

1. First Semester Survey of Industrial Trends

In order to conduct a survey of industrial trends in the field of MEMS, we attended the Microtech/Nanotech Conference & Expo 2010 (June 21–24, Anaheim, CA), which is held annually in the U.S. At the conference, we studied trends in technological development and industrialization in MEMS-related businesses.

With the goal of promoting exchange among businesses and between companies and universities, the conference featured many distinctive sessions that included companies giving presentations, universities publicizing their acquired patents, major firms describing solicitations for joint research with universities and venture businesses, venture capital firms giving informative presentations, and a presentation on government funding.

The conference featured a series of vibrant presentations by companies, centered on guest speeches from STMicroelectronics and others who have produced results in the MEMS industry. Throughout the conference, presenters offered common viewpoints: that the fields of MEMS applications and the MEMS market will expand dramatically in the future, and that innovative technological development and suitable business strategies will enhance business opportunities considerably.

One trend in MEMS technology is the development of devices that integrate multiple functions, such as monolithic CMOS multi-axis motion sensors, many of which are already on the market. Developers are also actively working on reducing the size and cost of such devices.

There are an increasing number of startup companies in the fields of RF-MEMS, silicon oscillators, and electronic compasses, which are the latest industrial trends in new applications. It is apparent that these startups work in groups applying a horizontal specialization model, or a slightly modified version called a semi-horizontal specialization model, as a business strategy for competing with the major companies. Some of the most common aspects of the venture companies giving presentations were as follows: developing and patenting new technologies that are superior to conventional technologies is a minimum requirement; their applications target growing fields rather than niches; the preferred business model is horizontal specialization; and they compete against major companies through speed. In contrast, the MEMS industry in Japan is mostly configured as branches of major companies employing a vertical specialization model. It is not possible to conclude straight away that one model is better than the other, as successful cases of both can be seen throughout the world.

In the second semester of this fiscal year, we will continue surveying industrial and technological trends at home and abroad, analyze these trends, and compile proposed courses of action for Japan's MEMS industry. For more information, please visit <http://beanspj.cocolog-nifty.com/mems/> (Japanese only).

2. First Semester Survey of Technological Trends at Home and Abroad

Our survey of technological trends in the first half of 2010 focused on the Asia-Pacific Conference on Transducers and Micro-Nano Technology (APCOT) 2010. APCOT is an international conference held biannually in the Asia-Pacific region to present R&D findings in MEMS and nanotechnology fields. APCOT 2010, the fifth meeting in the conference's history, took place in Perth, Australia on June 6–9, 2010.

The 253 papers submitted to this conference marked a radical drop from the 589 papers submitted to the previous conference held in Taiwan. Of these total submissions, 240 papers were selected for presentation. Fig. 1 breaks down the numbers of presentations given by country.

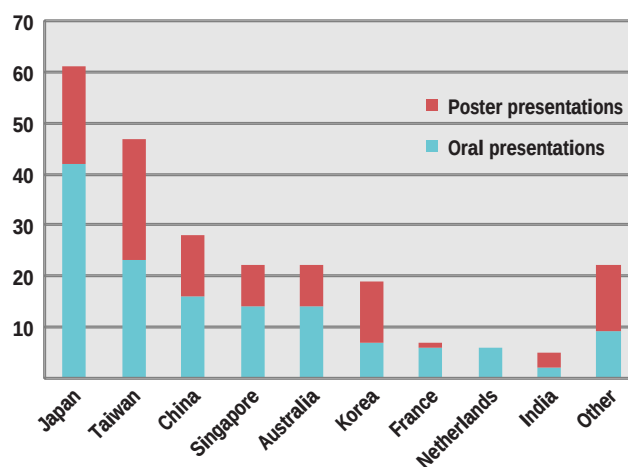


Fig. 1 Numbers of presentations by country

Fig. 2 illustrates the numbers of presentations broken down by field. Two of the more prominent fields are Radiation/Material Substance Sensors and Optical.

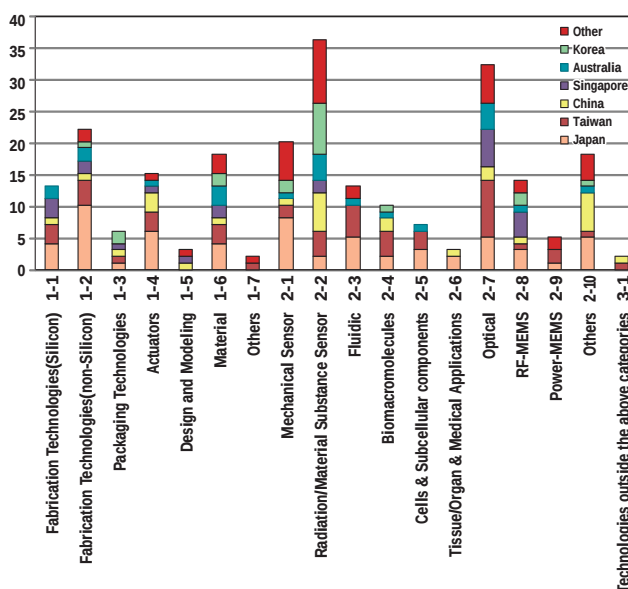


Fig. 2 Numbers of presentations by field