

1. Record Nr.	UNINA9910840923303321
Titolo	Organic optoelectronics [[electronic resource] /] / edited by Wenping Hu
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, 2013
ISBN	3-527-65345-7 1-299-15713-0 3-527-65348-1 3-527-65347-3
Descrizione fisica	1 online resource (527 p.)
Altri autori (Persone)	HuWenping
Disciplina	621.381045
Soggetti	Optoelectronic devices Organic compounds - Optical properties
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Related Titles; Title page; Copyright page; Dedication; Contents; Preface; List of Contributors; 1: Electronic Process in Organic Solids; 1.1 Introduction; 1.2 Structure Characteristics and Properties of Organic Solids; 1.2.1 Organic Solids; 1.2.2 Molecular Geometries; 1.2.3 Aggregations and Assemblies; 1.3 Electronic Processes in Organic Small Molecules; 1.3.1 Photophysics of Small Molecules; 1.3.2 Excitation for Charge and Energy Transfer in Small Molecules; 1.4 Some Basic Concepts of Electronic Process in Conjugated Polymers; 1.4.1 Excited States in Conjugated Polymers 1.4.2 Interactions between Conjugated Polymer Chains 1.4.3 Photoinduced Charge Transfer between Conjugated Polymers and Electron Acceptors; 1.5 Carriers Generation and Transport; 1.5.1 Charge Carriers; 1.5.2 Carrier Mobility and Its Measurement; 1.5.3 Mobility-Influencing Factors; References; 2: Organic/Polymeric Semiconductors for Field-Effect Transistors; 2.1 Introduction; 2.1.1 Features of Organic/Polymeric Semiconductors; 2.1.2 Classification of Semiconductors for Organic Field-Effect Transistors; 2.1.3 Main Parameters for the Characterization of Organic/Polymeric Semiconductors

2.2 Small-Molecular Semiconductors 2.2.1 P-type Small-Molecular Semiconductors; 2.2.2 n-Type Small-Molecule Semiconductors; 2.3 Polymer Semiconductors; 2.3.1 p-Type Polymer Semiconductors; 2.3.2 n-Type Polymer Semiconductors; 2.4 Normal Synthetic Methods for Organic Semiconductors; 2.4.1 Diels-Alder Cycloaddition; 2.4.2 Aldol Reaction; 2.4.3 Stille Reaction; 2.4.4 Suzuki Reaction; 2.4.5 Sonogashira Crosscoupling; 2.4.6 Ullmann Reaction; 2.4.7 Heck Reaction; 2.5 Purification of Organic Semiconductors; 2.6 Outlook; References; 3: Organic/Polymeric Field-Effect Transistors; 3.1 Introduction
3.1.1 Configurations of Organic Field-Effect Transistors 3.1.2 Working Principle of Organic Field-Effect Transistors; 3.2 Carriers Transport in Organic Field-Effect Transistors; 3.2.1 Molecular Arrangement in Organic Semiconductors; 3.2.2 Charge Transport Models in Organic Semiconductors; 3.2.3 Factors Influencing Charge Transport in the Conducting Channel of Organic Transistors; 3.3 Electrodes, Insulators, and Interfaces of Organic Field-Effect Transistors; 3.3.1 Electrodes; 3.3.2 Insulators; 3.3.3 Interfaces; 3.4 Organic/Polymeric Thin Film Field-Effect Transistors
3.4.1 Techniques for Thin Film Preparation 3.4.2 Effect of Thin-Film Microstructure on the Performance of Transistors; 3.4.3 High-Performance Transistors of Small Molecules; 3.4.4 High-Performance Transistors of Conjugated Polymers; 3.4.5 New Techniques for Organic/Polymeric Thin Film Field-Effect Transistors; 3.5 Organic/Polymeric Single Crystal Field-Effect Transistors; 3.5.1 Organic/Polymeric Single Crystals; 3.5.2 Growth of Organic/Polymeric Crystals; 3.5.3 Fabrication Techniques for Organic Field-Effect Transistors of Single Crystals
3.5.4 Performance of Organic/Polymeric Single Crystals in Field-Effect Transistors

Sommario/riassunto

Written by internationally recognized experts in the field with academic as well as industrial experience, this book concisely yet systematically covers all aspects of the topic. The monograph focuses on the optoelectronic behavior of organic solids and their application in new optoelectronic devices. It covers organic electroluminescent materials and devices, organic photonics, materials and devices, as well as organic solids in photo absorption and energy conversion. Much emphasis is laid on the preparation of functional materials and the fabrication of devices, from materials synthesis a
