

Tentative Outline

Special Thematic Issue for Current Nanoscience

Emerging light-harvest materials with potential applications in optoelectronics and energy conversion

Guest Editor: Zhixing Gan

Aims & Scope:

At present, fossil fuels (coal, oil, natural gas) are still dominant sources for energy, but these fossil fuels are depleting and also bring air pollutions, such as carbon dioxide and greenhouse effect, causing energy exhaustion crisis and serious environmental pollution problems. Compared to traditional energy, as a rich natural resource, solar energy is inexhaustible and has a very wide spectrum. What's more, solar energy can operate independently, safely, and stably, without pollution. Up to date, different approaches are developed to utilize the solar energy based on light-harvest materials, to replace the conventional energy. Additionally, various optoelectronic devices are designed on basis of the light-harvest materials.

This Special Issue aims to focus on recent progress and advances in emerging light-harvest materials and their applications in optoelectronics and energy conversion. Optical design for enhancing light harvest, photothermal effect, and photocatalytic materials will be covered. Besides, the applications of solar-harvest materials in photodetectors, solar steam generation, photothermal electricity generation, solar cells, and hydrogen generation should be important subjects for this Special Issue.

Keywords: optical absorption, photothermal effect, photodetectors, solar cells, photocatalytic

Sub-topics:

The sub-topics include (but are not limited to):

- Anti-reflections, plasmonics, photonic crystals for enhancing light harvest
- Solar steam generation based on the photothermal effect
- Solar-thermal-electric conversion system based on the photothermal effect
- Emerging light-harvest materials for applications in photodetectors
- Emerging light-harvest materials for applications in solar cells
- Emerging light-harvest materials for applications in photocatalytic/hydrogen generation
- Emerging light-harvest materials for applications in photoelectrochemical water splitting
- Emerging light-harvest materials for applications in photocatalytic degradation of pollutants

Tentative titles of the articles and list of contributors:

1. Current status in preparation and application of one-dimensional photonic crystals
2. Design, Fabrication, and Photoelectric Properties of In_2O_3 nanostructure
3. Progress of photothermal solar steam generation based on carbonized plants with broadband absorption

Schedule:

- Manuscript submission deadline: December 2020
- Peer Review Due: March 2021
- Revision Due: May 2021
- Final manuscripts due: June 2021

Contacts:

Guest Editor Name: **Zhixing Gan**

Affiliation: Nanjing Normal University, Nanjing 210023, China

Email: zxgan@njnu.edu.cn

Any queries should be addressed to cnano@benthamscience.org.