

Special Issue on  
**Physics and Applications of Novel Functional  
Nanodevices and Nanomaterials**

# CALL FOR PAPERS

With the progress in nanotechnology research, it is possible to think about silicon transistors in sub-100 nm regime. However, increased short channel effects, severe process parameter variations, and increasing leakage current remain a challenge for the device and circuit designers. In an attempt to counter these problems associated with the scaling of silicon transistors, researchers are looking for alternate materials for post-Si nanoelectronics era. Of the different materials explored so far, graphene, nanotubes, nanowires, and nanomaterials seem to be most promising candidates due to their extraordinary properties. The use of 2D and 1D materials like graphene and CNTs for device, circuit, and systems applications is expected to fulfill the requirements of next-generation integrated circuits and SOCs. The basic electronic properties of these materials need to be understood before applying them into devices.

This special issue aims to solicit and disseminate recent advances on the new device physics and its applications in novel devices and materials. We invite authors to contribute high quality original articles include both experimental and theoretical studies as well as review articles that describe current state of the art.

Potential topics include but are not limited to the following:

- ▶ Quantum-mechanical phenomena in low-dimensional structures such as quantum dots, spintronics, nanowires, nanotubes, graphene and related two-dimensional materials, and their device and circuit applications
- ▶ Nanodevices utilizing single electron, exciton, photon, and plasmon and other quanta, FinFETs, and junctionless devices
- ▶ Emerging material systems such as topological insulators, graphene, other carbon-based materials, and 2D materials
- ▶ Nanodevice's circuit and system applications, RF ICs, data converters, and mathematical modelling of the emerging devices for circuit simulations using CAD tools

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/jece/circuits.systems/panf/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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