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## Topic

# Developing an Infrastructure for the MEMS Industry

**Keiichi Aoyagi**, Executive Director of the Micromachine Center

The establishment of fundamental technologies in the field of micro/nano technology, including micromachines and Micro Electro Mechanical Systems (MEMS), would further strengthen Japan's industrial competitiveness, which is currently reliant on advanced technologies. This action might be just what Japan needs to ride out the current economic downturn.

To this end, the Micromachine Center (MMC) is focusing its 2009 projects and activities on further reinforcing the infrastructure of the MEMS industry. Specifically, we have been engaged in activities aimed at contributing to Japan's industrial development and to the international community as a whole. For example, we have established micro/nano-related technology development projects through collaboration among industry, government, and academia and have endeavored to make the results of the fundamental technologies developed in these programs widely available. Beginning this year, we have also been developing an administrative system capable of creating a better environment for promoting the industrialization of micro/nano devices. Our activities include conducting investigative research, promoting standardization, and encouraging the dissemination of research findings, as well as holding MEMS conferences to hear policy recommendations and encourage industrial exchange and vitalization.

The Highly Integrated, Complex MEMS Production Technology Development Project, more commonly referred to as the Fine MEMS Project, is a three-year project that began in 2006 and was completed in the last fiscal year. Since the original goals of the project were achieved satisfactorily, this year we will focus on disseminating and promoting the project's achievements related to the fine MEMS knowledge database and the newly developed MEMS equivalent circuit generator and on creating a support system for commercializing these achievements through continuous involvement in such

projects. Further, we will actively move to develop an outline for firmly establishing fine MEMS and other advanced MEMS in Japan's industry and to write up drafts and proposals for plans related to relevant R&D projects.

The Project to Develop Next-Generation Device Manufacturing Technologies that Fuse Different Fields, more commonly referred to as the BEANS (Bio Electro-Mechanical Autonomous Nano Systems) Project, is a five-year commissioned project that began in 2008. Though only one year of the project has been completed, we are already beginning to see solid achievements in the form of 27 academic presentations, 2 research papers, and 10 patent applications. In addition, the media has devoted much coverage to the project's accomplishments.

Beginning from this, the second year of the project, the BEANS Laboratory will serve as the main association responsible for implementing the project, with MMC participating as a member of the association. In order to ensure continued smooth implementation of the project, MMC will work in concert with the BEANS Laboratory, providing such support as human and financial resources.

MMC is also involved in developing a MEMS foundry as a framework for supporting MEMS commercialization in Japan.

A milestone will be reached when Exhibition Micromachine/MEMS is held for the 20<sup>th</sup> time in Tokyo in 2009. The 20<sup>th</sup> Exhibition Micromachine/MEMS is scheduled for three days on July 29–31, 2009 (Wed–Fri) at Tokyo Big Sight, East Hall 5. MMC and the Beans Laboratory are currently preparing visual aids for an exhibit to outline the BEANS Project and describe its achievements thus far.

Finally, I would like to ask for your continued and unwavering kindness toward MMC's activities together with your understanding and support for the BEANS Laboratory, which launched its operations in April of this year.



MMC Director Tamotsu Nomakuchi speaking at an event to celebrate the founding of the BEANS Laboratory (April 23, 2009)



Takeshi Yonemura, director of the Industrial Machinery Division, METI speaking at the same event