

Contents

Part I Engineering Nanostructures with Polymers

- 1 Engineering Ceramic Fiber Nanostructures Through Polymer-Mediated Electrospinning** 3
Avinash Baji and Yiu-Wing Mai
- 2 Polymer Microbead-Templated Nanostructures** 31
Cheng Fang and Youhong Tang
- 3 Nanopatterning of Functional Metallopolymers via Top-Down Approach.** 51
Sze-Chun Yiu, Cheuk-Lam Ho and Wai-Yeung Wong
- 4 Organic Porous Polymer Materials: Design, Preparation, and Applications** 71
Liangxiao Tan, Kewei Wang, Qingyin Li, Yuwan Yang, Yunfei Liu and Bien Tan
- 5 Responsive Photonic Crystals with Tunable Structural Color** 151
Xiaolu Jia, Haiying Tan and Jintao Zhu
- 6 Responsive Polymer Nanostructures** 173
Yajnaseni Biswas, Somdeb Jana, Madhab Dule and Tarun K. Mandal

Part II Nanostructured Materials for Energy Storage

- 7 Polymer- and Carbon-Based Nanofibres for Energy Storage.** 307
Alexandra Ho, Suxi Wang, Xu Li and Haifei Zhang
- 8 Polymer/Graphene Composites for Energy Storage** 337
Yuchen Liu and Shiren Wang
- 9 Conducting Polymers/Inorganic Nanohybrids for Energy Applications** 365
Prakash Sengodu

10	Polymer-Derived Carbon/Inorganic Nanohybrids for Electrochemical Energy Storage and Conversion	419
	Lichun Yang and Qingsheng Gao	
11	Tailoring Performance of Polymer Electrolytes Through Formulation Design	481
	Wei Wang, Dmitry Bedrov and Paschalis Alexandridis	
12	Polymer Nanocomposites Dielectrics for Energy Applications	511
	Yang Shen, Xin Zhang, Yuanhua Lin and Ce-Wen Nan	
 Part III Nanostructured Materials for Energy Conversion		
13	Flexible Piezoelectric and Pyroelectric Polymers and Nanocomposites for Energy Harvesting Applications	537
	Chaoying Wan and Christopher Rhys Bowen	
14	Nanostructured Polymers and Polymer/Inorganic Nanocomposites for Thermoelectric Applications	559
	Zongqiong Lin and Qichun Zhang	
15	Polymer-Inorganic Nanocomposites for Polymer Electrolyte Membrane Fuel Cells	577
	Kingshuk Dutta	
16	Effects of Polymer-Packing Orientation on the Performances of Thin Film Transistors and Photovoltaic Cells	607
	Yang Wang and Tsuyoshi Michinobu	
17	Design and Control of Nanostructures and Interfaces for Excitonic Solar Cells	635
	Jianjun Tian, Shixun Wang and Guozhong Cao	
18	Nanostructured Porous Polymers for Metal-Free Photocatalysis	681
	Wei Huang, Run Li, Beatriz Chiyin Ma and Kai A.I. Zhang	

Polymer-Engineered Nanostructures for Advanced
Energy Applications

Lin, Z.; Yang, Y.; Zhang, A. (Eds.)

2017, XXVI, 701 p. 382 illus., Hardcover

ISBN: 978-3-319-57002-0