

The 2004 International Conference on

MEMS, NANO, and Smart Systems

**25–27 August 2004
Banff, Alberta - Canada**

**Edited by
Dr. Wael Badawy
Dr. Walied Moussa**

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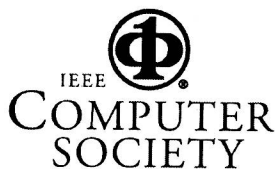
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2004 International Conference on MEMS, NANO and Smart Systems

ICMENS 2004

Preface

The emerging fields of nanoscale science, engineering, and technology — the ability to work at the molecular level, atom by atom, to create large structures with fundamentally new properties and functions — are leading to unprecedented understanding and control over the basic building blocks and properties of all natural and man-made things. With these goals and applications in mind, Dr. Wael Badawy and Dr. Walied Moussa organized the first International Conference on MEMS, NANO, and Smart Systems (ICMENS), August 25-27, 2004 at Banff, Alberta – Canada. The objective of this conference is to provide a forum for the discussion of new developments, recent progress, and innovations in the design and implementation of MEMS, NANO, and Smart Systems-on-Chip. It addresses all aspects of design methods of those systems. The emphasis is on current and future challenges in research and development in both academia and industry. It emphasizes long-term, fundamental research aimed at discovering novel phenomena, processes, and tools; addressing the integration of Nano, MEMS and Smart Systems grand challenges; supporting new interdisciplinary research activities and addressing research and educational activities on the societal implications of advances in nanoscience and nanotechnology.

The ICMENS demonstrates the growth of interest in topics related to MEMS, NANO, and Smart Systems. The Conference received approximately 250 paper submissions with 70 percent acceptance rate based on a peer review process with at least three reviews per paper. The Conference features 50 sessions, mostly distributed among three main symposiums. These symposiums are:

- The 2004 Canada-Japan Nanopharmaceutical Symposium
- The 2004 Medical And Pharmaceutical Nano-Engineering Symposium
- Space Applications of Micro and Nano Technologies Symposium

In addition, special sessions are also organized in the field of:

- **Self Assembly: Experiments, Theory, and Applications to MEMS and NEMS**
Organized by Dr. J. A. Pelesko. Special thanks to Ms. Angela Antoniu for co-organizing the Electrostatics in Micro- and Nanoscale Science session in ICMENS2003
- **Spintronics**
Organized by Dr. H. Akinaga and Dr. Mark Johnson
- **Modeling of the Dynamics of Micro and Nano-Electromechanical Devices**
Organized by Dr. E. Abdel-Rahman

- **RF Systems**
Organized by Dr. M. Moussa and Dr. R. R. Mansour
- **Microfluidics Systems**
Organized by Dr. D. Kwok

We are also fortunate to have 6 distinguished plenary speakers,

- **Dr. Carlo Montemagno**, *Chair, Department of Bioengineering & Biomedical Engineering, IDP, UCLA, California, USA*
- **Dr. Stuart Parkin**, *IBM Almaden Research Center, San Jose, California, USA*
- **Dr. Marc Madou**, *Chancellor's Professor at UC Irvine, California, USA*
- **Dr. Mohamed Gad-el-Hak**, *Professor of Biomedical Engineering and Chair of Mechanical Engineering, Virginia Commonwealth University, USA*
- **Dr. Alexander Wong**, *Apax Partners. USA*
- **Dr. Paul Edward Liabinis**, *Department of Chemical Engineering, Rice University. USA*

We are delighted to welcome you to this exciting workshop and to the heart of Banff National Park in Alberta's Rocky Mountains, Canada. Have a great time here, enjoy the high quality technical program, and most of all, enjoy the beauty of the local region.

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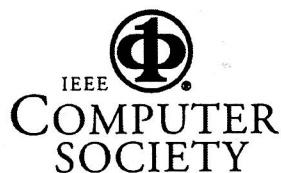
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