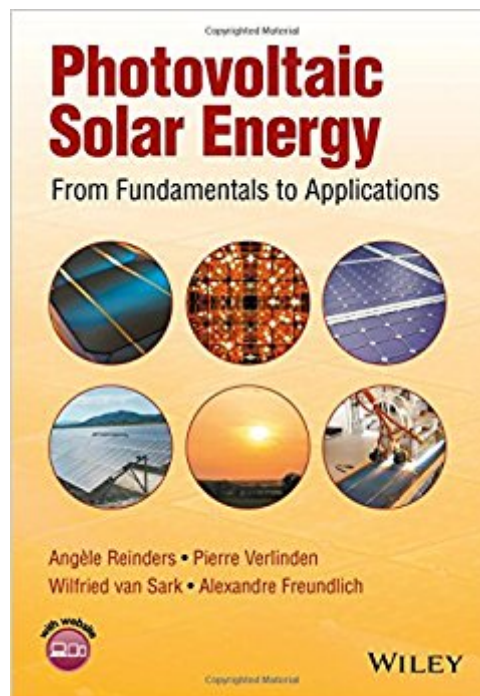




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# Photovoltaic Solar Energy: From Fundamentals To Applications



## Synopsis

Solar PV is now the third most important renewable energy source, after hydro and wind power, in terms of global installed capacity. Bringing together the expertise of international PV specialists Photovoltaic Solar Energy: From Fundamentals to Applications provides a comprehensive and up-to-date account of existing PV technologies in conjunction with an assessment of technological developments. Key features: Written by leading specialists active in concurrent developments in material sciences, solar cell research and application-driven R&D. Provides a basic knowledge base in light, photons and solar irradiance and basic functional principles of PV. Covers characterization techniques, economics and applications of PV such as silicon, thin-film and hybrid solar cells. Presents a compendium of PV technologies including: crystalline silicon technologies; chalcogenide thin film solar cells; thin-film silicon based PV technologies; organic PV and III-Vs; PV concentrator technologies; space technologies and economics, life-cycle and user aspects of PV technologies. Each chapter presents basic principles and formulas as well as major technological developments in a contemporary context with a look at future developments in this rapidly changing field of science and engineering. Ideal for industrial engineers and scientists beginning careers in PV as well as graduate students undertaking PV research and high-level undergraduate students.

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## Customer Reviews

Solar PV is now the third most important renewable energy source, after hydro and wind power, in terms of global installed capacity. Bringing together the expertise of international PV specialists

Photovoltaic Solar Energy: From Fundamentals to Applications provides a comprehensive and up-to-date account of existing PV technologies in conjunction with an assessment of technological developments. **Key features:** Written by leading specialists active in concurrent developments in material sciences, solar cell research and application-driven R&D. Provides a basic knowledge base in light, photons and solar irradiance and basic functional principles of PV. Covers characterization techniques, economics and applications of PV such as silicon, thin-film and hybrid solar cells. Presents a compendium of PV technologies including: crystalline silicon technologies; chalcogenide thin film solar cells; thin-film silicon based PV technologies; organic PV and III-Vs; PV concentrator technologies; space technologies and economics, life-cycle and user aspects of PV technologies. Each chapter presents basic principles and formulas as well as major technological developments in a contemporary context with a look at future developments in this rapidly changing field of science and engineering. Ideal for industrial engineers and scientists beginning careers in PV as well as graduate students undertaking PV research and high-level undergraduate students.

Prof Angèle Reinders, University of Twente, The Netherlands  
Angèle Reinders is currently an associate professor of Sustainable Energy at the University of Twente, Enschede, The Netherlands, and visiting professor of Energy-Efficient Design at TU Delft, The Netherlands  
Dr Pierre Verlinden, Trina Solar, China  
Pierre Verlinden is Vice-President and Chief Scientist at Trina Solar, and adjunct professor at Sun-Yat sen University, Guangzhou, China.  
Prof Wilfried van Sark, Utrecht University, The Netherlands  
Wilfried van Sark is an associate professor at Utrecht University, The Netherlands.  
Prof Alexandre Freundlich, University of Houston, USA  
Alexandre Freundlich is a research professor of physics and electrical and computer engineering at the University of Houston.

I am one of the contributors to this book, and I am extremely pleased with the result. This book presents an excellent comprehensive overview of the fundamentals and the future trends in photovoltaics. Each chapter is self-contained which allows you just to read about your particular topic of interest. I would highly recommend this book to both scientists and students in the field of photovoltaics as well as interested readers with a broad engineering or science background!

I am an undergraduate student whose major is material science and I am a beginner in the field of PV. I find this book very useful and it is written in a systematic way. I have read many books about

PV. Only this one, however, allows me to have a comprehensive overview of development in PV. The authors of this book are the leading experts and I feel so excited that they write this book to share their knowledge with others who want to make contributions to the development of sustainable green energy. Because of this book, I am able to have a clear view of the future trends in solar energy, which is helpful for my future career decision, and I strongly recommend this book to those who are interested in photovoltaics.

This is an excellent and comprehensive overview of the fundamentals of photovoltaics. It is well-organised with the self-contained chapters allowing readers to focus on their areas of interest. The chapters that I have read have been extremely well written with the underlying theory being presented in a way that would be understandable to newcomers to the field without sacrificing accuracy or completeness. Would be a great reference text for students studying photovoltaics and practitioners in the field!

Regarding "Photovoltaic Solar Energy" by Reinders, Verlinden, van Sark, Freundlich. I believe that space technologies are particularly well introduced by the three chapters 9.1, 9.2 and 9.3 of the book. Guy R. SMEKENS, E.N.E. Brussels, Belgium

The book is well organized and really helpful for me. ⭐

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