

## Call for Papers: Special Issue on

# Foundations of Computational and Theoretical Nanoscience

## Journal of Computational and Theoretical Nanoscience

<http://www.aspbs.com/ctn>

Nanoscience has opened new horizons and nano-engineering and technology have provided us already with many systems that show superior performance in a variety of applications. The ability to prepare, manipulate, couple and measure nanoscale objects places new demands on the simulation of these systems. These demands reach even toward the applicability of quantum theory. For example, the measurement of the outcome of a quantum computation involves the individual events in addition to the statistical properties of many events, and the engineering and scientific interpretation of these single events that are not covered entirely by quantum theory.

The objective of this special issue is to address different foundational aspects of theoretical and computational nanoscience by reporting and reviewing recent progress in this field.

Topics of this issue include, but are not limited to:

- Probability theory for applications in nanoscience
- Quantum theory: Quantum measurement problem, models of measurement processes, decoherence, ensemble versus time averaging (ergodicity), local causality/realism ...
- Computer simulation of fundamental quantum phenomena: Event-based processes, simulation of real-time quantum dynamics, quantum annealing ...
- Nanostructures Cellular Automata and Quantum Computation.
- Theoretical/computational investigations of applications of graphene in nanotechnology: transistors, nanoribbons, sensors ...

### **Guest Editors:**

- Prof. H. De Raedt, Department of Applied Physics, Zernike Institute for Advanced Materials, University of Groningen, Nijenborgh 4, NL-9747 AG Groningen, The Netherlands
- Prof. K. Hess, Beckman Institute, Department of Electrical and Computer Engineering and Department of Physics, University of Illinois, Urbana, IL 61801

## **Manuscript submission**

Submitted papers should not have been published previously or being under consideration for publication elsewhere.

Manuscripts must be prepared according to the guidelines of the Journal of Computational and Theoretical Nanoscience, see <http://www.aspbs.com/ctn>. Submissions (in PDF format) should be send by email to [h.a.de.raedt@rug.nl](mailto:h.a.de.raedt@rug.nl).

All papers submitted to this issue will be subject to peer review.

## **Tentative dates:**

- Manuscript due: March 2010
- Notification of acceptance: 1 June 2010
- Final submission of (revised) paper in electronic form (Latex or MS Word): 1 July 2010
- Expected publication date: End of 2010.

## **About the journal**

This journal was launched in 2004, and has been developing well over the past several years as a forum for computational and theoretical approaches in advancing nanoscience and nanotechnology. The journal is indexed in major databases including the ISI-Scientific database, Chemistry Citation Index (CCI), Science Citation Index-Expanded (SciSearch), Research Alert, Materials Science Citation Index (MSCI), Current Contents/Physical, Chemical & Earth Sciences (CC/PC&ES), Web of Science, ScienceDirect, Cambridge Scientific Abstracts/METADEX-Engineered Materials Abstracts, Chemical Abstracts. There are no page charges and color illustrations and figures will be printed without any additional cost.