Record Nr.	UNINA9910146075903321
Autore	Sun S. F. <1922->
Titolo	Physical chemistry of macromolecules [[electronic resource]] : basic principles and issues / / S.F. Sun
Pubbl/distr/stampa	Hoboken, N.J., : John Wiley & Sons, c2004
ISBN	1-280-54192-X 9786610541928 0-471-62356-3 0-471-62357-1
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (583 p.)
Disciplina	547.7 547.7045
Soggetti	Macromolecules Physical organic chemistry Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"A Wiley-Interscience publication."
Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	 PHYSICAL CHEMISTRY OF MACROMOLECULES Second Edition; CONTENTS; Preface to the Second Edition; Preface to the First Edition; 1 Introduction; 1.1 Colloids; 1.2 Macromolecules; 1.2.1 Synthetic Polymers; 1.2.2 Biological Polymers; 1.3 Macromolecular Science; References; 2 Syntheses of Macromolecular Compounds; 2.1 Radical Polymerization; 2.1.1 Complications; 2.1.2 Methods of Free-Radical Polymerization; 2.1.3 Some Well-Known Overall Reactions of Addition Polymers; 2.2 Ionic Polymerization; 2.2.1 Anionic Polymerization; 2.2.2 Cationic Polymerization; 2.2.3 Living Polymers 2.3 Coordination Polymerization2.4 Stepwise Polymerization; 2.5 Kinetics of the Syntheses of Polymers; 2.5.1 Condensation Reactions; 2.5.2 Chain Reactions; 2.6 Polypeptide Synthesis; 2.6.1 Synthesis of Insulin; 2.6.2 Synthesis of Ribonucleus; 2.7 DNA Synthesis; References; Problems; 3 Distribution of Molecular Weight; 3.1 Review of Mathematical Statistics; 3.1.1 Binomial Distribution; 3.1.2 Poisson Distribution; 3.1.3 Gaussian Distribution; 3.2 One-Parameter Equation; 3.2.1 Condensation Polymers; 3.2.2 Addition Polymers; 3.3 Two-

1.

	r dramotor Equatione, e.e.r Normar Biotheaten
	 3.3.2 Logarithm Normal Distribution3.4 Types of Molecular Weight; 3.5 Experimental Methods for Determining Molecular Weight and Molecular Weight Distribution; References; Problems; 4 Macromolecular Thermodynamics; 4.1 Review of Thermodynamics; 4.2 DS of Mixing: Flory Theory; 4.3 DH of Mixing; 4.3.1 Cohesive Energy Density; 4.3.2 Contact Energy (First-Neighbor Interaction or Energy Due to Contact); 4.4 DG of Mixing; 4.5 Partial Molar Quantities; 4.5.1 Partial Specific Volume; 4.5.2 Chemical Potential; 4.6 Thermodynamics of Dilute Polymer Solutions; 4.6.1 Vapor Pressure; 4.6.2 Phase Equilibrium Appendix: Thermodynamics and Critical PhenomenaReferences; Problems; 5 Chain Configurations; 5.1 Preliminary Descriptions of a Polymer Chain; 5.2 Random Walk and the Markov Process; 5.2.1 Random Walk; 5.2.2 Markov Chain; 5.3 Random-Flight Chains; 5.4 Wormlike Chains; 5.5 Flory's Mean-Field Theory; 5.6 Perturbation Theory; 5.6.1 First-Order Perturbation Theory; 5.6.2 Cluster Expansion Method; 5.7 Chain Crossover and Chain Entanglement; 5.7.1 Concentration Effect; 5.7.2 Temperature Effect; 5.7.3 Tube Theory (Reptation Theory); 5.7.4 Images of Individual Polymer Chains 5.8 Scaling and UniversalityAppendix A Scaling Concepts; Appendix B Correlation Function; References; Problems; 6 Liquid Crystals; 6.1 Mesogens; 6.2 Polymeric Liquid Crystals; 6.2.1 Low-Molecular Weight Liquid Crystal; 6.2.2 Main-Chain Liquid-Crystalline Polymers; 6.2.3 Side-Chain Liquid-Crystalline Polymers; 6.2.4 Segmented-Chain Liquid-Crystalline Polymers; 6.2.4 Segmented-Chain Liquid-Crystalline Polymers; 6.4.3 Smectic A and C; 6.4.4 Compounds Representing Some Mesophases; 6.4.5 Shape and Phase 6.4.6 Decreasing Order and DH of Phase Transition
Sommario/riassunto	Integrating coverage of polymers and biological macromolecules into a single text, Physical Chemistry of Macromolecules is carefully structured to provide a clear and consistent resource for beginners and professionals alike. The basic knowledge of both biophysical and physical polymer chemistry is covered, along with important terms, basic structural properties and relationships. This book includes end of chapter problems and references, and also:Enables users to improve basic knowledge of biophysical chemistry and physical polymer chemistry.Explores fully the principles