Perovskite Photovoltaics and Optoelectronics: From Fundamentals to Advanced Applications
Tsutomu Miyasaka

DESCRIPTION

Perovskite Photovoltaics and Optoelectronics

Discover a one-of-a-kind treatment of perovskite photovoltaics

In less than a decade, the photovoltaics of organic-inorganic halide perovskite materials has surpassed the efficiency of semiconductor compounds like CdTe and CIGS in solar cells.

In Perovskite Photovoltaics and Optoelectronics: From Fundamentals to Advanced Applications, distinguished engineer Dr. Tsutomu Miyasaka delivers a comprehensive exploration of foundational and advanced topics regarding halide perovskites. It summarizes the latest information and discussion in the field, from fundamental theory and materials to critical device applications. With contributions by top scientists working in the perovskite community, the accomplished editor has compiled a resource of central importance for researchers working on perovskite related materials and devices.

This edited volume includes coverage of new materials and their commercial and market potential in areas like perovskite solar cells, perovskite light-emitting diodes (LEDs), and perovskite-based photodetectors. It also includes:

• A thorough introduction to halide perovskite materials, their synthesis, and dimension control

• Comprehensive explorations of the photovoltaics of halide perovskites and their historical background

• Practical discussions of solid-state photophysics and carrier transfer mechanisms in halide perovskite semiconductors
• In-depth examinations of multi-cation anion-based high efficiency perovskite solar cells

Perfect for materials scientists, crystallization physicists, surface chemists, and solid-state physicists, *Perovskite Photovoltaics and Optoelectronics: From Fundamentals to Advanced Applications* is also an indispensable resource for solid state chemists and device/electronics engineers.

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**ABOUT THE AUTHOR**

Tsutomu Miyasaka received his Doctor of Engineering from The University of Tokyo in 1981. In 2001, after 20 years R&D work at Fuji Photo Film, Co., he moved to Toin University of Yokohama (TUY), Japan, as Professor in Graduate School of Engineering, where he served as the dean of Graduate School (2006-2009). In 2004, he has established a TUY-based company, Peccell Technologies, serving as CEO. Currently he is Professor of TUY and a fellow of Research Center for Advanced Science and Technology (RCAST) of The University of Tokyo. Since the discovery of the organic inorganic hybrid perovskite as PV material in 2006, his research has been focused on R&Ds of the halide perovskite PV device. He was awarded a Ministry of Science & Education Prize in 2009 on his green sustainable solar cell technology. In 2017 he received Chemical Society of Japan (CSJ) Award and Clarivate (Thomson Reuter) Citation Laureate in 2017.

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