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Nota di contenuto	Recent Progress in Perovskite Solar Cell: Fabrication, Efficiency, and Stability -- State-of-the-Art of Solution-Processed Crystalline Silicon/Organic Heterojunction Solar Cells: Challenges and Future -- Structure, Electronic and Charge Transfer Properties of Organic Photovoltaics from Density Functional Theory Methods -- Dye-Sensitized Solar Cells: A Brief Historical Perspective and Uses in Multijunction Devices -- Delving Charge-Transfer Excitations in Hybrid Organic-Inorganic Heterojunction of Dye-Sensitized Solar Cell:

Assessment of Excitonic Optical Properties Using the GW and Bethe–Salpeter Green's Function Formalisms -- Promising DSSCs involving organic D-pi-A and similar structures for n- and p- type semiconductors - A Theoretical Approach -- Application of QSPR Modeling in Designing and Prediction of Power- Conversion Efficient Solar Cell -- Computational Screening of Organic Dye-sensitizers for Dye-sensitized Solar Cells: DFT/TDFT Approach -- Chemometric modeling of absorption maxima of carbazole dyes used in dye-sensitized solar cells.

Sommario/riassunto

This book presents a comprehensive overview of the fundamental concept, design, working protocols, and diverse photo-chemicals aspects of different solar cell systems with promising prospects, using computational and experimental techniques. It presents and demonstrates the art of designing and developing various solar cell systems through practical examples. Compared to most existing books in the market, which usually analyze existing solar cell approaches this volume provides a more comprehensive view on the field. Thus, it offers an in-depth discussion of the basic concepts of solar cell design and their development, leading to higher power conversion efficiencies. The book will appeal to readers who are interested in both fundamental and application-oriented research while it will also be an excellent tool for graduates, researchers, and professionals working in the field of photovoltaics and solar cell systems. .