

## Nanotechnology for Device and Photonics Application

*Guest Editors: (i) Dr. Arindam Biswas (ii) Dr. Amit Banerjee (iii) Dr. Manash Chanda*

### Aims & Scope:

Electronic and photonic information technology and renewable energy alternatives, such as solar energy, fuel cells and batteries, have now reached an advanced stage in their development. Cost-effective improvements to current technological approaches have made great progress, but certain challenges remain. As feature sizes of the latest generations of electronic devices are approaching atomic dimensions, circuit speeds are now being limited by interconnect bottlenecks. This has prompted innovations such as the introduction of new materials into microelectronics manufacturing at an unprecedented rate and alternative technologies to silicon CMOS architectures. Despite the environmental impact of conventional fossil fuel consumption, the low cost of these energy sources has been a long-standing economic barrier to the development of alternative and more efficient renewable energy sources, fuel cells and batteries. In the face of mounting environmental concerns, interest in such alternative energy sources has grown. It is now widely accepted that nanotechnology offers potential solutions for securing future progress in information and energy technologies.

**Issue Keywords:** Nanotechnology, Device, Photonics, microelectronics.

### Subtopics:

Topics of the current special issue include, but are not limited to:

- *Photonics:* Devices, systems and applications involving electromagnetic waves and in particular, light. Applications include communicating information, where photonics plays a crucial role, medical instrumentation, imaging, sensing, and (photovoltaic) solar power generation;
- *Nanoscience & Engineering:* Physics of nano-photonic structures (where the minimal feature sizes are at the single wavelength or even deep subwavelength scales); controllable fabrication of nanophotonic materials and structures; the applications of such structures in low-energy information processing and communications, high-efficiency energy conversion, sensing, and medicine;
- *Quantum Technologies:* Study and employment of quantum mechanical properties of light and matter for applications including secure communications, quantum and classical computing, and sensing. Nanophotonics and nanoscience play crucial roles in building a platform for quantum technologies.

### Schedule:

- Manuscript submission deadline: 1<sup>st</sup> May, 2020
- Peer Review Date: 15<sup>th</sup> June, 2020
- Revision Due Date: 15<sup>th</sup> July, 2020
- Notification of Acceptance by the Guest Editor's: 30<sup>th</sup> July, 2020
- Manuscript Due: 30<sup>th</sup> July, 2020

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