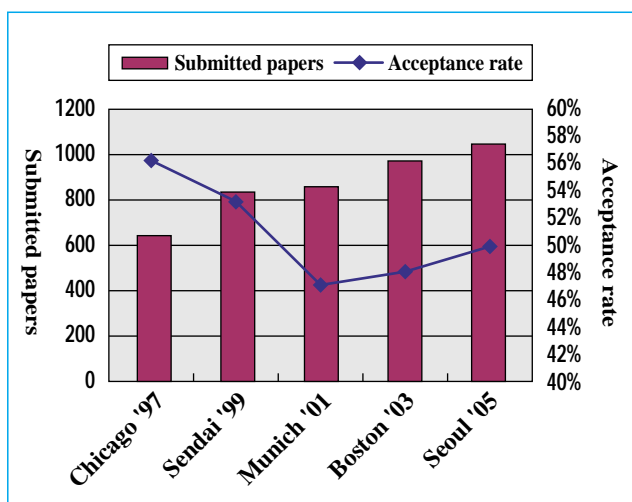


## Report on the Transducers '05 International Conference in South Korea

The 13<sup>th</sup> International Conference on Solid-State Sensors, Actuators and Microsystems was held in Seoul, Korea, June 5-9, 2005 at the Convention and Exhibition Center (COEX). The 800 some participants from twenty-seven countries (registered as of May 31) at Transducers '05 was down from the 1,100 some participants at Transducers '03, held two years earlier in Boston, but the lively feel at this year's conference reflected the great expectations that the MEMS field still commands. As the conference was held in neighboring South Korea this year, 201 of the participants came from Japan. This very large number shows the high level of interest Japan holds for MEMS in comparison with the rest of the world.

The majority of presentations at the conference consisted of reports on sensors, actuators, and their materials, production, and assembly that apply technologies across a broad range, including the chemical, physical, mechanical, and electrical fields. The 532 presentations included 3 keynote speakers, 15 guest speakers, 199 oral presenters, and 315 poster presentations, while 50% of the 1,035 submitted papers were accepted (based on a report given during the opening ceremony).

Fig. 1 illustrates the changes over the years and the number of submitted papers and the percentage of papers that were accepted, showing a dramatically increasing trend in the number of submitted papers over the past several years. These figures support the vigorous activity in MEMS R&D in recent years. When examining the number of presentations given by country, Japan had the most with 132, followed in order by the U.S. with 119, South Korea with 79, Germany with 39, and Taiwan with 33. In terms of research institutes, the University of Tokyo gave the most presentations, providing evidence to the spirited efforts put forth by Japan's research institutes.



**Fig. Changes in the number of submitted papers and their acceptance rate**

Except for the keynote speeches given on the opening day, the entire format of the conference consisted of four parallel sessions run simultaneously. Lively discussions were heard in all sessions. The biotechnology-related sessions particularly attracted many listeners in every hall and in some cases were so crowded that not everyone who wanted to could attend.



**A session of the conference**

Among the keynote speeches given on the first day of the conference, Dr. Kurt E. Petersen of SiTime Corporation in the U.S. talked about the history, present state, and future of MEMS under the theme "A New Age for MEMS." A memorable part of this lecture was his description of how the well-known Moore's Law predicting the trend of technological advancement in semiconductors could be adapted to MEMS technology.

Turning to the oral presentations, a report on the integration of LSI and physical sensors, such as pressure sensors and accelerometers, attracted much attention. Although the approaches for such integration differed, one came away with the impression that the fusion of MEMS and LSI is progressing more steadily than before. In the area of materials, it appears that polymers are being incorporated into various biotechnology MEMS. These features were also presented in the previous conference, but it appears that new functionality and performance, as well as practicality, has been derived by skillfully incorporating the characteristics of polymers in MEMS. In terms of manufacturing methods, the DRIE session was reestablished at this conference, and proposals were made for several devices and methods using silicon DRIE, one of the keys to MEMS machining technology. It would appear that a DRIE technology capable of meeting the needs for device processing is nearing completion.

The next international conference, Transducers '07, is scheduled to be held June 10-14, 2007 in Lyon, France.