

1. Record Nr.	UNINA9910813193303321
Titolo	Supramolecular polymer chemistry // edited by Akira Harada
Pubbl/distr/stampa	Weinheim, : Wiley-VCH Chichester, : John Wiley [distributor], 2011
ISBN	3-527-63979-9 1-283-37950-3 9786613379504 3-527-63978-0 3-527-63980-2
Edizione	[1st ed.]
Descrizione fisica	1 online resource (392 p.)
Disciplina	547.28 547.7 547/.28
Soggetti	Polymers Supramolecular chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Supramolecular Polymer Chemistry; Contents; Preface; List of Contributors; Part One: Formation of Supramolecular Polymers; 1 Multiple Hydrogen-Bonded Supramolecular Polymers; 1.1 Introduction; 1.1.1 Historical Background; 1.1.2 Supramolecular Chemistry; 1.1.3 Supramolecular Polymerization Mechanisms; 1.2 General Concepts of Hydrogen-Bonding Motifs; 1.2.1 Arrays of Multiple Hydrogen Bonds; 1.2.2 Preorganization through Intramolecular Hydrogen Bonding; 1.2.3 Tautomeric Equilibria; 1.3 Hydrogen-Bonded Main-Chain Supramolecular Polymers; 1.3.1 The Establishment of Supramolecular Polymers 1.3.2 Supramolecular Polymerizations 1.3.3 Hydrophobic Compartmentalization; 1.4 From Supramolecular Polymers to Supramolecular Materials; 1.4.1 Thermoplastic Elastomers; 1.4.2 Phase Separation and Additional Lateral Interactions in Supramolecular Polymers in the Solid State; 1.4.3 Supramolecular Thermoplastic Elastomers Based on Additional Lateral Interactions and Phase

Separation; 1.5 Future Perspectives; References; 2 Cyclodextrin-Based Supramolecular Polymers; 2.1 Introduction; 2.2 Supramolecular Polymers in the Solid State; 2.2.1 Crystal Structures of CD Aliphatic Tethers
2.2.2 Crystal Structures of β -CDs Aromatic Tethers
2.3 Formation of Homo-Intramolecular and Intermolecular Complexes by CDs-Guest Conjugates; 2.3.1 Supramolecular Structures Formed by 6-Modified β -CDs; 2.3.2 Supramolecular Structures Formed by 6-Modified β -CDs 39; 2.3.3 Supramolecular Structures Formed by 3-Modified β -CDs; 2.3.4 Hetero-Supramolecular Structures Formed by Modified CDs; 2.4 Formation of Intermolecular Complexes by CD and Guest Dimers; 2.5 Artificial Molecular Muscle Based on β -Daisy Chain; 2.6 Conclusion and Outlook; References
3 Supra-Macromolecular Chemistry: Toward Design of New Organic Materials from Supramolecular Standpoints
3.1 Introduction; 3.2 Small Molecules, Macromolecules, and Supramolecules: Design of their Composite Materials; 3.2.1 Interactions between Small Molecules and Macromolecules; 3.2.2 Interactions between Small Molecules and Molecular Assemblies; 3.2.3 Interactions between Molecular Assemblies; 3.2.4 Interactions between Macromolecules; 3.2.5 Interactions between Macromolecular Assemblies; 3.2.6 Interactions between Macromolecules and Molecular Assemblies; 3.3 Conclusion and Outlook
References
4 Polymerization with Ditopic Cavitand Monomers; 4.1 Introduction; 4.2 Cavitands; 4.3 Self-Assembly of Ditopic Cavitand Monomers; 4.3.1 Structural Monomer Classification of Supramolecular Polymerization; 4.3.2 Homoditopic Cavitands Self-Assembled via Solvophobic - Stacking Interactions; 4.3.3 Heteroditopic Cavitands Combining Solvophobic Interactions and Metal-Ligand Coordination; 4.3.4 Heteroditopic Cavitands Combining Solvophobic Interactions and Hydrogen Bonding; 4.3.5 Heteroditopic Cavitands Self-assembled via Host-Guest Interactions
4.3.6 Homoditopic Cavitands Self-assembled via Host-Guest Interactions

Sommario/riassunto

Presenting the work of pioneering experts in this exciting field of supramolecular polymer chemistry, this monograph covers an extensive range of applications, including drug delivery and catalysis. It focuses on new structures and phenomena of cyclodextrin-based supramolecular polymers and many other compound classes. While providing a deeper insight in macromolecular recognition and the mechanisms of living systems, this book also introduces fascinating novel phenomena beyond natural systems.
