

Special Issue on
**Nanomaterials for Energy Conversion and Storage
Devices**

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In recent years, researchers and scientists in the field of nanoscience and nanotechnology are taking the most-demanding challenges in the renewable energy generation and storage applications due to their potential in providing a cost-performance balanced solution. The discovery and fabrication of new nanomaterials play a significant role in application of energy conversion and storage devices. Various nanostructure materials have been synthesized and utilized for the application of solar cell, supercapacitor, and lithium-ion battery. Along with intensive research efforts to investigate nanomaterials growth/assembly, characterization, surface modification, and device fabrication/evaluation, a new class of architecture based on vertical core-shell nanowire arrays has been explored for dye-sensitized solar cells, lithium-ion battery, and supercapacitors due to highly conductive and robust core to support a large effective surface area and provide reliable electrical connection. To design and fabricate the devices of energy conversion and storage, the mechanistic understanding of electrochemical process on the interface of core-shell and optimization of heterojunction are essential.

The present special issue aims to provide contributions from a variety of topics relating to the nanostructure nanomaterials for energy conversion and storage devices. This issue also covers the fabrication and characterization of nanostructure materials, the device assembly and performance, electrochemical mechanism, the optimization of energy storage cells, and so forth.

Potential topics include but are not limited to the following:

- Fabrication and characterization of nanostructure materials
- Solar cell based on nanostructure materials
- Lithium-ion battery based on nanostructure materials
- Supercapacitor based on nanostructure materials
- Electrochemical process on the interface of core-shell
- Design principles of solar cell based on nanostructure materials

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