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Nota di contenuto	Supramolecular Chemistry of Fullerenes and Carbon Nanotubes; Contents; Preface; List of Contributors; 1 Carbon Nanostructures: Covalent and Macromolecular Chemistry; 1.1 Introduction; 1.2 Fullerene-Containing Polymers; 1.3 Carbon Nanotubes; 1.3.1 Defect Functionalization; 1.3.2 Sidewall Functionalization; 1.4 Graphenes; 1.4.1 Covalent Functionalization; 1.4.2 Noncovalent Functionalization; 1.5 Summary and Conclusions; References; 2 Hydrogen-Bonded Fullerene Assemblies; 2.1 Introduction; 2.2 Hydrogen-Bonded Fullerene-Based Supramolecular Structures 2.3 Hydrogen-Bonded Fullerene-Based Donor-Acceptor Structures 2.4 Applications; References; 3 Receptors for Pristine Fullerenes Based on Concave-Convex - Interactions; 3.1 Introduction; 3.2 Fullerene Receptors Based on Traditional Hosts; 3.2.1 Simple Traditional Hosts; 3.2.2 Modified Traditional Host Molecules; 3.2.3 Receptors Bearing a Dimeric Structure of Traditional Host Molecules; 3.3 Hydrocarbon Receptors; 3.4 Receptors Bearing a Curved Conjugated System; 3.4.1 Receptors Based on Bowl-Shaped Conjugated Systems; 3.4.2 Receptors Bearing a Cylindrical Cavity; 3.4.3 Carbon Nanorings

3.5 Conclusions; 4 Cooperative Effects in the Self-Assembly of Fullerene Donor Ensembles; 4.1 Introduction; 4.2 Allosteric Cooperativity; 4.2.1 General Principle; 4.2.2 Allosteric Cooperativity in Supramolecular Fullerene Donor Ensembles; 4.3 Chelate Cooperativity; 4.3.1 General Principle; 4.3.2 Binding of a Divalent Ligand AA to a Divalent Receptor BB; 4.3.3 Binding of a Divalent Asymmetric Ligand AC to a Complementary Receptor BD; 4.4 Conclusions; 4.5 Experimental Details; 4.5.1 General; 4.5.2 UV-Visible Titrations; 4.5.3 Luminescence Titrations; References

5 Fullerene-Containing Rotaxanes and Catenanes; 5.1 Introduction; 5.1.1 Synthetic Strategies; 5.1.1.1 Rotaxanes; 5.1.1.2 Catenanes; 5.1.2 Bistable Rotaxanes and Catenanes; 5.2 Fullerene Rotaxanes and Catenanes; 5.2.1 Metal Coordination; 5.2.2 Stacking Interactions; 5.2.3 Hydrogen Bonds; 5.3 Conclusions; References; 6 Biomimetic Motifs Toward the Construction of Artificial Reaction Centers; 6.1 Introduction; 6.2 Supramolecular Architectures for Solar Energy Conversion; 6.2.1 General Considerations; 6.2.2 Coulomb Interactions; 6.2.3 - Stacking; 6.2.4 Hydrogen Bonding; 6.2.5 Metal-Ligand Coordination; 6.3 Outlook; References; 7 Supramolecular Chemistry of Fullerene-Containing Micelles and Gels; 7.1 Introduction; 7.2 Solubilization of Pristine C₆₀ in Surfactant Assemblies; 7.2.1 Solubilization in Micelles; 7.2.2 Solubilization in Vesicles; 7.3 Self-Assemblies of Amphiphilic C₆₀ Derivatives; 7.4 Gels of Fullerenes; 7.5 Conclusions and Outlook; References; 8 Fullerene-Containing Supramolecular Polymers and Dendrimers; 8.1 Introduction; 8.2 Fabrication of [60]Fullerene Polymeric Array; 8.3 Supramolecular Polymerization of Functionalized [60]Fullerene

8.3.1 Ionic Interaction

Sommario/riassunto

Collating our current knowledge and the latest developments for enabling breakthrough discoveries, this book focuses on the synthesis and applications of materials that are based on supramolecular assemblies of carbon nanostructures, with an emphasis on fullerenes and nanotubes. In so doing, it provides readers with an overview of the different types of supramolecular architectures, accentuating the outstanding geometrical, electronic and photophysical properties of the building blocks and the resulting structures. It makes use of basic concepts and real-life applications -- from simple synthe
