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Book Review

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Organic Photovoltaics - Materials, Device Physics and Manufacturing Technologies Second Edition, edited by Christoph Brabec, Ullrich Scherf, and Vladimir Dyakonov, Wiley-VCH Verlag GmbH & Co. KGaA, Boschstr. 12, 69469 Weinheim, Germany, 2014; ISBN: 978-3-527-33225-0, 618 pp, $245 (Hardcover).

Over the past 25 years, organic photovoltaics have attracted a great deal of intensive researches and developments for alternative and low-cost renewable and sustainable energy sources. This updated new edition by many leading researchers from both academic institutions and commercial industries provides a deep and comprehensive overview of the exciting and rapid growing field. It covers a wide range of subjects from design, synthesis, processing, and characterizations of a large number of organic materials, to devices physics on understanding of the morphologies and charge recombination mechanism of the solar cells, and to manufacturing protocols on substrates selections, transparent electrodes preparations, thin film coatings and photovoltaic device packaging. Each chapter offers a critical review of its specific topics by starting with a brief introduction and following by detailed discussions which highlight the results from the previous researches and developments, and then ending with a short summary, remark and outlook. The last chapter discusses on the current and future prospects on commercial applications of organic photovoltaics and major challenges. All the chapters are well-organized and illustrated, and extensively referenced. This updated edition presents deep illustrations on the fundamental understandings and applications, the latest research results, and future directions on the research and development in the photovoltaics with organic materials. This book is a valuable resource for researchers working in the field from both academic institutions and commercial industries. Chemists, physicists, materials scientists, device engineers, and graduate students already in the field will be mostly benefited from this updated edition. It is also recommended for anyone interested in or new to the subject as it offers a broad overview on all aspects of the organic solar cells. It would be more helpful and useful for new researchers in the field if this updated edition could include experimental details and illustrations on the fabrications and characterizations of the photovoltaic cells and modules in the device physics section.

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