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## Industry-academia collaboration in science and technology

Endeavors of individual scientists and engineers of outstanding ability produced formerly new scientific concepts and new products. Today, however, the era of individuals is over and is superseded increasingly by industry-academia or industry-government-academia collaboration.

Associate Professor Yukio Nozaki, featured in this issue, is currently collaborating with businesses in conducting verification of behavior of recording modes to develop the next-generation hard disk with a recording density exceeding 1 terabit ( $10^{12}$  bits) per square inch. Behavior tests using mass-produced hard disk media have confirmed the validity of the recording mode now being studied. The next step is to conduct

experiments with next-generation recording media capable of magnetic recording of even smaller bits.

If this becomes a reality, it will provide a major momentum to the development of the next-generation recorder capable of extended recording of ultra high-definition video image (its resolution being 16 times that of the current full HD). Expectations are also high for this technology, as it will contribute to making significantly smaller and much more power-efficient data centers currently operated by businesses to store enormous volumes of data.

Mr. Nozaki remarks, "To spread our new recording system as a standard system for next-generation hard disks, it is also necessary to develop compatible recording media and new signal processing technology in addition to the development of recording/playback heads. In the days ahead, I want to realize practical use of this system by promoting research hand-in-hand with the businesses concerned."

In order to promote such collaboration, Keio University Faculty and Graduate School of Science and Technology maintain the Keio Leading-edge Laboratory of Science and Technology (KLL) as a unit of liaison for industry-government-academia collaboration. Not only does KLL disseminate research seeds, but it also plays an active role in the promotion of joint research projects by bridging researchers' desires for realizing practical development, like Mr. Nozaki's case, with needs of interested businesses.

Furthermore, KLL offers the annual KEIO TECHNO-MALL science and technology exposition and industry-academia seminars as opportunities for interaction with the industry. With these events as impetuses, businesses approach Keio for establishing tie-ups, which leads to the start of new joint research projects and various other positive activities.

In the academic year 2011, these activities resulted in as many as over 300 industry-government-academia collaboration projects.

## Science and Technology Information

**Proceedings of the "Strategic Management Chair for Creating Innovations (a Sony-donated chair). Open Symposium 2011:**

**Toward a New Phase of Development of Humankind and the Future, III"**

**compiled by Mario Tokoro, Chairman and CEO of Sony Computer Laboratories, Inc.**

**To be put on the market August 31, 2012**

<http://www.keio-up.co.jp/>

This series of symposia – "Toward a New Phase of Development of Humankind and the Future" – was launched in 2009 in a joint project between Keio University and Sony Corporation with the aim of fostering up-and-coming scientists and engineers. To conclude the 4-event series of symposia held during the academic year 2011, the last volume of the proceedings of the symposia will be published soon. Orders are accepted via the above Keio University Press URL.

## Other Events on the Agenda

- October 19 (Fri.), 2012: The 15th KLL Industry-Academia Collaboration Seminar
  - December 7 (Fri.), 2012: The 13th KEIO TECHNO-MALL
  - February 22 (Fri.), 2013: The 16th KLL Industry-Academia Collaboration Seminar
- Details of these events will be uploaded on Keio University's Leading-edge Laboratory of Science and Technology's (KLL) website (<http://www.kll.keio.ac.jp/>).

## Editor's postscript

This is the 10th issue of the new "Kyurizukai" since this bulletin was launched in 2009. Compared with the previous issues, from this issue on we will include something new on the front cover: a photo of the featured researcher having something in his or her hand. For this particular issue, we used a photo of Associate Professor Nozaki holding a toy gyroscope in connection with his research theme "spin."

For photographing, Mr. Nozaki himself wound a string around the gyroscope. When doing so, he looked just like a young boy playing with a spinning top. Naturally, the atmosphere there became relaxed and the photo could capture a relaxed expression just like Mr. Nozaki's.

Mr. Nozaki seems to represent an agreeable image (my image) of Keio Faculty of Science and Technology researchers – earnest, gentle, and serious about both education and research work. He is readily accessible by phone because he spends most of the time at his lab. Though he is conscious of engagement, he sometimes forgets a deadline when too busy. But he responds in haste (and willingly) when urged.

A total of ten researchers appeared in the ten issues (including this one) published so far. Though they vary widely in their personalities and fields of research, they seem to collectively convey the atmosphere unique to our Yagami Campus. I hope that our readers will read all of them again and appreciate that atmosphere. The new "Kyurizukai" will continue to introduce attractive profiles of our proud researchers.

(Saori Taira)



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