1. Record Nr. UNINA9910743347003321

Titolo	Advances in Sustainable Materials and Resilient Infrastructure / / edited by Krishna R. Reddy, Rathish Kumar Pancharathi, Narala Gangadhara Reddy, Suchith Reddy Arukala
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2022
ISBN	9789811697432 9811697434 9789811697449 9811697442
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (422 pages)
Collana	Springer Transactions in Civil and Environmental Engineering, , 2363-7641
Disciplina	690.028
Soggetti	Buildings - Design and construction Building materials Statics Building Construction and Design Building Materials Mechanical Statics and Structures
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Sustainable Materials for Concrete Making -- Influence of Binder Chemical Properties on the Elastic Properties of Asphalt Mixes Containing RAP Material -- Principles and Prospects of using Lignosulphonate as a Sustainable Expansive Soil Ameliorator: From Basics to Innovation -- Assessment of Recycled Aggregate as a Sustainable Concrete Material using Self-Curing Agents -- Sustainable building materials in the Indoor environment- The way forward.
Sommario/riassunto	The edited book comprises invited book chapter contributions from global experts in the field of sustainable materials and resilient infrastructure. The book covers the most critical and emerging topics for creating sustainable solutions for the construction industry, promoting the technologies and monitoring methods for resilient infrastructure. It focuses on sustainable solutions and offers techniques

and methodologies to deliver high-quality end solutions in civil engineering. In addition, the content provides knowledge-based information for the readers to assess, monitor, measure, and practice sustainability for resilient infrastructure. The contents of the volume are a blend of academic research work and industrial case studies. It covers the use of sustainable materials like Lime-Pozzolona Binders, biopolymers, lignosulphonate, lightweight aggregates made from fly ash, calcinated clay, paper ash, and limestone as amendments/ameliorators for soil remediation, development of neo-construction materials and composites for civil engineering applications. Design of innovative pavements using alkali activation and pervious concrete for sustainable infrastructure is also discussed. The chapters also highlight the role of civil engineers in achieving UN Sustainable Development Goals, promoting climate change design for urban landscapes, and modelling building energy demand. This book is framed to address the principles and practice from the corners of geoenvironment, sustainable construction materials, low carbon materials, energy efficiency, and waste management. It is a valuable reference for faculty, researchers, field experts, scientists, and practicing engineers.

2. Record Nr. UNINA9911048000103321

Autore	Chujo Y (Yoshiki)
Titolo	Conjugated Polymer Synthesis and Materials Applications
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2026 ©2026
ISBN	3-527-84945-9 3-527-84944-0
Edizione	[1st ed.]
Descrizione fisica	1 online resource (401 pages)
Disciplina	547.84
Soggetti	Conjugated polymers Materials science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Half Title Page -- Title Page -- Copyright -- Contents -- About the Editor -- Preface -- 1. Transition Metal-catalyzed Polycondensation -- 1.1 Introduction -- 1.2 Ni-catalyzed Polycondensation -- 1.3 Pd-catalyzed Polycondensation -- 1.4 Pd-catalyzed Polycondensation via C-H Bond Functionalization -- 1.5 Cu- and Fe-catalyzed Polycondensation -- 1.6 Other Transition Metal-catalyzed Polymerization -- 1.7 Summary -- References -- 2. Living Conjugated Polymers -- 2.1 Introduction -- 2.2 Metal p -Binding in CTP -- 2.3 Catalysts for CTP -- 2.4 Kumada-Corriu Catalyst-transfer Polymerization -- 2.5 Catalyst-transfer Polymerization with Organolithium Reagents -- 2.6 Negishi Catalyst-transfer Polymerization -- 2.7 Suzuki-Miyaura Catalyst-transfer Polymerization -- 2.8 Stille Catalyst-transfer Polymerization (Stille CTP -- 2.9 Buchwald-Hartwig Amination and Direct Arylation Polymerization (C-H Activation) -- 2.10 Chain-growth Polymerization of Aromatics Without Metal Catalysts -- 2.11 Conclusion -- Acknowledgment -- Abbreviations -- Polymers -- Metal Catalysts -- Ligands -- Miscellaneous Reagents and Terms -- References -- 3. Optically Active Through-space Conjugated Polymers Based on Planar Chiral [2.2] Paracyclophane -- 3.1 Introduction -- 3.2 Through-space Conjugation of [2.2]Paracyclophane-based Conjugated Polymers -- 3.3 Optically

