Nanostructured Materials for Enhanced Solar Cells

Jesse Wright
PhD
Indian Institute of Science
CV Raman Rd, Bengaluru, Karnataka 560012, India

Riley Harris
Dr.
Seoul National University
1 Gwanak-ro, Gwanak-gu, Seoul, South Korea

Avery Phillips
Prof.
University of São Paulo
R. da Reitoria, 374 - Vila Universitária, São Paulo - SP, 05508-220, Brazil

Abstract. This study investigates the role of nanostructured materials in improving the efficiency of solar cells. By incorporating nanostructures, we enhance light absorption and carrier collection, leading to significant gains in solar cell performance. These advancements offer promising avenues for sustainable energy solutions and highlight the importance of nanotechnology in renewable energy research.

Keywords: Nanostructured Materials, Solar Cells, Light Absorption, Renewable Energy, Nanotechnology

Introduction

Solar energy is a pivotal component of renewable energy solutions, and enhancing solar cell efficiency is a critical research area. Our research explores the integration of nanostructured materials into solar cells, aiming to boost their performance. Through careful design and implementation of nanostructures, we achieve notable improvements in light absorption and charge carrier dynamics, which significantly enhance overall efficiency. This study underscores the potential of nanotechnology in revolutionizing solar energy applications.

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