



# Tohoku Univ. – imec Seminar 2015

## Sendai Symposium on Analytical Science 2015

### *Joint Seminar on "Unobtrusive Sensing & Daily Health Screening"*



13<sup>th</sup> November 2015 9:00~18:00

Conference room in Graduate School of Engineering,  
Tohoku University

# Program

	Tohoku University	IMEC
9:00-9:30	Welcome coffee	
9:30-9:40	Opening remark and greetings, Prof. Masayoshi Esashi, Director of Microsystem Integration Center	
9:40-9:50		Greetings and introduction, Prof. Jo De Boeck, Senior Vice-president and CTO
9:50-10:10	Prof. Tomokazu Matsue, Advanced Institute of Materials Research and Graduate School of Environmental Studies, "Introduction of COI-STREAM and Integrated Electrochemical Devices"	
10:10-10:30		Prof. Peter Peumans, Program Director Life Science Technologies, "Semiconductor technologies for healthcare applications"
10:30-10:50	Coffee break	
10:50-11:10	Prof. Takahito Ono, Department of Mechanical Systems and Design, Microsystem Integration Center, "Biomedical chips with integrated thermal sensor"	
11:10-11:30		Dr. Xavier Rottenberg, Principal Scientist and Team Leader, Photonic and Acoustic Microsystems, "Integrated photonic platform in the visible and NIR geared for bio-applications"
11:30-11:50	Prof. Makoto Yoshizawa, Cyberscience Center and Department of Electrical Engineering, "Body Video Image Analysis for Remote Health Monitoring"	
11:50-12:10		Dr. Lars Grieten, Senior Researcher, Wearable Health Solutions at IMEC and Visiting Professor, Mobile Health Unit at University of Hasselt, "Building stones of a longer healthy life: prevention, cure and care using wearables for the dawn of a new health system"
12:10-13:30	Lunch & Poster session organized by COI-STREAM	
13:30-14:10	(Sendai Symposium on Analytical Science by The Japan Society of Analytical Chemistry) Assoc. Prof. Ayumi Hirano-Iwata, Graduate School of Biomedical Engineering, "Reconstitution of ion channel functions in microfabricated silicon chips"	
14:10-14:30	Assoc. Prof. Rihito Kuroda, Department of Management Science and Technology, "Advanced CMOS Image Sensor Development"	
14:30-14:50		Dr. Piet De Moor, Program Manager, Optical Sensors at IMEC and Technical Contact for ESA, "Vision systems developments at imec"
14:50-15:10	Coffee break	
15:10-15:30	Prof. Shuji Tanaka, Department of Bioengineering and Robotics, Microsystem Integration Center, "Development and Application of MEMS tools"	
15:30-15:50		Dr. Harmke De Groot, Department Leader and Program Manager, Perceptive Systems, "An Intuitive of Things: From the hype to the realization of smart environments increasing our well-being, safety and productivity"
15:50-16:10	Prof. Atsushi Momose, Institute of Multidisciplinary Research for Advanced Materials, "X-ray phase imaging with high aspect-ratio gratings fabricated by MEMS"	
16:10-16:30		Prof. Jo De Boeck, Senior Vice-president and CTO, "IMEC initiative to leverage micro/nanotechnologies to improve your life"
16:30-18:00	Lab tour 1, 2) 1) Microsystem Integration Center ( $\mu$ SIC) 2) Fluctuation Free Facility (FFF), New Industry Creation Hatchery Center	

## Poster Presentations

### I1. imec

Microsystems Development from Research to Low Volume Production

#### A1. **Atsuko Masuya-Suzuki**, Kousaku Tamura, Nobuhiko Iki

*(Graduate School of Environmental Studies, Tohoku University)*

Near-infrared Absorbing Pt(II) Complexes as Potential Theranostic Agents

#### A2. **Nobuhiko Iki**, Eszter Boros, Mami Nakamura, Peter Caravan

*(Tohoku Univ. and Harvard Med. School)*

A new molecular motif for MRI contrast agent - a Tri-Gd(III) Cluster Sandwiched by Two TCAS Ligands  
(TCAS = Thiacalix[4]arene-p-tetrasulfonate)

#### A3. **Ushio Naito**<sup>1</sup>, Shukuyo Yamada<sup>1</sup>, Samad Ahadian<sup>2</sup>, Yasuhumi Takahashi<sup>1,2</sup>, Kosuke Ino<sup>1</sup>, Kumi Y. Inoue<sup>1</sup>, Hitoshi Shiku<sup>1</sup>, Tomokazu Matsue<sup>1,2</sup>

*(1Tohoku Univ. Graduate School of Environmental Studies; 2Tohoku Univ. WPI-AIMR)*

Fabrication and functional evaluation of the analytical bipolar electrode device using multi-walled carbon nanotube array

#### A4. **Daisuke Aoki**, Yusuke Sato, Seiichi Nishizawa

*(Department of Chemistry, Graduate School of Science, Tohoku University)*

Abasic site-binding ligands conjugated with cyanine dyes for microRNA detection

### C1. **Kenichi Inaho**

*(Center of Innovation, Tohoku University; Tohoku University Research Administration Center)*

Overview of COI Tohoku Site (Vision)

### C2. **Kenichi Inaho**

*(Center of Innovation, Tohoku University; Tohoku University Research Administration Center)*

Overview of COI Tohoku Site (Development Items)

### C3. **Tsutomu Nakamura**, Shinya Yoshida, Hiroshi Miyaguchi

*(Center of Innovation, Tohoku University)*

Development of Ingestible Sensor Platform for Daily Health Care

### C4. **Hiroshi Hyodo** and Itaru Honma

*(Institute of Multidisciplinary Research for Advanced Materials, Tohoku University)*

Development of metal-free flexible organic battery with high safety

### C5. **Takashi Sasaki**, Luis Rayas Kenta Nakazawa, Kazuhiro Hane

*(Department of Nanomechanics, Graduate School of Engineering, Tohoku University)*

Resonant varifocal mirror using acoustic cavity for amplitude amplification

### C6. **Tomohiro Suzuki**, Sawasdivorn Chernroj, Takashi Sasaki, Kazuhiro Hane

*(Department of Nanomechanics, Graduate School of Engineering, Tohoku University)*

Fabrication and evaluation of tunable submicron-thick monocrystalline silicon grating for high-speed laser beam steering

### C7. **Mizuki Motoyoshi**, Suguru Kameda, Suematsu Noriharu

*(Research Institute of Electrical Communication, Tohoku University)*

Wireless system/devices for intra-body communication

### C8. **Hiroyuki Kai**, Kuniaki Nagamine, Matsuhiko Nishizawa

*(Department of Bioengineering and Robotics, Tohoku University)*

Wet-gel electrode with maximum skin contact



Organized by:

Microsystem Integration Center, Tohoku University

Center of Innovation, Tohoku University

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The Japan Society of Analytical Chemistry, Tohoku Branch

Advanced Institute for Materials Research, Tohoku University

Supported by:

Miyagi Exhibition Center

Aoba Foundation for the Promotion of Engineering