carborane-modified Aromatic Systems -- 6.6.3 Solid-state Luminescence of Nido-carborane -- 6.6.4 Enhancement to Luminescent Efficiencies by Thermal Rearrangement from Ortho- to Meta-carborane -- 6.7 Stimuli-responsive Luminochromic Materials -- 6.7.1 Multi-stimuli-responsiveness of Bis-o-carborane-modified Anthracene -- 6.7.2 Real-time Thermochromic Luminescent Properties of Bis-o-carboranemodified Benzodithiophenes.
6.7.3 Constant Luminescent Properties During Phase Changes and Luminochromic Behaviors -- 6.7.4 Aggregation-caused Luminochromic Properties in the Polymer Film for Constructing Film-type Sensors -- 6.7.5 Thermochromic Luminescence by the Regulation of Rotation of o-carborane -- 6.8 Conclusion -- References -- 7. Low-bandgap Conjugated Polymers -- 7.1 Introduction -- 7.2 Design Principles of LBG-CPs -- 7.2.1 D-A Interaction for Bandgap Reduction -- 7.2.2 Stabilized Quinoidal Resonance for Bandgap Reduction -- 7.3 Synthesis of LBG-CPs -- 7.3.1 Stille Coupling for Constructing LBG-CPs -- 7.3.1.1 Synthesis of LBG-CPs Based on Thieno[3,4-b]Thiadiazole (TT) and Its Derivatives -- 7.3.1.2 Synthesis of LBG-CPs Based on Benzothiadiazole (BT) and Its Derivatives -- 7.3.1.3 Synthesis of LBG-CPs Based on Benzobisthiadiazole (BTT) and Its Derivatives -- 7.3.1.4 Synthesis of LBG-CPs Based on Diketopyrrolopyrrole (DPP) and Its Derivatives -- 7.3.1.5 Synthesis of LBG-CPs Based on Isoindigo (IID) and Its Derivatives -- 7.3.1.6 Synthesis of LBG-CPs Based on Benzofurandione (BFDO) and Its Derivatives -- 7.3.1.7 Synthesis of LBG-CPs Based on 4,4'-difluoro-4-bora-3a,4a-diazas- indacene (BODIPY) and Its Derivatives -- 7.3.2 Other Polymerization Methods for Constructing LBG-CPs -- 7.3.2.1 Suzuki Coupling -- 7.3.2.2 Aldol Condensation -- 7.4 Application of LBG-CPs -- 7.4.1 Application in OPDs -- 7.4.2 Application in OTEs -- 7.4.3 Application in Bioimaging and PTT -- 7.5 Conclusions and Perspective -- Acknowledgments -- References -- 8. Polymers with Three-dimensional Conjugated Molecules -- 8.1 Introduction -- 8.2 Corannulene-containing Polymer -- 8.3 Supramolecular Polymers Based on Bowl-shaped p -conjugated Molecules -- 8.4 Helicene-based Polymers -- 8.5 Conclusion and Outlook -- Acknowledgment -- References -- 9. Conjugated Polymers for Energy Storage Devices.
9.1 Introduction -- 9.2 Conjugated Polymers as Binder Materials in LIBs -- 9.2.1 Graphite Anodes -- 9.2.2 Si Anodes -- 9.3 Conjugated Polymers as Anodic Active Materials -- 9.3.1 Organic Anodes -- 9.3.2 Hard Carbons -- 9.4 Polymerizable Conjugated Molecules as Electrolyte Additives -- 9.5 p -Conjugated Polymers as Electrocatalysts -- 9.6 Conclusion -- 9.6.1 Binders -- 9.6.2 Active Materials -- 9.6.3 Electrolyte Additives -- 9.6.4 Catalysts in Li-O2 Batteries -- References -- 10. Conjugated Polymers and Their Applications in Organic Field Transistors, Organic Electrochemical Transistors, and Organic Thermoelectrics -- 10.1 Introduction -- 10.1.1 What Makes the CP Semiconducting -- 10.1.2 What Are the Charge Carriers -- 10.1.3 Formation of Charge Carriers -- 10.1.4 Band Structure -- 10.1.5 Ion Transport -- 10.1.6 Morphology and Multilevel Microstructures -- 10.2 Polymers for Organic Field Effect Transistors -- 10.2.1 Introduction -- 10.2.2 Example p-type Polymers -- 10.2.2.1 Thiophene-based Polymers -- 10.2.2.2 Indacenodithiophene-based Polymers -- 10.2.2.3 Isoindigo-based Polymers -- 10.2.2.4 Cyclopentadithiophene-based Polymers -- 10.2.3 Example n-type Polymers -- 10.2.4 Example Ambipolar Polymers -- 10.2.4.1 Isoindigo-based Polymers -- 10.2.5 Key Approaches to Improve OFET Performance -- 10.2.5.1 Backbone Modifications -- 10.2.5.2 Side Chain Modifications -- 10.2.5.3 Device Architecture -- 10.2.6 Application and Future Outlook -- 10.3 Organic

	Electrochemical Transistors -- 10.3.1 Design Principle -- 10.3.2 Example Polymers -- 10.3.2.1 P-type -- 10.3.3 N-type -- 10.3.3.1 Imide-based -- 10.3.3.2 Isoindigo -- 10.3.3.3 Diketopyrrolopyrrole -- 10.3.3.4 Ladder Type -- 10.3.3.5 Acceptor-Acceptor -- 10.3.4 Summary Tables of Reviewed p- and n-type Materials -- 10.3.4.1 P-type Materials -- 10.3.4.2 N-type Materials -- 10.4 Organic Thermoelectrics. 10.4.1 Introduction.
Sommario/riassunto	Comprehensive reference exploring the synthesis, preparation, and applications of new and novel conjugated polymers Conjugated Polymer Synthesis and Materials Applications summarizes the fundamentals and major developments in the synthesis of new conjugated polymers.