The 7th International Micromachine Symposium

The 7th International Micromachine Symposium will be held on October 31 (Wed) and November 1 (Thu), 2001 at the Science Hall in the Science Museum, in Kitanomaru Park, Tokyo.

This is the 7th International Micromachine Symposium since the 1st International Micromachine Symposium was held in 1995 with the aim of establishing and disseminating micromachine technology, as well as providing an enlightenment to various industries. In particular, this symposium have features to present the results of the justcompleted Industrial Science and Technology Frontier Program(ISTF), which aimed to initiate micromachine technology in the world.

This symposium was planned by the organizing committee (chairman: Professor Naomasa Nakajima, The University of the Air) and the program and guest speakers were decided by the program committee (chairman: Professor Hiroyuki Fujita, The University of Tokyo). Furthermore, in order to reflect international points of view and to fill up the content of the symposium, an advisory board has been established with 9 European and American representatives who participated in the 7th Micromachine Summit held in Freiburg, Germany in this May.

In all, 16 guest speakers (4 from abroad, 12 from Japan) will present lectures on the first day. During the Session 1, opening remarks will be given by chairman of Micromachine Center, and guest speeches will be given by the guests form Ministry of Economy, Trade and Industry (METI) and New Energy and Industry Technology Development Organization (NEDO). After that a special lecture will be given by Professor Fumio Kodama of The University of Tokyo, entitled "The Micromachine based Business Model." Professor Kodama is expected to give invaluable talks on industrialization of micromachine technologies.

Concerning the industrialization of micromachine technologies, five lectures will be presented in the session 2.

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

R & D Strategies for Micromachine Technology:

Prof. Isao SHIMOYAMA, The University of Tokyo Manufacturing Outlook (tentative):

Prof. Susumu SUGIYAMA, Ritsumeikan University Outlook for IT (tentative):

Mr. Hironobu KUWANO, NTT Cyber Solution Laboratories Medical Application (tentative):

Prof. Mitsuo OKANO, Tokyo Women's Medical College Integrated Chemistry -State of the Art and Scenario Toward Industry Innovation:

Prof. Takehiko KITAMORI, The University of Tokyo

In the afternoon, we have three sessions.

The first session will be "Overseas Activities". We invite three foreigners to present lectures on current trends, such as the example of applications, the activities of manufacturing clusters in EU, and the research environment of Micromachine.

Session 3: Overseas Activities

The Activities of The Five Euro Practice Manufacturing Clusters: *Mr. Rober TURNER, NEXUS/KBI Commercial Ltd, U.K.* Radio Frequency Identification:

Prof. Hekki SEPPA, VTT Finland MEMS Research Environment: Prof. Yitshak ZOHAR, Hong Kong University of Science and Technology

For the next session will be "Innovative R & D," we invite three people to introduce the innovative Micromachine technologies that will be expected evolution.

Session 4: Innovative R&D

Light Driven Mass Migration in Nano-Hybrid Polymer Films :

Prof. Takahiro SEKI, Tokyo Institute of Technology Development of Visual Prosthesis :

Dr. Toru YAGI, Nagoya University Nanophotonics and Micromachine/MEMS : Prof. Satoshi KAWATA, Osaka University

For the final session of the first day will be "Micromachine in the Last Decade and future Outlook". We invite four speakers including one foreigner to present lectures on R & D of Micromachine in the last decade and future outlook on Micromachine technologies.

Session 5: Micromachine in the Last Decade and future Outlook

MEMS Development in the Last Decade :

Associate Prof. Norman C. TIEN, University of California Practical Use of Micromachine in Industry :

Dr. Kunihiko HARA, DENSO Corporation Micromachine Research in Universities in the Last Decade :

Prof. Hiroyuki FUJITA, Tokyo University

On the second day, the results of R & D of Micromachine technology under the ISTF program by METI will be presented. Firstly, Mr. Hata, Director General of Industrial Technology Development Dept. generalizes the fruits of R & D of Micromachine technologies.

Then, four working group leaders will deliver the results of R&D in the second phase and followed by researchers who represent the company joined this project will announce the results of details of their R & D.

Followings are the title and speakers.

