

- MMC Activities.....1
- Column.....4
- Overseas Trends.....5
- Member's Profiles6
- Worldwide R&D8

MMC Activities

The 10th International Micromachine/Nanotech Symposium

The 10th International Micromachine/Nanotech Symposium will be held on November 11 (Thursday), 2004, at the Science Hall of the Science Museum (Kitanomaru Park, Tokyo), and is being organized by the Micromachine Center.

This is the 10th symposium since the 1st International Micromachine Symposium was held in 1995. Supported by METI and NEDO, the symposium aims to establish and disseminate micromachine technology, as well as promote awareness of micromachine technologies in various industries. Since the 8th symposium, held in 2002, its focus has widened to include the field of nanotechnology, with the sub-title "Foundation of Industrial Technology in the 21st Century".

The symposium was planned by the organizing committee (committee chairman: Professor Isao Shimoyama, The University of Tokyo), and the program and guest speakers decided by the program committee (committee chairman: Professor Hiroyuki Fujita, The University of Tokyo). Furthermore, to reflect international perspectives and to enrich the content of the symposium, an advisory board has been established comprising nine representatives from the U.S.A., Britain, Germany, France, Italy, the Netherlands, Australia, Canada and China, who participated in the 10th Micromachine Summit held earlier this year in Grenoble, France. Speakers from overseas have also been invited to address the symposium.

Micromachine technologies are starting to play a crucial role in supporting peace of mind and safety in our advanced information society. Moreover, bold challenges in the frontier fields of next-generation micromachines and NEMS are taking place in response to trends in the cutting-edge technologies of nanotechnology, biotechnology and information technology, innovative areas of late. A variety of policies are being tried to establish micromachines technology's status as the bedrock for next-generation industrial technologies and the cornerstone for the creation of new industries. The symposium plans to invite speakers from the forefront of the field, from both Japan and abroad, to speak about the state of micromachine technologies and their development. The symposium program will comprise five sessions, and lectures are to be presented by four speakers from overseas and eleven from within Japan.

During Session 1, "the Opening," the Director of the Industrial Machinery Division in the Manufacturing Industries Bureau of the Ministry of Economy, Trade and Industry (METI) will address the symposium. This will be followed by a special lecture by Professor Susumu Sugiyama of Ritsumeikan University, director of the university's Research Center for MicroSystem Technology, entitled "New progress of integration and fusion in MEMS -Expectations for new industry creation." As the keynote speech of the symposium, we can expect this

lecture to provide valuable information about technical policies and the future trends surrounding MEMS.

Session 2, "Micromachine technology for safe and secure advanced information societies," will feature the following three lectures by senior figures in some industries that are closely linked to our everyday lives -cars, information equipment and medical devices:

1. MEMS for automotive electronics systems
2. Display and MEMS
3. State of the art technology for endoscopes

It is anticipated that these lectures will convey the power of micromachine technologies.

For Session 3, "New MEMS/systems and technology," we have planned seven lectures about innovative research. The three lectures on feasible future-oriented network systems using MEMS include the views of Crossbow Technology Inc., which developed wireless sensors ideal for ubiquitous environment R&D, and IMEC, which focuses on research about FR-MEMS and innovative network systems using RF-MEMS. There will also be a variety of lectures covering subjects such as smart skin for turbulence control using micromachine technology, biodevices, image sensors, and the nanoimprinting technology that is revolutionizing micro and nanomachining.

Session 4, "Policy trends of MEMS research and development" features four lectures by speakers from Japan and overseas, and takes a look at policies to encourage MEMS R&D. Among the lectures, Professor William C. Tang, formerly a DARPA researcher and now professor at the University of California, Irvine, will speak about America's strategies for research into biomedical applications for MEMS, and Professor Hidetoshi Kotera of Kyoto University will talk about the METI/NEDO MEMS design & analysis support system development project (MEMS-ONE Project), launched in an industry-academia consortium by Micromachine Center.

