

IWMF 2000 Held in Switzerland

The second meeting of IWMF was held at the Golden Tulip Hotel in Fribourg, Switzerland under the initiative of FSRM for three days, October 9 through 11, 2000 (see Photo 1).

IWMF : International Workshop on Microfactories, which had started on the initiative of the Mechanical Engineering Laboratory of the Agency of Industrial Science and Technology in December 1998
FSRM : Swiss Foundation for Research in Micro-technology

In the IWMF, two days were assigned to convention and a total of 49 presentations were made during this period, including 11 invited lectures, 17 oral presentations, and 21 poster presentations.

The number of presentations by country, excluding the 11 invited lectures, were :10 from Japan, 10 from Switzerland, 7 from Germany, 3 from U.K., 2 from the U.S.A., 2 from Finland, 2 from France, 1 from China, and 1 from The Netherlands. The member companies of the ISTF project "Micromachine Technology" also participated in the presentations on seven topics as listed in Table 1 below (including invited lectures).

The list of workshop participants counted 75 names, and the number of participants by country were : 26 from Japan, 23 from Switzerland, 10 from Germany, 4 from the U.S.A., 4 from U.K., 3 from Finland, 2 from

France, 2 from The Netherlands, and 1 from Russia. The attendance from Japan and Switzerland was noticeably high.

The oral presentation consisted of five sessions and the number of presentations in each session shown below (including invited lectures).

- (1) System Aspects of Microfactories: 5 presentations
- (2) Microassembly and Handling: 10 presentations
- (3) Micromachining and 3-D Microstructuring: 5 presentations
- (4) Links to Nanotechnologies, Innovation, Visions for the Future: 2 presentations
- (5) Microfactories for Medical, Pharmaceutical and Biotechnological Applications: 6 presentations

In session (1) above, presentations focused on practical systems impressed the progress made in current R&D activities.

On the third day of the workshop, a technical tour to EPFL in Lousanne was held and following four laboratories were visited. (see Photo 2).

- Robotics and Parallel Kinematics
- Micro-actuators Stick and Slip
- Micro-ECDM
- AFM and STM Applications

The next IWMF will be held in Minneapolis, Minnesota, U.S.A. in 2002.

Table 1 Results of studies on the ISTF project "Micromachine Technology" presented at IWMF 2000

[Oral presentations]

- (1) "Visual Inspection Mechanism for Microfactory" by O. Tohyama, Mitsubishi Cable Industries, Ltd.
- (2) "Industrial Impact of Microfactory" by T Hirano, MMC (invited lecture)
- (3) "Development of Micro Stages for Microfactories" by T. Matsuo, Yaskawa Electric Corporation
- (4) "The Microfactory for Processing and Assembly" by T. Ataka, Seiko Instruments Inc. (invited lecture)

[Poster presentations]

- "Wafer Level Three-dimensional Integration Technology" by A. Satoh, Fujikura Ltd.
- "Development of Micro Servo Actuators" by H. Nakamura, Yaskawa Electric Corporation
- "Micro Fabrication Using Electrochemical Machining" by M. Suda, Seiko Instruments Inc.



Photo 1 View of workshop meeting



Photo 2 Technical tour to EPFL