Photovoltaics: Fundamentals, Technology and Practice
Konrad Mertens

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DESCRIPTION

Concise introduction to the basic principles of solar energy, photovoltaic (PV) systems, PV cells, PV measurement techniques, and grid connected systems, overviewing the potential of PV electricity for students and engineers new to the topic

Starting with the basic principles of solar energy, this practical text explains the fundamentals of semiconductor physics and the structure and functioning of the solar cell. It describes current measurement techniques for solar modules, and the planning and operation of grid-connected and off-grid PV systems.

Key features:

• clarifies the technical and economic perspectives of PV energy generation, whilst providing an overview on the current economic status

• discusses the future development of PV, including efficient promotion instruments and price development

• each chapter contains various exercises and descriptive examples, with operation results from concrete PV plants

• an accompanying website hosting exercise solutions, links to further PV references, and free downloads of the figures and additional software www.textbook-pv.org
This is an essential text for renewable energy students, technicians and engineers wanting to know how solar cells work and how to design a complete PV plant. It is also a useful resource for PV installers, planners, operators, consultants, financers, potential energy investors and politicians.

ABOUT THE AUTHOR

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Konrad Mertens was appointed Professor at Muenster University of Applied Sciences in 2000. He covers the subjects of photovoltaics, sensor technology and optoelectronics. He is founder and head of the photovoltaic test lab and head of the lab of sensor technology and optoelectronics at his university. Previous to this, he worked in industry as project engineer and project manager in the fields of photovoltaics and intelligent networks. Professor Mertens is author of the German text Photovoltaik - Grundlagen, Technologie und Praxis, and is court-appointed expert for photovoltaic plants.

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