The 15th Micromachine Exhibition will be held at the Science Museum from November 10 (Wednesday) to November 12 (Friday), 2004 and will feature a diversity of exhibits presented by micromachine-related businesses, universities, and organizations. We believe that this micromachine exhibition and the symposium will provide a great opportunity for participants to obtain a clear, comprehensive picture of cutting-edge micromachine technologies, and we recommend attendance at both events in order to see real micromachines in action. Symposium participants can gain free admission to the micromachine exhibition simply by showing their participation cards. The deadline for applications to attend the symposium is October 29, 2004. If seats are available, applications will be accepted on the day of the symposium to enable as many people as possible to attend.

PROGRAM

November 11, 2004, Science Museum, Tokyo

8:45 – Registration

Session 1	Opening	Chairman: Mr. Keiichi AOYAGI
9:15 – 9:20	Opening Remarks	Dr. Tamotsu NOMAKUCHI, Chairman, Micromachine Center
9:20 – 9:25	Guest Speech	Mr. Yoshinori KOMIYA, Director, Industrial Machinery Division, Manufacturing Industries Bureau, METI
9:25 – 9:55	Special Guest Speech New Progress of Integration and Fusion in MEMS - Expectation for New Industry Creation -	Prof. Susumu SUGIYAMA, Director, Research Institute for Micro System Technology, Ritsumeikan University RITSUMEIKAN UNIVERSITY

Session 2	Micromachine Technology for a Safe and Secure Highly Information Society	Chairman: Prof. Hiroki KUWANO
9:55 – 10:25	MEMS for Automotive Electronics Systems	Mr. Touma FUJIKAWA, TOYOTA MOTOR CORPORATION
10:25 – 10:55	Display and MEMS	Mr. Yutaka TAKEI, Sony Corporation
10:55 – 11:25	State of the Art Technology for Endoscope	Mr. Hiroyuki FURIHATA, OLYMPUS CORPORATION

Session 3	New MEMS / System and Technology	Chairman: Prof. Hiroyuki FUJITA
11:25 – 11:55	Anytime-Anywhere Wireless Sensor Networks - Smart Dust -	Mr. John CRAWFORD, Crossbow Technology, Inc., U.S.A.
11:55 – 12:25	Autonomous Microsystems for Health and Comfort Monitoring Applications	Prof. Dr. Chris Van HOOF, IMEC, Belgium

12:25 – 13:10

Lunch

		Chairman: Prof. Isao SHIMOYAMA
13:10 – 13:40	MEMS Network Systems	Prof. Hiroki KUWANO, Tohoku University
13:40 – 14:10	Development of Smart Skin for Turbulence Control with MEMS Technology	Prof. Nobuhide KASAGI, THE UNIVERSITY OF TOKYO
14:10 – 14:40	Advanced Biodevices Based on Nanomaterials and Microchip Technology and their Biomedical Applications	Prof. Eiichi TAMIYA, Japan Advanced Institute of Science and Technology
14:40 – 15:10	Nanoimprinting - Innovation for Micro and Nano Machining -	Prof. Dr. Ryutaro MAEDA, National Institute of Advanced Industrial Science and Technology
15:10 – 15:40	Integrated MEMS Array - Uncooled Infrared Image Sensor -	Prof. Masafumi KIMATA, Ritsumeikan University

15:40 – 15:55

Break

Session 4	Policy Trends of MEMS Research and Development	Chairman: Dr. Ryutaro MAEDA
15:55 – 16:25	Status and Future Trends of MEMS Research in the U.S. for Biomedical Applications	Prof. William C. TANG, University of California, Irvine
16:25 – 16:55	Market Trends of MEMS	Prof. Isao SHIMOYAMA, THE UNIVERSITY OF TOKYO
16:55 – 17:25	EC FP6 Network of Excellence in Multi-Material Micro-Manufacture (4M)	Dr. Stefan DIMOV, Cardiff University, U.K.
17:25 – 17:55	Development of MEMS Design and Simulation System	Prof. Hidetoshi KOTERA, Kyoto University

Session 5	Closing	Chairman: Prof. Hiroyuki FUJITA
17:55 – 18:00	Closing Remarks	Mr. Keiichi AOYAGI, Micromachine Center