

Activities of the MEMS Industry Forum

1. The 15th International Micromachine/Nanotech Symposium – MEMS World

The 15th International Micromachine/Nanotech Symposium was held at MicroNano 2009 on July 29, 2009 (Wednesday) in a special conference area prepared at the event as one of the concurrent events with the 20th Exhibition Micromachine/MEMS.



This year's Symposium was held on such topics as the concentration of MEMS R&D centers and MEMS applications and featured keynote speeches from LETI/MINATEC, Fraunhofer ENAS, and the MEMS Industry Group on trends toward concentrating MEMS R&D into major centers. The lecturers in Session 1 introduced some of the latest trends in MEMS applications, including sensor networks, optical MEMS, and energy-related MEMS, while the lectures in Session 2 focused on fabrication processes as emerging technologies from the perspectives of wafer vendors, fabrication equipment (bonding equipment) vendors, and material vendors.

Unlike in previous years, there was no charge for attending lectures, and the Symposium was held during the exhibition in the exhibition hall, rather than at a separate location. The Symposium filled all 230 seats in the conference area and stimulated a lively question and answer session. Looking toward next year, we would like to clarify the positioning of this symposium within the overall MicroNano 2010 event and the target audience (management or on-site technicians, for example) and to prepare a program of even greater quality that meets the needs of this audience.

2. The MEMS Forum

The MEMS Forum was held on July 31 (Friday) in a special conference area at the 20th Exhibition Micromachine/MEMS for the purpose of distributing information on the activities of the MEMS Industry Forum (MIF), a special project committee of the Micromachine Center, and encouraging the exchange of ideas.



In Session 1 of this year's Forum, which was held under the overall theme "Toward development and expansion of the MEMS Industry: an update from the MEMS Industry Forum," the MIF reported on technology trends in MEMS seen at international conferences, trends in the MEMS industry, including trends in MEMS applications and company's breaking into MEMS fields, and the MIF's international standardization activities in MEMS fields.

Session 2 had the sub-theme of "Enhancing the infrastructure for MEMS R&D and production to prevail in global competition." Presentations included the proposed

concept of centers for the integration of MEMS knowledge and experience to serve as arenas for developing nanotechnology, an introduction to the foundry network, MemsONE, and MEMSPedia designed to improve the infrastructure for MEMS development, and a description of efforts to implement micro/nano personnel training in order to promote expansion of the MEMS industry. In Session 3 subtitled "Anticipation toward the formation of MEMS industries and R&D centers," speakers described the state of activities being conducted in the Tohoku, Kansai, and Kyushu regions for strengthening the foundation of the MEMS industry.

The fact that every seat in the Forum's conference hall was filled indicates a strong interest in the MEMS industry.

3. The 18th MEMS Advanced Technology Forum

The 18th MEMS Advanced Technology Forum was held on June 24 (Wednesday) at the MMC Techno Salon, where the MIF had the privilege of hearing lectures by Dr. Minoru Kurosawa, associate professor at the Tokyo Institute of Technology in the Interdisciplinary Graduate School of Science and Engineering, and Dr. Tadatomo Suga, professor at the University of Tokyo in the Graduate School of Engineering.

In his lecture entitled "Surface acoustic wave linear motors," Dr. Kurosawa talked about linear motors using SAW elements, long-established MEMS devices, and introduced his research spanning from ultrasonic motors to the present. Dr. Kurosawa also discussed potential future development of high-speed, high-precision micro-linear motors.

In his presentation entitled "Low-temperature wafer bonding," Dr. Suga discussed potential applications for the low-temperature bonding of wafers using plasma and ion irradiation for 3D mounting and MEMS packages. He also described various types of bonding and bonding techniques, particularly chip bonding in ambient air and in a vacuum and bonding using nano-adhesion layers, as well as the mechanisms of bonding.



Dr. Kurosawa, Tokyo Institute of Technology



Dr. Suga, the University of Tokyo

The Advanced Technology Forum attracted 19 participants composed of MIF members, personnel involved in the BEANS Project, and general visitors. Following the lectures on these cutting edge technologies and a round of lively Q&A, some of the participants adjourned to the Micromachine Center's conference room to further discuss these technologies and exchange opinions with Drs. Suga and Kurosawa, bringing the meeting to a harmonious close.