DESCRIPTION

The most comprehensive, authoritative and widely cited reference on photovoltaic solar energy

Fully revised and updated, the *Handbook of Photovoltaic Science and Engineering, Second Edition* incorporates the substantial technological advances and research developments in photovoltaics since its previous release. All topics relating to the photovoltaic (PV) industry are discussed with contributions by distinguished international experts in the field.

Significant new coverage includes:

• three completely new chapters and six chapters with new authors

• device structures, processing, and manufacturing options for the three major thin film PV technologies

• high performance approaches for multijunction, concentrator, and space applications

• new types of organic polymer and dye-sensitized solar cells

• economic analysis of various policy options to stimulate PV growth including effect of public and private investment

Detailed treatment covers:

• scientific basis of the photovoltaic effect and solar cell operation
• the production of solar silicon and of silicon-based solar cells and modules

• how choice of semiconductor materials and their production influence costs and performance

• making measurements on solar cells and modules and how to relate results under standardised test conditions to real outdoor performance

• photovoltaic system installation and operation of components such as inverters and batteries.

• architectural applications of building-integrated PV

Each chapter is structured to be partially accessible to beginners while providing detailed information of the physics and technology for experts. Encompassing a review of past work and the fundamentals in solar electric science, this is a leading reference and invaluable resource for all practitioners, consultants, researchers and students in the PV industry.


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**ABOUT THE AUTHOR**

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Antonio Luque became a full professor of Electronics at the University of Madrid in 1970 and soon became head of the Semiconductor Laboratory (now the Institute for Solar Energy). Isofoton, the 8th world producer of solar cell, was founded on Antonio’s invention of the Bifacial Cell. He has worked with BP Solar and British Petroleum (the EUCLIDES program) on solar concentrators to the point where it is near to commercial viability, and has received many national and international prizes and rewards during the course of his career, including the National Prize for Technological Research and the Jaime I medal. Professor Luque is also the author of numerous publications.

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Steven Hegedus was appointed Fellow in the University of Delaware’s Center for Energy and Environmental Policy in 2005. He has worked as a Semiconductor Device Engineer for IBM Corporation in New York, modeling, testing and designing analog and digital integrated circuit devices. At IBM he designed and tested a new stress-independent integrated Hall effect sensor. He later became a research associate at the Institute of Energy Conversion, University of Delaware. Dr Hegedus is a Professional member of the American Solar Energy Society and a Lifetime member of the American Physical Society, as well as a member of the Union of Concerned Scientists.
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