

Sakharam.B. Sangale: Sunrise of Innovation: The Evolution of Solar Cells

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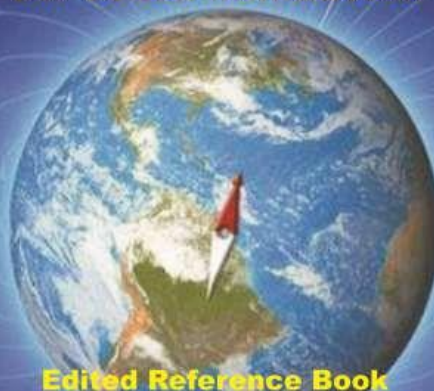
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Sunrise of Innovation: The Evolution of Solar Cells

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Abstract:

The urgent need for clean energy in the face of environmental challenges has led to the exploration of various sustainable sources, including solar power. This chapter serves as an introduction to the intricate world of solar cells, delving into their scientific principles and historical evolution. The journey of solar cells spans key milestones from the discovery of the photoelectric effect in 1839 to the modern era of technological innovations and increased solar power installations. The working principle of solar cells involves the photovoltaic effect, converting sunlight into electricity through semiconductor materials. The chapter explores the basic types of solar cells, such as Crystalline Silicon Solar Cells, Thin-Film Solar Cells, Organic Photovoltaic Cells, Perovskite Solar Cells, Multijunction Solar Cells, and Dye-Sensitized Solar Cells, each with its unique characteristics and applications. The summary encapsulates the significance of solar cells in the quest for cleaner and more efficient energy sources, setting the stage for a deeper exploration of their types, applications, and challenges.

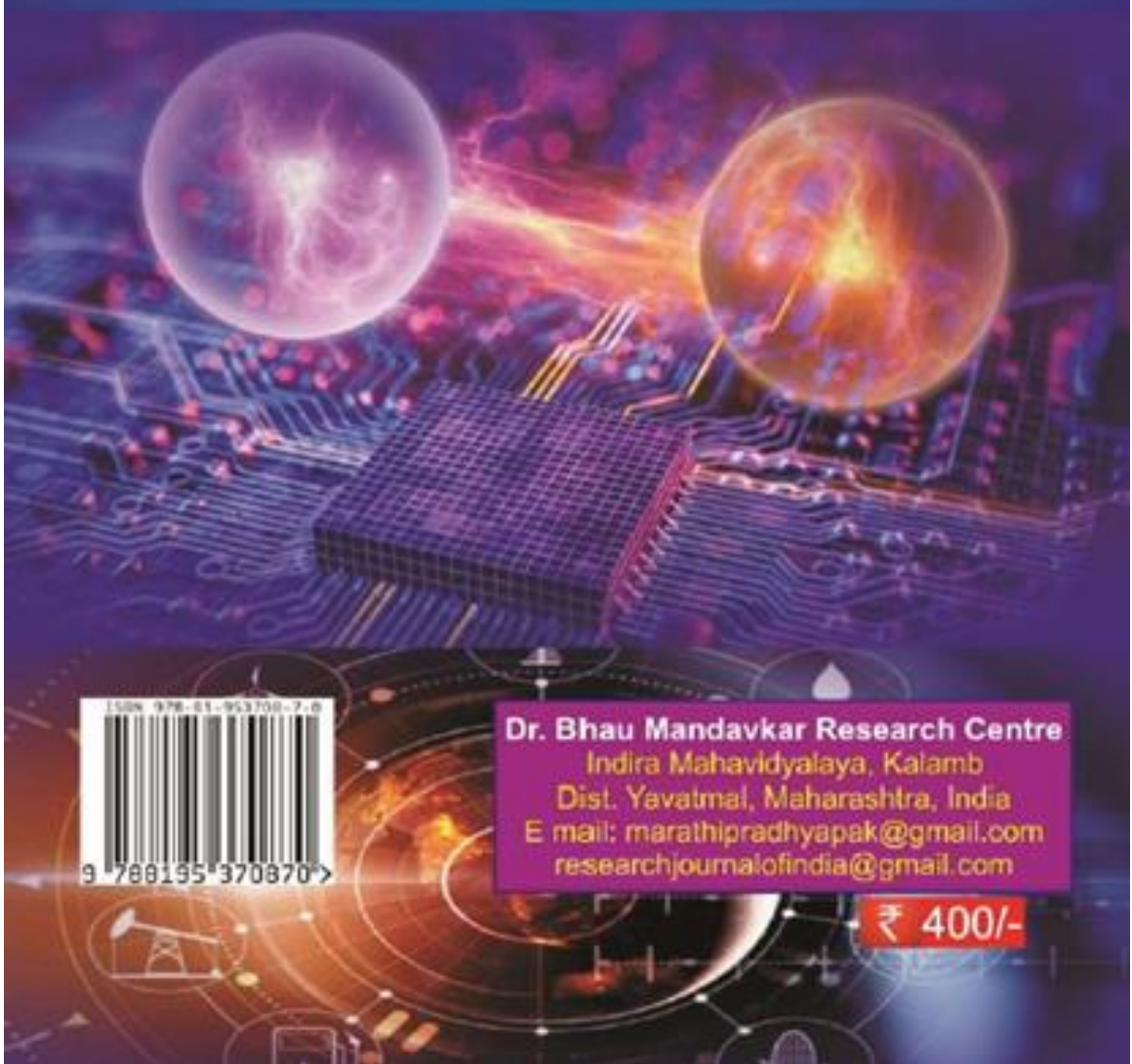
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