

Journal of Computational and Theoretical Nanoscience

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A Special Issue on

Technology Trends and Theory of Nanoscale Devices for Quantum Applications

CALL FOR PAPERS

This special issue is focused entirely on the coverage of emerging new technologies in the micro and nano scale engineered photonic devices, aiming to cover the theoretical aspects of fundamental physical phenomena apparent in nanoscale structures. Specifically the issue is concentrated on the study of quantum effects, and manipulation of electromagnetic fields and light through quantum optical phenomena, towards the identification, demonstration and engineering possibilities of novel applications such as quantum computing, quantum gates and computers, quantum information processing, encryption, communications etc. Within this research frame the issue will broadly cover aspects from different material platforms, fabrication approaches, new designs and optimization concepts of devices, together with the theoretical investigation of related quantum phenomena.

We invite submission of original research and comprehensive review papers to this special issue on the following related topics:

- Manufacturing techniques of emerging nanotechnologies
- Self assembled nanostructures
- Fundamental limits of functional nanostructures
- Plasmonic nanophotonics
- Light in confined geometries and nano-cavities
- Single molecule and single nanoparticle photonics
- Optical atom trapping and manipulation in nanostructures
- Quantum and coherent effects in nanophotonics
- Quantum optics in the near-field
- Design of nano-circuits (spin electronics, optoelectronics)
- Characterization techniques of nanoscale structures
- Nanoscale imaging and photolithography
- Optical signal processing at the nanoscale
- Quantum gates
- Quantum devices for quantum computing and cryptography
- Micro and nano- fluidics
- Non equilibrium phenomena in nanoscale dynamics
- Nanomachines and quantum dynamics
- Modelling, theory and simulation of quantum optical or opto-electronic structures
- Novel computationally intelligent optimization methods (Genetic Algorithms, Quantum Inspired Evolutionary Algorithms, Fuzzy Logic, Neural Networks)
- Quantum information systems and quantum network coding applications
- Applications to Biomedical Informatics, Nanomedicine and Nanoinformatics

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Manuscript Submission: Manuscripts must be prepared according to Journal's guidelines, available at <http://www.aspbs.com/ctn> Submit your manuscripts directly to **Dr. C. Riziotis**, via riziotis@eie.gr. Please notify well in advance for your intension to submit a research paper.

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