



Photovoltaics for Space

Key Issues, Missions, and Alternative Technologies

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Focuses on the newest modern technologies and challenges of space photovoltaics.

KEY FEATURES

- Provides an update to state-of-the-art and emerging solar cell (and related energy conversion) technologies.
- Features comprehensive coverage of solar cell materials for space exploration and the available materials/device technology options.
- Details the extreme conditions and mission challenges to overcome when relying on photovoltaics and energy technologies in space.

DESCRIPTION

Photovoltaics (PV) has traditionally been used for electric power in space. Solar panels on spacecraft are typically the sole source of power to run critical spacecraft systems such as: sensors, active heating and cooling, and communications. ***Photovoltaics for Space: Key Issues, Missions, and Alternative Technologies*** provides an overview of the challenges to efficiently produce solar power in near-Earth space and beyond, specifically the materials and device architectures that have been developed to surmount environmental as well as mission-specific barriers.

The book is organized into three sections consisting of: detailed technical introductory and background information, in-depth materials processing and device technology content, and a collection of in-depth space mission overviews, including approaches to overcoming environmental challenges, all provided by international experts. The topics addressed include design and optimization of a space power system's performance for power-to-weight ratio, effectiveness at end of operational life (EOL) compared to beginning of operational life (BOL), and enabling specific mission objectives and goals.

This book outlines the knowledge required for practitioners and advanced students interested in learning about the background, materials, devices, environmental challenges, missions, and future for photovoltaics for space exploration.



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