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## MMC Activities

# The 8<sup>th</sup> International Micromachine / Nanotech Symposium

The 8<sup>th</sup> International Micromachine/Nanotech Symposium will be held on November 14 (Thursday), 2002, at the Science Museum in Kitanomaru Park, Tokyo, and is being organized by the Micromachine Center.

This is the 8<sup>th</sup> symposium since the 1<sup>st</sup> International Micromachine Symposium was held in 1995 supported by METI and NEDO, the symposium aims at establishment and dissemination of micromachine technology, as well as enlightenment of micromachine technology. Last year, in the 7<sup>th</sup> International Micromachine symposium, we presented summary of the fruits of "Micromachine technology development PJT" which took the global initiative in the 10 year PJT of "Industrial Science and Technology Frontier Program" so called (ISTF). From this 8<sup>th</sup> symposium, we expand the scope from Micromachine technology to nano-technology and applied the sub-theme as "Micro systems implicated nano technology make the Foundation of Industrial Technology in the 21<sup>st</sup> Century". Therefore we named this symposium The 8<sup>th</sup> International Micromachine/Nanotech Symposium.

Recently the fruits of research in nanotechnology have been remarkable, however to utilize the nano-scale technology for human size, it is required to develop the new tech which seamlessly links nano-scale and human-size to implicate such as optics and biotechnology into the micro systems. The 8<sup>th</sup> International Micromachine/Nanotech Symposium focuses on R & D in the new domain of "micro/nano fusion that will enable the realization of novel functions and capacity.

This symposium has been planned by the organizing committee (chairman: Professor Naomasa Nakajima, The University of the Air), and by the program committee (chairman: Professor Hiroyuki Fujita, The University of Tokyo). Through these committees, the frame of program were made and the guest speakers were nominated. Furthermore, to fill up the content of the symposium and international points of view, an advisory board has been organized by nine European and American chief delegates of the 8<sup>th</sup> world Micromachine summit and we invited five foreign speakers.

The program consists of five sessions, and fourteen speakers including nine Japanese and five foreigners give lectures. In Session 1, "Opening," a guest speech will be given by the Director-General of the Manufacturing

Industries Bureau of METI, then Professor Isao Shimoyama, The University of Tokyo presents special lecture entitled "Strategy towards Fusion of Nano and Micro Systems. This lecture will provide participants valuable information about technological strategies and future directions on "micro/nano fusion domain."

In Session 2, "The Path to New Industries in the 21<sup>st</sup> Century," will feature the following five lectures.

1. International Standardization of MEMS
2. Standardization of Tensile Testing Methods for Thin Film Materials - Round Robin Testing of Thin Film Specimen -
3. MEMS in China, Especially in Shanghai Area
4. MMC's Initiatives towards Foundry Service Network
5. The Sensibility of Scaling Recognition

In the third lecture, Prof. Yilong Hao of Peking University talks the MEMS industry in China, which has been making significant progress in the Shanghai area.

The fifth lecture, "The Sensibility of Scaling Recognition" in Micro/Nano machine design" will be presented by Prof. Kazuo Kawasaki of Nagoya City University Medical School, who has been honored with several good design awards in the field of industrial design, both in Japan, and foreign countries such as U.S.A., France and Germany.

For Session 3, "Innovative R & D," we prepares four lectures to introduce the latest innovative R & D, from which significant future evolutions are anticipated.

1. Creation of Biochips Aiming at Highly Medical Treatment
2. Micro-fluidics for Pre-process of Dioxin Measurement
3. Advanced MEMS Research in US
4. Nanoscale Light Manipulation

The fourth lecture, "Nanoscale Light Manipulation," will be presented by Prof. Laurens Kuipers of the University of Twente MESA + Research Institute, the Netherlands, who researches on advanced photonics structures. Based on his research on how to make the low dimensional photonic crystal and optical phenomena of the crystal, Prof. Kuipers aims at developing new devices for optical communications and high-speed computers.

In Session 4, "National Strategy for Micro/nano Fusion

Domain," prepares following four lectures.

1. Strategy to Enhance the Application of Micro@nano-Technology in France
2. Practice Collaboration between Industry and Academia in Micro/nano System Technology
3. Bio Nano Technology in the 21<sup>st</sup> Century: CELLOMIX
4. National Strategy on NEMS/MEMS in France

In the first lecture, "Strategy to Enhance the Application of Micro@nano-Technology in France," Dr. Dirk Beernaert of EURIMUS (Eureka Industrial Initiative for Microsystem's Users), will talk the aspects of Integrated Project for the EU 6<sup>th</sup> Framework Programme such as the project's objectives and policies, and its development of MEMS products.

