

| | |
|-------------------------|---|
| 1. Record Nr. | UNINA9910877419303321 |
| Titolo | Carbon-rich compounds : from molecules to materials // edited by Michael M. Haley and Rik R. Tykwinski |
| Pubbl/distr/stampa | Weinheim, : Wiley-VCH [Chichester, : John Wiley [distributor]], 2006 |
| ISBN | 1-280-85431-6 9786610854318 3-527-60799-4 3-527-60724-2 |
| Descrizione fisica | 1 online resource (665 p.) |
| Altri autori (Persone) | HaleyMichael TykwinskiR. R (Rik R.) |
| Disciplina | 547 |
| Soggetti | Carbon compounds Chemistry, Organic |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di contenuto | Carbon-Rich Compounds; Foreword; Contents; Preface; List of Contributors; 1 Pioneers of Carbon-rich Compounds; 1.1 Introduction; 1.2 19th Century Achievements; 1.3 1900-1928: Dawn of the Twentieth Century; 1.4 1929-1949: Rise of the Polycyclic Aromatic Hydrocarbon; 1.5 1950-1969; 1.5.1 The Annulenes, Dehydrobenzoannulenes, and Phenylacetylene Scaffolding; 1.5.2 Fused Polycyclic and peri-Condensed Benzenoid Systems; 1.5.3 The Helicenes, Radialenes, Fulvalenes, and Circulenes; 1.6 1970-Present: The Way Ahead; References; 2 Electronic Conduction in Photoactive Metallo-wires; 2.1 Introduction 2.2 Attenuation along Molecular Bridges 2.3 Information Transfer; 2.3.1 Intramolecular Triplet Energy Transfer; 2.3.2 Short Covalent Bridges; 2.3.3 Supramolecular Systems; 2.3.4 Prolonging the Excited State Lifetime; 2.3.5 Long-range Triplet Energy Transfer; 2.4 Molecular-scale Switches; 2.5 Perspectives; 2.6 Experimental: Selected Procedures; 2.6.1 General Procedure for the Preparation of the Mononuclear [RuL(n)]; 2.6.2 General Procedure for the Preparation of the Hetero- |

Dinuclear Complexes 81(1) and 81(5); 2.6.3 Synthesis at the Complex; Acknowledgements; Abbreviations; References

3 All-benzenoid Polycyclic Aromatic Hydrocarbons: Synthesis, Self-assembly and Applications in Organic Electronics

3.1 A Brief Introduction to Polycyclic Aromatic Hydrocarbons; 3.2 All-benzenoid PAHs - Synthesis, Structural Characterizations and Electronic Properties; 3.2.1 Hexa-peri-hexabenzocoronene - An Old Story with New Discoveries; 3.2.2 All-benzenoid Graphitic PAHs Larger than HBCs; 3.2.3 PAHs with Varying Peripheries; 3.2.4 "Superbenzene" Chemistry and Others; 3.3 Self-assembly and Application of Columnar Liquid Crystals based on PBAHs

3.3.1 Columnar Superstructures in the Bulk State

3.3.2 Alignment on Substrates and Device Applications of Columnar Liquid Crystals; 3.3.3 Controlled Self-assembly in Solution; 3.3.4 Two-dimensional Crystals at the Solid/Liquid Interface; 3.4 Conclusion; 3.5 Experimental: Selected Procedures; 3.5.1 Synthesis of hexa-peri-hexabenzocoronene 10 by Cu (II)-mediated oxidative cyclodehydrogenation - a general procedure to prepare unsubstituted graphitic molecules [35]

3.5.2 Synthesis of hexakis(4-dodecylphenyl)-peri-hexabenzocoronene (HBC-PhC12) - a general synthetic method towards six-fold alkyl- and alkylphenyl-substituted HBCs [38]

3.5.3 Functionalization of insoluble HBC building blocks 30-32 by Sonogashira coupling reactions [48]. Synthesis of hexakis(1-dodecynylphenyl)-peri-hexabenzocoronene (34a) as a representative example; 3.5.4 Synthesis of C₉₆-C₁₂ precursor 1,3,5-tris[3,4-di(4-dodecylphenyl)-2,5-diphenylphenyl] benzene (44a) by Diels-Alder cycloaddition reaction - a representative procedure for the synthesis of branched oligophenylenes [50]

3.5.5 Hydrogenation of hexakis-dodecyl-peri-hexabenzocoronenes 74 [66]

Sommario/riassunto

This is the only up-to-date book on the market to focus on the synthesis of these compounds in this particularly suitable way. A team of excellent international authors guarantees high-quality content, covering such topics as monodisperse carbon-rich oligomers, molecular electronic wires, polyaromatic hydrocarbons, nonconjugated small molecules, nanotubes, fullerenes, polyynes, macrocycles, dendrimers, phenylenes and diamondoid structures. The result is a must-have for everyone working in this expanding and interdisciplinary field, including organic and polymer chemists, materials scientist
