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during Polymerization

3.2.2 Electrochemical Doping after Polymerization  
3.3 Chemical Doping;  
3.3.1 Gaseous Doping; 3.3.2 Solution Doping; 3.4 In-situ doping; 3.5 Radiation-Induced Doping or Photo Doping; 3.6 Charge Injection Doping; 4 Role of Dopant on the Conduction of Conjugated Polymer;  
4.1 Introduction; 4.2 Charge Defects within Doped Conjugated Polymer;  
4.2.1 Soliton; 4.2.2 Polaron; 4.2.3 Bipolaron; 4.3 Charge Transport within the Doped Conjugated Polymer; 4.3.1 Electronic Parameter Responsible for Charge Transport; 4.3.2 Charge Transport Mechanism; 4.4 Migration of Dopant Counter Ions  
4.4.1 Electrical Potential Difference and Redox-Potential Gradient  
4.4.2 Dopant Concentration Gradient or Doping Level; 5 Influence of Properties of Conjugated Polymer on Doping; 5.1 Introduction; 5.2 Conducting Property; 5.3 Spectroscopic Property; 5.3.1 UV-VIS Spectroscopy (Optical Property); 5.3.2 FTIR Spectroscopy; 5.3.3 NMR Spectroscopy; 5.3.4 Other Spectroscopy; 5.4 Electrochemical Property; 5.4.1 Cyclic Voltammetry; 5.4.2 Electrochemical Impedance Spectroscopy; 5.5 Thermal Property; 5.6 Structural Property; 5.6.1 Crystal Structure; 5.6.2 Morphological Structure  
6 Some Special Classes of Dopants for Conjugated Polymer  
6.1 Introduction; 6.2 Iodine and Other Halogens; 6.2.1 Principle; 6.2.2 Doping Technique; 6.2.3 Property; 6.3 Halide Doping; 6.3.1 Principle; 6.3.2 Doping Technique; 6.3.3 Property; 6.4 Protonic Acid Doping; 6.4.1 Principle; 6.4.2 Doping Technique; 6.4.3 Property; 6.5 Covalent Doping; 7 Influence of Dopant on the Applications of Conjugated Polymer; 7.1 Introduction; 7.2 Sensors; 7.2.1 Chemical Sensors; 7.2.2 Biosensors; 7.3 Actuators; 7.4 Field Effect Transistor; 7.5 Rechargeable Batteries; 7.6 Electrochromic Devices  
7.7 Optoelectronic Devices

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## Sommario/riassunto

This book responds to the growing interest in conjugated polymer-dopant interaction across disciplines. The first book dedicated to the subject, it offers an A to Z overview, detailing doping interaction, dopant types, doping techniques, influence of dopant on applications, and more. It explains how the performances of these polymers are influenced by the nature of dopants and their level of distribution within the polymer, showing how the electrochemical, mechanical, and optical properties of the doped conjugated polymers can be tailored by various means. Doping at the nano scale is also exam

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