

# Report on the MEMS 2006 International Conference in Istanbul

The 19<sup>th</sup> International Conference on Micro Electro Mechanical Systems (MEMS 2006) was held over a period of five days, January 22–26, 2006. This year, the venue was in Istanbul, the former capital of three successive empires—Roman, Byzantine, and Ottoman—and a city that is still captivating today.

Despite the unfortunate weather that visited Istanbul during the conference, the total 646 participants was on a level with previous years. The conference also received many participants from Japanese universities and companies. The number of abstracts submitted this year was a record-setting 789 (750 were submitted the previous year), while the percentage of accepted presentations was typically low, at 30%. The 239 selected presentations were characterized with much originality and included 3 talks by invited speakers, 42 oral presentations, and 194 poster presentations. Despite the heavy snowfall, the conference was enveloped in an air of enthusiasm.

Countries that gave the largest number of presentations this year were the United States with 80 (107 the previous year), Japan with 59 (47 the previous year), South Korea with 24 (16 the previous year), Taiwan with 22 (4 the previous year), and Germany with 16 (9 the previous year). By region, 82 presentations were given by North America (108 the previous year), 47 by Europe (35 the previous year), and 51 by Asian countries other than Japan (28 the previous year). Hence, nearly half of presentations were given from Asian countries. Of particular surprise was the daunting increase in the number of Taiwan presentations.

Among research institutes that gave the largest number of presentations, the University of Tokyo (Japan) gave 21 presentations; the University of Michigan (USA) and the University of Freiburg (Germany) gave 10 each; the National Tsing Hua University (Taiwan) gave 8; Ritsumeikan University (Japan), Stanford University (USA), Korea Advanced Institute of Science and Technology (South Korea), and the University of Illinois (USA) each gave 7; and the Georgia Institute of Technology (USA) and the University of California at Los Angeles (USA) each gave 6. Presentations from other universities in Japan included 4 each from Kyoto University, Nagoya University, and Tohoku University; and 3 from the University of Hyogo.

Broadly dividing the presentations into fundamentals and applied devices/systems, the former occupied 42% of all presentations and the latter 58%. Hence, applied research remains on top. By field, fluidic, biological, and physical (sensors) applied fields increased in number, while the fundamental fields showed increased research on fabrication technologies

(non-silicon) and actuators (electrostatic, piezoelectric, etc.). Japan also showed a dramatic increase in fluidic and biological research, as well as optics, and Asia in general showed a striking increase in fluidic and biological research. The United States had an increase in physical (sensors) and biological research, although research on fluidics and RF-MEMS, while still high, decreased from the previous year. Europe gave many presentations on physical (sensors) and fluidic fields.

Although 92% of all presentations were given by research institutes of universities and the like, there were also many interesting research reports from businesses. For example, Philips Research Laboratories gave a fascinating presentation on “Electrowetting-Based Displays: Bringing Microfluidics Alive On-Screen” regarding a technique employing electric voltage to control the surface tension of droplets in displays, while Analog Devices gave a memorable presentation entitled “A MEMS Condenser Microphone for Consumer Applications” on producing a low-cost silicon microphone with MEMS technology. These presentations tied ideas in fundamental research to commercialization.

During the conference, a gala banquet was held in a magnificent palace facing the Bosphorus that survives from the closing years of the Ottoman Empire. The banquet featured festive belly dancing and other traditional dance in which conference attendees also participated. The ring of dancers that continued to grow late into the night will not soon be forgotten.

The MEMS 2006 conference sponsored this year by IEEE has so far been held in Nara, Oiso, Nagoya, Miyazaki, and Kyoto. It is only fitting that the next conference, MEMS 2007, which will mark the 20<sup>th</sup> conference, should be held in Kobe. The conference dates are January 21–25, 2007. I encourage you all to attend.

