Bio4Apps 2013 Conference Program

Program at a Glance

**Tuesday, October 29, 2013**

16:30-18:00  Previous Registration (without reception party)

**Wednesday, October 30, 2013**

08:30-09:30  Registration
09:30-09:40  Opening Ceremony
09:40-10:50  Session-A: Medical-MEMS and Instrumentations
10:50-11:15  Coffee Break & Poster
11:15-12:45  Session-B: Health and Medical Care
12:45-14:10  Lunch (& Poster)
14:10-15:50  Session-C: Bioelectronics and Bioengineering
15:55-17:25  Poster Session & Coffee Break
17:30-18:10  Plenary Lecture
18:30-        Banquet

**Thursday, October 31, 2013**

08:30-09:00  Registration
09:00-10:25  Session-D: Medical Devices and Applications
10:25-10:50  Coffee Break & Poster
10:50-12:35  Session-E: Biosensors and “Sensing Biology”
12:35-13:50  Lunch (& Poster)
15:55-16:10  Closing Ceremony
Bio4Apps 2013 Conference Agenda – Day 1

Opening Ceremony
(Akio Suzuki Memorial Hall, M&D Tower 2nd Floor)
9:30-9:40

Opening Address
General Chair
Prof. Kohji Mitsubayashi, Institute of Biomaterials and Bioengineering (IBB)
Tokyo Medical and Dental University (TMDU)

TMDU-IBB Director Speech
IBB Director
Prof. Takao Hanawa, Institute of Biomaterials and Bioengineering (IBB)
Tokyo Medical and Dental University (TMDU)

Session-A: Medical-MEMS and Instrumentations
9:40-10:50
(Chair: Prof. Yuji Miyahara and Prof. Yi Chiu)

Keynote
9:40-10:05
Prof. Jun Ohta, Nara Institute of Science and Technology, JAPAN
KEY-1A-1 Integrated Microphotonic Devices for Biomedical Applications

10:05-10:20
Prof. Hao-Chiao Hong, National Chiao Tung University, TAIWAN
O-1A-2 Design of an Ultra-Low Power SAR ADC for Biomedical Applications

10:20-10:35
Dr. Keiichiro Yamanaka, Osaka University, JAPAN
O-1A-3 Microfluidic RT-PCR Chip and Electrochemical DNA Sensor for on-site Detection of Influenza Virus

10:35-10:50
Ms. Ruzhi Zhang, Tokyo Institute of Technology, JAPAN
O-1A-4 Fabrication of Multifunctional Magnetic Gold Nanocapsules for Image-guided Therapy and Drug Delivery

Coffee Break & Poster
10:50-11:15

Session-B: Health and Medical Care
11:15-12:45
(Chair: Prof. Jun Ohta and Prof. Hao-Chiao Hong)

Keynote
11:15-11:40
Prof. Jing-Quan Liu, Shanghai Jiao Tong University, CHINA
KEY-1B-1 Implantable Microdevices for the Rehabilitation of Paralysis
11:40-11:55 Prof. Takahiro Ito, Kyushu Institute of Technology, JAPAN
O-1B-2 Impulse-driven Capsule for Medical Treatment - Wireless Implementation -

11:55-12:10 Dr. