

COMS 2005, Germany, August 21-25, 2005

The international conference COMS 2005 was held at Baden-Baden, a world-famous and stylish hot springs resort in Germany's Black Forest, for discussing issues regarding the vitalization of the micro and nano technology (MNT) industry. The conference is held for industrial and government representatives involved in the MEMS industry primarily in Europe and North America as an opportunity to raise and discuss issues related to this industry. The conference is held in major cities, alternating between the two continents. This year marked the tenth COMS conference. Recently, representatives in the industry have recognized the importance of Asia as a source of information and have advocated holding a conference in the Asia-Oceania region. There now appear to be plans for holding the conference in Australia in 2007 (next year the conference will be held in St. Petersburg, Florida.).

This year's conference had 270 some people in attendance and more than 140 presentations, producing lively discussions with more than half of the participants reporting. Incidentally, the first conference held in 1984 was very small, with only 80 some participants. However, the number of participants has increased steadily every year, particularly in North America where last year's conference received an attendance of 340. Attendance at conferences held in Europe, on the other hand, tends to be only slight more than two-thirds that in North America, indicating that the field has a stronger hold in North America.

The breakdown of participants in this year's conference held in Baden-Baden was 65% Europeans, 25% North Americans, and 10% Asians. The vitalization of industry in Europe was a major topic of discussion.

The conference opened with a greeting from Dr. Sigrun Lang, the mayor of Baden-Baden. She related how the city had a rich history in which it prospered as a high-class resort for kings, emperors, and noblemen and has long been a behind-the-scenes political arena. She expressed her hope that COMS 2005 would serve as a venue for new and important discussions, as when Charles de Gaulle held his private meetings there.

Later, Dr. Wolfgang Stöffler of the BMBF-Federal Ministry of Education and Research in Germany proclaimed that the German government has invested much in micro and nano technology and has great expectations for the field. As Dr. Stöffler had to attend to other business matters, his deputy Carsten Diehl reported on how the MNT industry had achieved recognition as an important industry in Germany by reaching a

market share of 4.2 billion euros in 2003 by itself, creating 49 thousand jobs and as many as 680 thousand jobs when including related industries. He indicated that the industry from innovation to the development of industrial technology was receiving resolute support.

Themes in the keynote session and plenary session included successful case studies on issues facing the micro nano industry, citing Bosch as one successful enterprise. Other presenters talked about the MNT businesses in Germany, Holland, and Switzerland, while others emphasized that a national system for providing support to MNT in the nation or region had been strengthened, or advocated the nurturing of entrepreneurs and the like. While I was impressed with how the Europeans countries were actively engaged in the MNT industry nationwide, there were remarks that the EU procedures for MNT programs were complex and inflexible, providing little actual help for industrialization and being particularly ineffective for small businesses.

Overall, the presentations appeared to be stressing the need for cooperation among industry, government, and academia, intensifying activities to support entrepreneurs and a broad range of businesses, and advocating the need to establish a commercialization center by promoting its usefulness.

In connection with this, it was also striking to see how European countries work actively to industrialize MNT in their local industries. Steady activities to commercialize micromechanical parts, traditionally thought to be far removed from MEMS industrialization, have been nurtured through sound national support. One example can be seen in Switzerland in the supply of parts to watch-related industries. This year's conference included a tour of Forschungszentrum Karlsruhe, a research institute under the German government. On the expansive grounds of the institute, the birthplace of the LIGA technology, work is carried out on parts industrialization and on producing machines and heat exchanger parts through a unique method of micromachining metal and ceramic materials. These approaches toward parts other than semiconductors could serve as a reference for future undertakings in micromachines.

The representative of Micralyne Inc., a Canadian foundry, remarked that there is not likely to emerge another "killer app" for the MEMS industry, and most growth in the industry will come about by the steady production of small volume, high added value products. He emphasized that foundry customers must design their products within the technological capacity of

the foundry rather than trying too hard to produce something unusual, undertake due diligence in manufacturing their products, and educate themselves on the framework of commercialization, including new products and required investment. We would be wise to carefully consider this advice in Japan, as well.

