

PRESS RELEASE

Toyohashi University of Technology (Toyohashi Tech) will hold an international symposium on 15th and 16th November 2010 to celebrate the launch of its Electronics-Inspired Interdisciplinary Research Institute (EIIRIS). The symposia will be streamed live via the internet.

The symposia will include invited talks by world leaders in nanotechnology, life sciences, information technology and science publishing.

The invited speakers include Hiroyuki Sakaki (Toyota Technological Institute), Hiroaki Kitano (Sony Computer Science Laboratories Inc.), Mitsuo Kawato (ATR Brain Information Communication Research Laboratory Group), Shigetada Nakanishi (Osaka Bioscience Institute), David Swinbanks (Nature Publishing Group Asia-Pacific), Jane Roscoe (Institute of Physics Publishing), and Teruo Fujii (University of Tokyo) and Hiroyuki Fujita (University of Tokyo).

Some research conducted at EIIRIS and at other renowned institutions in Japan will be presented, including:

- Haptic Technologies for Teleoperation and Telecommunication
- A New Artificial Nose-Odorant Sensor using Frog Eggs Expressing Chemical Receptors
- Mysteries of the Mammalian Clock - Adjustment of circadian rhythms using photo-switched bio-nano-machine in pacemaker neuron
- Advances in the Applications of Microfluidic Devices
- Development of Bioprobe Integrated with Hollow Nanoneedle for Cellular Function Analysis
- Molecules manipulation and characterization with silicon nanotweezers
- Monolithic Integration of CMOS Circuits and N/MEMS Actuators for Optical Applications
- Non-invasive assessment of erythema in allergic dermatitis by near-infrared spectral imaging
- Applications of Optical MEMS

For live streaming of the event, please go to the EIIRIS website: <http://www.eiiris.tut.ac.jp>

Further information about Toyohashi University of Technology and EIIRIS

Toyohashi University of Technology (Toyohashi Tech) is one of Japan's most dynamic science and technology based universities. Founded in 1976, the university is a vibrant modern institute with research activities reflecting the modern era of advanced electronics and engineering.

The Electronics-Inspired Interdisciplinary Research Institute (EIIRIS) is Toyohashi Tech's new flagship

research complex. "The aim of EIIRIS is to produce world-class innovative research," says President Yoshiyuki Sakaki, internationally renowned molecular biologist who led Japan's International Human Genome Project. "To do this we are bringing together ambitious young researchers from diverse fields to collaborate on pioneering new frontiers in science such as brain/neuro-electronics as well as tackling some of the major issues mankind faces today: issues such as environmental changes and aging societies."

The Electronics-Inspired Interdisciplinary Research Institute consists of a new 1500 m² dedicated building constructed with funding from MEXT and completed in October 2010. The new building is connected to the adjacent 2300 m² VBL via a corridor on the third floor between the buildings, enabling ready access to the LSI-fab and other facilities in the VBL clean rooms. In addition to the faculty members from existing research centers at Toyohashi Tech, EIIRIS has three new research staff including Adarsh Sandhu, who started in April 2010 as tenured professor at EIIRIS; and ten tenure track researchers who were recruited for the Program to Foster Young Researchers in Cutting-Edge Interdisciplinary Research launched in 2009. The tenure track researchers—of whom three are from overseas—have backgrounds including life sciences, biotechnology, neuroscience, robotics, microchips and magnetophotonic devices. The EIIRIS staff share a large open-plan office on the third floor of the new research building for effective communication without walls and barriers. EIIRIS is an extension of the current Global Center of Excellence (G-COE) "Frontiers of Intelligent Sensing" program.

And importantly, EIIRIS puts Toyohashi Tech on the world stage as a center for conducting innovative, world class interdisciplinary research. Toyohashi Tech welcomes scientists and engineers from all over the world to collaborate with researchers at EIIRIS to test ideas, and create new paradigms based on electronics-inspired interdisciplinary research.

