

1. Record Nr.	UNISALENT0991002783779707536
Titolo	Organic solar cells : materials and device physics / Wallace C.H. Choy, editor
Pubbl/distr/stampa	London ; New York : Springer, c2013
ISBN	9781447148227 (hbk. : alk. paper)
Descrizione fisica	v, 265 p. : ill. (some col.) ; 24 cm
Collana	Green energy and technology, 1865-3529
Classificazione	LC TK2960 621.3.2
Altri autori (Persone)	Choy, Wallace C. H.
Disciplina	621.31244
Soggetti	Solar cells - Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references
Nota di contenuto	Introduction to Organic Solar Cells / Dixon D. S. Fung and Wallace C. H. Choy -- Active Layer Materials for Organic Solar Cells / Jianhui Hou and Xia Guo -- Interface Engineering for High Performance Bulk-Heterojunction Polymeric Solar Cells / Chunhui Duan, Chengmei Zhong, Fei Huang and Yong Cao -- Graphene for Transparent Electrodes and Organic Electronic Devices / Xiangjian Wan, Guankui Long and Yongsheng Chen -- Exciton and Charge Dynamics in Polymer Solar Cells Studied by Transient Absorption Spectroscopy / Hideo Ohkita and Shinzaburo Ito -- Interface Stability of Polymer and Small-Molecule Organic Photovoltaics / Degradation Mechanisms, Characterization Techniques, and Improvement Approaches / D. W. Zhao, L. Ke, W. Huang and X. W. Sun -- Theoretical Studies of Plasmonic Effects in Organic Solar Cells / Wei E. I. Sha, Wallace C. H. Choy and Weng Cho Chew -- Experimental Studies of Plasmonic Nanoparticle Effects on Organic Solar Cells / Dixon D. S. Fung and Wallace C. H. Choy -- Hybrid Solar Cells with Polymer and Inorganic Nanocrystals / Qidong Tai and Feng Yan
Sommario/riassunto	"Organic solar cells have emerged as new promising photovoltaic devices due to their potential applications in large area, printable and flexible solar panels. Organic Solar Cells: Materials and Device Physics offers an updated review on the topics covering the synthesis, properties and applications of new materials for various critical roles in devices from electrodes, interface and carrier transport materials, to

the active layer composed of donors and acceptors. Addressing the important device physics issues of carrier and exciton dynamics and interface stability and novel light trapping structures, the potential for hybrid organic solar cells to provide high efficiency solar cells is examined and discussed in detail. Specific chapters covers key areas including: Latest research and designs for highly effective polymer donors/acceptors and interface materials; Synthesis and application of highly transparent and conductive graphene; Exciton and charge dynamics for in-depth understanding of the mechanism underlying organic solar cells; New potentials and emerging functionalities of plasmonic effects in OSCs; Interface Degradation Mechanisms in organic photovoltaics improving the entire device lifetime; Device architecture and operation mechanism of organic/ inorganic hybrid solar cells for next generation of high performance photovoltaics. This reference can be practically and theoretically applied by senior undergraduates, postgraduates, engineers, scientists, researchers, and project managers with some fundamental knowledge in organic and inorganic semiconductor materials or devices"--Provided by publisher
