
Invitation to The 9th International Micromachine / Nanotech Symposium

Micromachine Center Organizes The 9th International Micromachine/Nanotech Symposium. It will be held on November 13 (Thursday) 2003, at the Science Museum in Kitanomaru Park Tokyo, under the supporting of METI and NEDO, and with the sub-theme of "Micromachine technology that integrates nanotechnology in it makes the foundation of industrial technology in the 21st Century".

Micromachine technology has been expecting to realize novel functions in the nano domain with fusing both micro and nano technologies. To meet this expectation, the program of the symposium puts emphasis particularly on MEMS that is recently developing the ways for application.

As you see the speakers and the lecture titles on the program, thirteen speakers including six foreigners are invited. Lectures by experts who are studying at the forefront of cutting edge technologies interweave invaluable case examples in their lectures for the participants. Micromachine Center hopes that your inspiration catches quickly something, which is needed to solve the problem or remove obstacle in your research or in your business development.

In session 1, "Opening" we provide two special lectures by MEMS pioneers in Europe and U.S.A. One is "MEMS and Opportunities for University/Industry Technology Transfer" by Professor Nico F. de Rooij of University of Neuchatel, Switzerland. The other one is "Turning MEMS Ideas Into MEMS Products" by Professor Stephen D. Senturia of Massachusetts Institute of Technology, U.S.A.

In session 2, "The Path to New Industries in the 21st Century," will discuss on the following three themes.

1. "The Evolution of Relay to RF-MEMS for High-speed and Large-scale Transmission"
2. "Evolution of the MEMS business models : Status of the MEMS industry"
3. "Reliability of the Digital Micromirror Device (DMD)"

The first lecture will talk on the R&D of OMRON Corporation's hit products. The second lecture will discuss on the "Evolution of the MEMS business models: Status of the MEMS industry" based on data of global survey by Yole Development (France) and the talks will attract you as Japanese government is going to promote MEMS industrialization in "Focus 21 project". The third lecture will talk the quality insurance of Texas Instruments Inc.'s Digital Micromirror Device (DMD), as an excellent "role model" on reliability of MEMS products.

In session 3, "Innovative R&D", will discuss the following four lectures.

1. The Fabrication of a 100gm Co-Orbiting Satellite Assistant (COSA)
2. Bio-Hybrid Nanomachine
3. Micro Power Generation
4. Nano Channel

The first lecture will talk the development of a remote-control mini-satellite, measuring 5 x 5 x 5 (cm)

and weighting 100g, which is developing by Aerospace Corporation in U.S.A. Launched from a space satellite (called "mother ship"), this mini-satellite is to be used in maintenance support of sight-checks, such as the condition of solar cells or extending the antenna of the mother ship. And it is controlled by wireless transmission from the mother ship. In the development of this satellite, MEMS technology such as laser technology and 3D fabrication are being used.

The second lecture will talk on the system that integrates biomoleculars and micro/nano structure. Biomolecular motor is a protein measuring approximately 10 nm that is highly involved as substance for transportation, protoplasmic flow, cell division, and other processes within the body. The lecture will focus on research involving the patterning of these mobile proteins in microfluidic devices and the handling of nano-sized substances.

The third lecture will talk on the portable fuel cells that are studying for application in near future and expecting for large market.

The fourth lecture will talk on sensors for biomedical and environmental monitoring and on transducers that change the chemical and physical signals into electronic signals. The fruits of recent study in this field will much attract you.

In Session 4, a panel discussion will be held to discuss on exploring of new MEMS development as a strategy for Micro/Nano technology with seven panelists including four guest speakers from overseas. Prof. Fujita, The University of Tokyo will serve the chairman. Before this panel discussion Prof. Hiroyuki Fujita, Professor Koji Ikuta, Nagoya University, Prof. Isao Shimoyama, The University of Tokyo and Dr. Atsushi Yusa, Olympus Corporation will give short lectures on recent MEMS developments.

This symposium was planned by the International / Exchange Committee, and then Organizing Committee (Chairman: Professor Naomasa Nakajima, The University of the Air) and the Program Committee (Chairman: Professor Hiroyuki Fujita, The University of Tokyo) composed the program and nominated speakers. Moreover this symposium has an international advisory board organized by ten chief delegates of the 8th World Micromachine Summit (2002).

This symposium aims to contribute to the promotion of our Micromachine technology through exchange of opinions among the experts in this field and by providing the direction of technological movement of the world.

The 14th Micromachine Exhibition will be held on the ground floor of the Science Museum from November 12 (Wednesday) to November 14 (Friday), 2003. The participants of the symposium will be allowed free admission to the Micromachine exhibition. We look forward to welcoming a good many attendees from throughout the world (a tentative program for the symposium is on the last page).

The Japan Motorcycle Racing Organization has been offering fund to this symposium.