Further information

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Toyohashi University of Technology website:

<http://www.tut.ac.jp/english/>

ANNEX 1 - Program for the symposium

Monday 15th November 2010

Master of ceremonies, Adarsh Sandhu, EIIRIS

13:30-13:40 Opening Remarks - *Yoshiyuki Sakaki, President, Toyohashi University of Technology*

13:40-14:00 Introduction to EIIRIS - *Makoto Ishida, Director, Electronics-Inspired Interdisciplinary Research Institute*

Invited talks

14:00-14:40 “Quantum Control of Electrons by Semiconductor Nanostructures and Its Applications for Advanced Electronics” - *Hiroyuki Sakaki, President, Toyota Technological Institute*

14:40-15:20 “From Medical BMI to Brain Communication” - *Mitsuo Kawato, Director, ATR Brain Information Communication Research Laboratory Group*

15:20-15:40 Break

15:40-16:20 “Act Beyond Borders” - *Hiroaki Kitano, Director, Sony Computer Science Laboratories, Inc.*

16:20-17:00 “From Molecular to Systems Neuroscience” - *Shigetada Nakanishi, Director, Osaka Bioscience Institute*

17:00-17:40 “Evolution of Science Publishing in the Asia Pacific” - *David Swinbanks, CEO NPG Nature Asia-Pacific*

17:40-Closing Remarks - *Yasuyoshi Inagaki, Executive Trustee, Vice President, Toyohashi University of Technology*

Tuesday 16th November 2010

10:00 Opening remarks - *Makoto Ishida, Director of EIIRIS, Toyohashi University of Technology*

10:15-11:15 Plenary Talk “Advances in MEMS based on Interdisciplinary Research” - *Hiroyuki Fujita, The University of Tokyo*

Session I

11:15-11:35 “Haptic Technologies for Teleoperation and Telecommunication” - *Dzmitry Tsetseru (Tenure-Track Program to Foster Young Researchers in Cutting-Edge Interdisciplinary Research, EIIRIS)*

11:35-11:55 "A New Artificial Nose-Odorant Sensor using Frog Eggs Expressing Chemical Receptors" - *Nobuo Misawa, Tenure-Track Program to Foster Young Researchers in Cutting-Edge Interdisciplinary Research, EIIRIS*

11:55-12:15 "Mysteries of the Mammalian Clock- Adjustment of circadian rhythms using photo-switched bio-nano-machine in pacemaker neuron" - *Rika Numano, Tenure-Track Program to Foster Young Researchers in Cutting-Edge Interdisciplinary Research, EIIRIS*

12:15-14:30 Lunch & Poster presentation

Session II

14:30-15:00 "Publishing in an International Journal. Why publish; how to prepare a paper for peer-review; and suggestions for increasing citations" - *Jane Roscoe, Head of business development at Institute of Physics Publishing (UK)*

15:00-15:20 "Advances in the Applications of Microfluidic Devices and Expectations of Interdisciplinary Research" - *Teruo Fujii, Institute of Industrial Science, University of Tokyo*

15:20-15:40 "Development of Bioprobe Integrated with Hollow Nanoneedle for Cellular Function Analysis" - *Norihisa Kato, Global Center of Excellence, Toyohashi University of Technology*

15:40-16:00 "Molecules manipulation and characterization with silicon nanotweezers" - *Dominique Collard, Momoko Kumemura and Hiroyuki Fujita, The University of Tokyo*

16:00-16:20 "Monolithic Integration of CMOS Circuits and N/MEMS Actuators for Optical Applications" - *Kazuhiro Takahashi, Global Center of Excellence Program, Toyohashi University of Technology*

16:20-16:40 "Non-invasive assessment of erythema in allergic dermatitis by near-infrared spectral imaging"- *Ken Nishino, Global Center of Excellence Program, Toyohashi University of Technology*

16:40-17:00 "Applications of Optical MEMS" - *Hiroshi Toshiyoshi, The University of Tokyo*