The fourth lecture, "National Strategy on NEMS/MEMS in France," will be presented by Dr. Constant Axelrad, a Scientific Advisor at CEA-LETI in Grenoble, France, and actively involved with France's Micro/nanotechnology Innovation Center and NEXUS. As the title suggests, Dr. Axelrad's lecture

will look at French approaches and strategies in the fusion of micromachine technology and nanotechnology.

The 13<sup>th</sup> Micromachine Exhibition will be held on the ground floor of the Science Museum from November 13 (Wednesday) to November 15 (Friday), 2002 and will feature a diversity of products by micromachine-related industries, universities and institutions. We believe that this micromachine exhibition and the symposium will provide a good opportunity for participants to obtain a clear and comprehensive image on what are cutting-edge micromachine technologies, and we recommend all participants to visit the events to enable you to see actual micromachines in action. Symposium participants can be permitted free admission to the micromachine exhibition by simply showing their participation cards.

The deadline for applications to attend the symposium is October 31, 2002. but if seats are available, applications will be accepted on the day of the symposium.

## \*\*\*\*\* PROGRAM (Tentative) \*\*\*\*\*

### As of October 11, 2002

9:00 – Registration

#### Session 1 : Opening

**Chairman : Mr. T. HIRANO**

9:30 – 9:35	Opening Remarks	Mr. Toshiro SHIMOYAMA, Chairman, Micromachine Center
9:35 – 9:40	Guest Speech	Director-General, Manufacturing Industries Bureau, METI
9:40 – 10:20	Special Guest Speech: Strategy towards Fusion of Nano and Micro Systems	Prof. Isao SHIMOYAMA, The University of Tokyo

#### Session 2 : The Path to New Industries in the 21st Century

**Chairman : Prof. H. FUJITA**

10:20 – 10:45	International Standardization of MEMS	Dr. Kuniki OHWADA, International Standardization Engineering Laboratory
10:45 – 11:10	Standardization of Tensile Testing Method for Thin Film Material - Round Robin Test of Thin Film Specimen -	Toshiyuki TSUCHIYA, Toyota Central R&D LABS INC
11:10 – 11:35	MEMS in China, Especially in Shanghai Area	Prof. Yilong HAO, Peking University
11:35 – 12:00	MMC's Initiative towards Foundry Service Network	Mr. Takashi MIHARA, Foundry Service Industry Committee
12:00 – 13:00	***** Lunch *****	
13:00 – 13:30	The Sensibility of Scaling Recognition	Prof. Kazuo KAWASAKI, Nagoya City University Medical School

#### Session 3 : Innovative R & D

**Chairman : Prof. K. IKUTA**

13:30 – 14:00	Creation of Biochips Aiming at Highly Medical Treatment	Prof. Yasuhiro HORIIKE, The University of Tokyo
14:00 – 14:30	Micro-fluidics for pre-process of Dioxin Measurement	Dr. Ryo MIYAKE, Hitachi Ltd.
14:30 – 15:00	Top Down and Bottom Up Approaches to Bio Nano Technology	Dr. Jennifer Gaudioso, Sandia National Laboratory
15:00 – 15:30	Nanoscale Light Manipulation	Prof. Laurens KUIPERS, University of Twente
15:30 – 16:00	***** Break *****	

#### Session 4 : National Strategy for Micro/Nano Fusion domain

**Chairman : Prof. I. SHIMOYAMA**

16:00 – 16:30	Strategy to enhance the application of micro @ nano-technology in France	Dr. Dirk BEERNAERT, European Commission
16:30 – 17:00	Practice Collaboration between Industry and Academia in Micro-Nano System Technology	Prof. Susumu SUGIYAMA, Ritsumeikan University
17:00 – 17:30	Bio Nano Technology in 21st Century, CELLOMIX	Prof. Teruo OKANO, Tokyo Women's Medical University
17:30 – 18:00	National Strategy on NEMS/MEMS in France	Dr. Constant AXELRAD, CEA-LETI

#### Session 5 : Closing

18:00 – 18:10	Closing speech	Mr. Takayuki HIRANO, Executive Director, Micromachine Center
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