7.3 Problems; 1.8 Concentration Regimes; 1.8.1 Concentration Regimes for Linear Flexible Polymers; 1.8.2 Concentration Regimes for Rodlike Molecules; 1.8.3 Problems; 2 Thermodynamics of Dilute Polymer Solutions; 2.1 Polymer Solutions and Thermodynamics; 2.2 Flory-Huggins Mean-Field Theory; 2.2.1 Model
2.2.2 Free Energy, Chemical Potentials, and Osmotic Pressure
2.2.3 Dilute Solutions; 2.2.4 Coexistence Curve and Stability; 2.2.5 Polydisperse Polymer; 2.2.6 Problems; 2.3 Phase Diagram and Theta Solutions; 2.3.1 Phase Diagram; 2.3.2 Theta Solutions; 2.3.3 Coil-Globule Transition; 2.3.4 Solubility Parameter; 2.3.5 Problems; 2.4 Static Light Scattering; 2.4.1 Sample Geometry in Light-Scattering Measurements; 2.4.2 Scattering by a Small Particle; 2.4.3 Scattering by a Polymer Chain; 2.4.4 Scattering by Many Polymer Chains; 2.4.5 Correlation Function and Structure Factor
2.4.6 Structure Factor of a Polymer Chain
2.4.7 Light Scattering of a Polymer Solution; 2.4.8 Other Scattering Techniques; 2.4.9 Problems; 2.5 Size Exclusion Chromatography and Confinement; 2.5.1 Separation System; 2.5.2 Plate Theory; 2.5.3 Partitioning of Polymer with a Pore; 2.5.4 Calibration of SEC; 2.5.5 SEC With an On-Line Light-Scattering Detector; 2.5.6 Problems; APPENDICES; 2.A: Review of Thermodynamics for Colligative Properties in Nonideal Solutions; 2.B: Another Approach to Thermodynamics of Polymer Solutions; 2.C: Correlation Function of a Gaussian Chain
3 Dynamics of Dilute Polymer Solutions
3.1 Dynamics of Polymer Solutions; 3.2 Dynamic Light Scattering and Diffusion of Polymers; 3.2.1 Measurement System and Autocorrelation Function; 3.2.2 Autocorrelation Function; 3.2.3 Dynamic Structure Factor of Suspended Particles; 3.2.4 Diffusion of Particles; 3.2.5 Diffusion and DLS; 3.2.6 Dynamic Structure Factor of a Polymer Solution; 3.2.7 Hydrodynamic Radius; 3.2.8 Particle Sizing; 3.2.9 Diffusion From Equation of Motion; 3.2.10 Diffusion as Kinetics; 3.2.11 Concentration Effect on Diffusion; 3.2.12 Diffusion in a Nonuniform System; 3.2.13 Problems
3.3 Viscosity

Sommario/riassunto

Polymer Solutions: An Introduction to Physical Properties offers a fresh, inclusive approach to teaching the fundamentals of physical polymer science. Students, instructors, and professionals in polymer chemistry, analytical chemistry, organic chemistry, engineering, materials, and textiles will find Iwao Teraoka's text at once accessible and highly detailed in its treatment of the properties of polymers in the solution phase. Teraoka's purpose in writing Polymer Solutions is twofold: to familiarize the advanced undergraduate and beginning graduate student with basic concepts, theories, mode

2. Record Nr.	UNINA9910299446403321
Autore	Farmer G. Thomas
Titolo	Modern Climate Change Science : An Overview of Today's Climate Change Science // by G. Thomas Farmer
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-09222-7
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (128 p.)
Collana	SpringerBriefs in Environmental Science, , 2191-5547
Disciplina	551.6
Soggetti	Climatic changes Climate Earth sciences Education Chemistry Energy Climate Change Climate, general Earth Sciences, general Education, general Chemistry/Food Science, general Energy, general
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.
Nota di contenuto	Chapter 1: Overview of Climate Change Science -- Chapter 2: Status of Climate Change Research -- Appendix A: Geologic Time -- Appendix B: The Metric System.
Sommario/riassunto	Composed of two extensive sections, this book surveys important work in climate change science, mainly in the United States, and introduces contributions to the body of science that have arrived on the scene between January 2013 and February 2014. The opening section offers a broad examination of contemporary climate change science, with subsections on the Intergovernmental Panel on Climate Change (IPCC); Earth's energy imbalance and energy flow; carbon dioxide's role in the

greenhouse effect; climate forcing, and climate feedbacks; Charles David Keeling and the Keeling Curve; the interfaces of atmosphere with oceans and land; paleoclimates and paleoclimatology; rising sea level; melting glaciers; deforestation; desertification; more violent storms, animal and human migration, extinction of species and more. The second section reviews and assesses the newest contributions to the body of research. Among the topics discussed are current and recent research on rising temperatures; the BEST study; the Global Historical Climatology Network (GHCN) and the National Climatic Data Center (NCDC); current and recent research on climate models, new research on global warming 56 million years ago; ecosystem impacts, projections of future climate and more. This book can be considered a bridge between the volumes of Farmer and Cook's Climate Change Science: A Modern Synthesis, as it arrives between the release of the first volume on the Physical Climate (2013) the second, on Earth's climate history, which is now in preparation. The book benefits a wide audience as its survey of the science of climate change provides an introduction to the subject and a discussion of current research in the field. The book may be used as a refresher for those who have had prior courses in climate science and related fields. Each chapter includes a comprehensive list of references for subjects discussed in the text.