Figure 1 - Poster for EIRIS Symposium on 16th November



Fig.2: Photographs of the EIRIS building

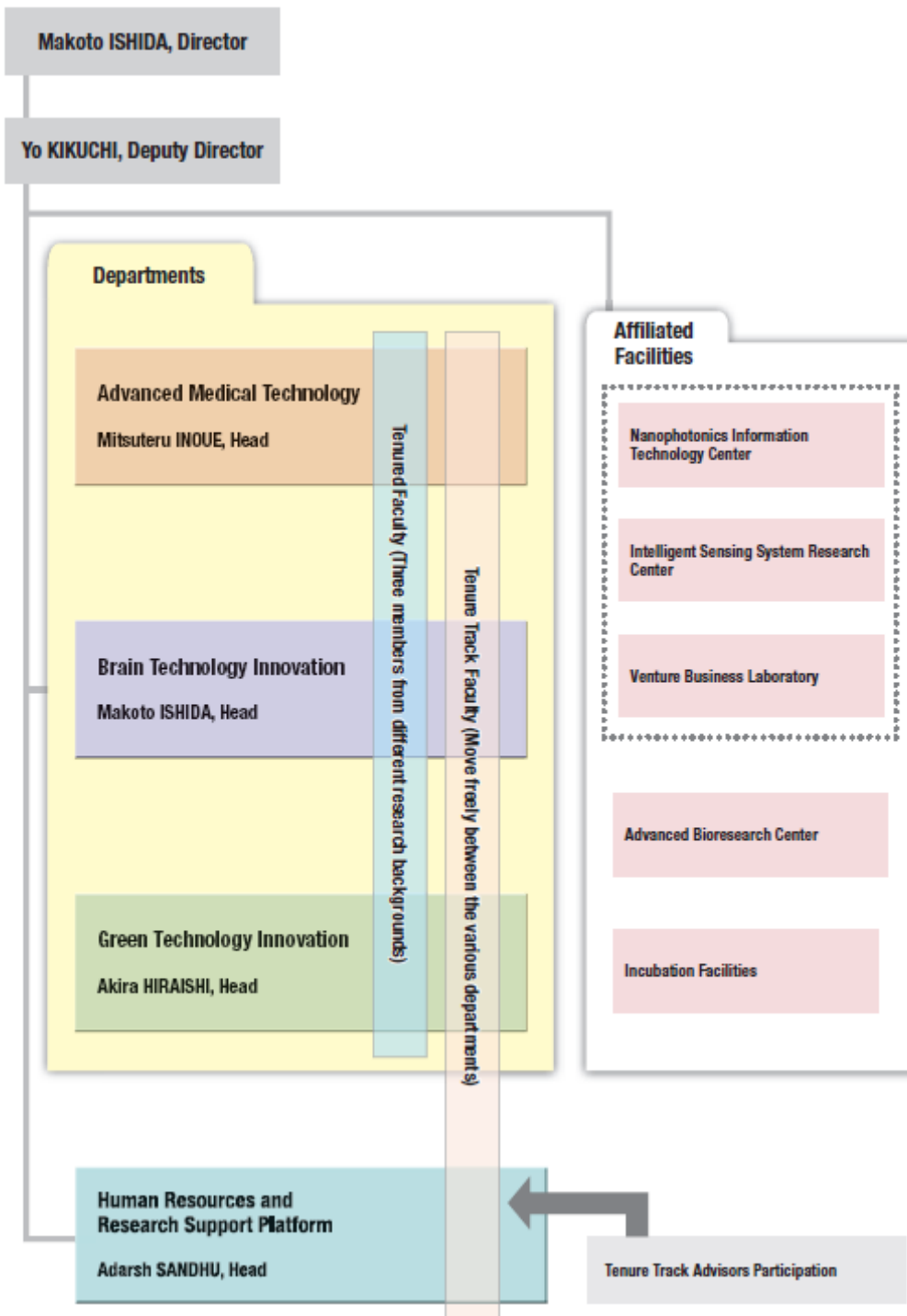


Fig. 3 : Infrastructure of EIRIS - Makoto Ishida is Toyohashi Tech’s vice president for research affairs and director of EIRIS. EIRIS consists of the following departments and managers - Advanced Medical Technology (Mitsuteru Inoue), Brain Technology (Makoto Ishida), Green Technology (Akira Hiraishi) and Research and Human Resources Support- Platform (Adarsh Sandhu)

Research Departments and Associated Research Centers

Advanced Medical Technology

Advanced Medical Data Storage

- Holography, Ultra high-speed optical modulation
- Storage of all medical images, Lifetime medical data card

Photonic Medical Information Processing

- Photonic image processing (Medical image data processing)
- Ultra high speed reliable medicine based on optical computing
- Integrated, ultra high sensitive room temperature magnetic field sensor for processing information of living organisms

Photonic Medical Information Display

- 3D display
- Real-time display of movement of living organisms

Faculty

Mitsuteru INOUE, Mitsuo FUKUDA, Akihiro WAKAHARA, Atsunori MATSUDA, Takayuki SHIBATA, Adarsh SANDHU

Support Research Center

Nanophotonics Information Technology Research Center

Brain Technology Innovation

Neuro Sensing

- Imaging neural transmission materials, Real time measurement and control of neural circuits and networks
- Treatment of incurable neurological diseases and drug discovery

Brain Engineering

- Control and measurement of neural circuits and networks, Optical control of brain function
- Sensory reproduction, Motor function reproduction

Mind Reading

- Decoding brain information
- Technology to understand the brain and thought processes

Faculty

Makoto ISHIDA, Shigeki NAKAUCHI, Kazuhiko TERASHIMA, Jun MIURA, Junsei HORIKAWA, Michiteru KITAZAKI

Support Research Center

Intelligent Sensing System Research Center

Green Technology Innovation

Intelligent Green House Development

- Photovoltaics-based plant factory
- Multimodal sensor
- Sustainable food production systems

