

Energy Science,  
Engineering and Technology

# THIN FILM SOLAR CELLS

Current Status and Future Trends

Alessio Bosio  
Alessandro Romeo  
Editors

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**Energy Science, Engineering and Technology**

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**ALESSIO BOSIO AND ALESSANDRO ROMEO**  
**EDITORS**



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## PREFACE

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The need of more and more energy supply due to increased demand from emerging countries such as India, China and Brazil and the contemporary necessity to preserve the environment has increased the interest to the development of new technologies that make use of solar energy.

In particular photovoltaic solar energy, the direct conversion of solar energy into electricity by means of semiconducting materials, had a very strong development in the last 30 years.

The most important parameter that characterizes a photovoltaic device is the ratio between its conversion efficiency and its cost.

A value less than 0.5 \$/Wp is considered competitive with the electricity obtained from fossil energy sources.

Despite the strong development of photovoltaic devices in the last years, the best result so far obtained is around 1 \$/Wp for CdTe/CdS thin film modules fabricated by "First Solar".

In any case, in order to reach the goal of 0.5 \$/Wp or less, the only way is that of further developing thin film photovoltaics.

In this book, the most recent results concerning thin film solar cells, covering all kinds of relevant materials, are presented by qualified experts in the field. The book is particular important for researchers who are already engaged or intend to start a research in this area.

It could be also useful for the industries who want to invest their money in the new thin film photovoltaic technologies.

*Professor Nicola Romeo*