Session 6: Results of Micromachine Technology Project in ISTF Program

Results of the R & D of Micromachine Technology Project :

Mr.Yukihiro HATA, Director General, Industrial Technology Development Dept. NEDO Overview of R & D in Micromachine Project : Dr. Kuniki OHWADA, Chairman, R&D Committee, Micromachine Center

Experimental Wireless Micromachine for Inspection on Inner Surface of Tubes :

Dr. Nobuaki KAWAHARA, Micromachine Center Experimental Chain-type Micromachines for Inspection on Outer Surface of Tubes :

Mr. Munehisa TAKEDA, Micromachine Center Experimental Catheter-type Micromachine for Repair in Narrow Complex Areas :

Mr. Ryo OHTA, Micromachine Center Experimental Microfactory System for Processing and Assembling :

Mr. Kazuyoshi FURUTA, Micromachine Center **Research of Artificial Muscles** :

Mr. Roy KORNBLUH, SRI International R & D of Microbattery for Micromachine Applications :

Mr. Kanji KUBA, Mitsubishi Materials Corp. Micro Laser Catheter :

Mr. Shigeru OMORI, TERUMO Corp. R & D on Micro Tactile Sensor Catheter :

Mr. Hiroshi TOSAKA, Olympus Optical Co., Ltd.

A Study for Pattern Generation of Micromachines : Mr. Yasuo OTSUKI, KAWASAKI HEAVY INDUSTRIES, LTD. A Study on Hierarchical Group Control : Mr. Taku SASAKI, MITSUBISHI HEAVY INDUSTRIES, LTD. A Study on Hierarchical Group Control : Mr. Taku SASAKI, MITSUBISHI HEAVY INDUSTRIES, LTD. Miniature Gas Sensor using Micro Borometers and Micro Variable Infrared Filter : Mr. Hitoshi HARA, Yokogawa Electric Corp.

The 12th Micromachine Exhibition will be held on the ground floor of the Science Museum from October 31 to November 2,2001. We believe that this symposium and the micromachine exhibition will provide you a great opportunity to understand the cutting edge of micromachine technologies and we suggest you to attend both events. Participants in this symposium can enter into the micromachine exhibition by simply showing your participation card.

The deadline for applications to attend the symposium is October 27, 2001. However, as for as seats are available, applicants will be accepted on the day so that as many people as possible can attend this symposium.

Akita Micromachine Seminar

The Akita Micromachine Seminar was held on the afternoon of September 14, 2001 at the Akita Prefectural Industrial Technology Center in Akita City. It was organized by the Micromachine Center, Akita Machine & Metal Association, Akita Prefectural Industrial Technology Center, and Akita Production Technology Society.

This seminar was chaired by Mr. Mutsuo Watanabe, Production Technologies Department Head of the Akita Prefectural Industrial Technology Center. Following a welcoming speech from Mr. Tsuyoshi Sato, Executive Director of the Akita Machine & Metal Association, a number of speeches were presented. Specifically, Mr. Takayuki Hirano, Executive Director of MMC, made a speech concerning "The MMC's Activities"; Mr. Yuichi Ishikawa, Principal Research Scientist of the National Institute of Advanced Industrial Science and Technology, spoke on "The Features of Micromachine Technology"; and Mr. Tsuneji Yada, General Manager of the MMC, presented "An Overview of the Micromachine Project".

In addition, as part of an introduction to the research results of MMC's supporting members, Mr. Munehisa Takeda, Group Manager of MITSUBISHI ELECTRIC CORPORATION's Advanced Technology R&D Center, spoke about "The Experimental Chain-Type Micromachine for Inspection of Outer Tube Surfaces"; Mr. Hiroshi Yamada, Research Scientist of TOSHIBA CORPORATION's Corporate Research and Development Center, made a speech concerning "High-Density Three-Dimensional Packaging for a Microvision System"; and Mr. Hitoshi Hara, Assistant Manager of Yokogawa Electric Corporation's Micromachining Laboratory, spoke about "1cm³ Carbon Dioxide Sensor with a Microbolometer and Infrared Filter".

During the interval, Mr. Munehisa Takeda and Tsuneji Yada conducted a presentation of the "Micro Generator" (MITSUBISHI ELECTRIC CORPORATION), and the "In-pipe micro inspection machine (DENSO CORPORATION)" (TOSHIBA CORPORATION), two portable exhibits of micromachine technology that had been brought to the seminar. This provided an excellent opportunity for the seminar participants to become more familiar with micromachine technologies.

With a total of 45 people present - 20 individuals from 13 companies in Akita Prefecture and another 25 individuals from universities, research centers, public agencies, and other similar organizations - the seminar was both well attended and of considerable significance.