Technology for Purification and Monitoring the Environment

- Advanced water treatment technology
- Reduction of the environmental impact of agriculture and food production
- Suppression of greenhouse gases (methane, nitrous oxide)

Advanced Genomics

- RNA engineering
- Functional genomics
- Biosensor technology

Faculty

Akira HIRAISHI, Yo KIKUCHI, Kazuaki SAWADA, Seiji IWASA, Toshihiko EKI

Support Research Center

Advanced Agriculture and Bioresearch Center

Fig. 4: Details about the research themes at EIIRIS

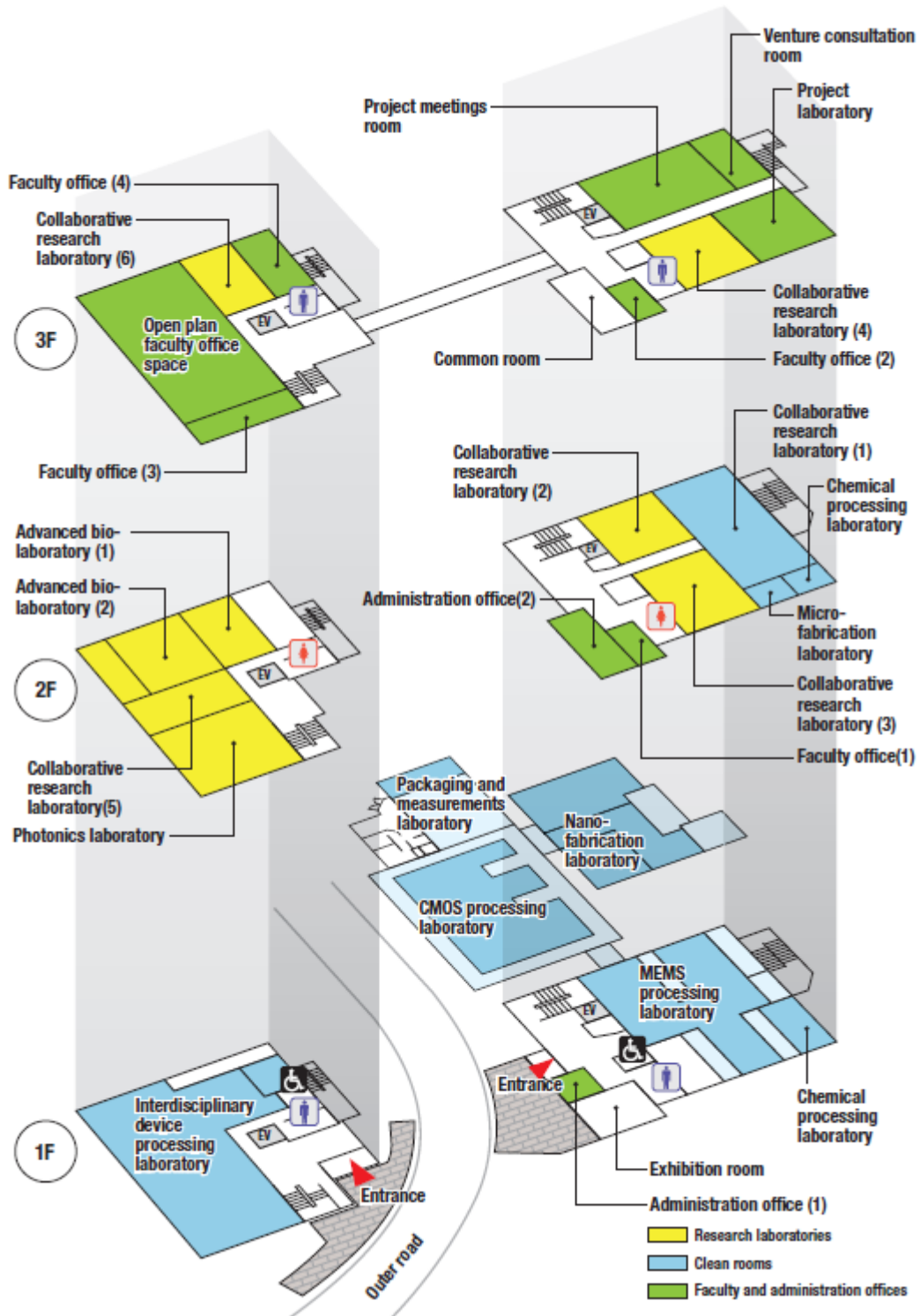


Fig. 5: The EIIRIS buildings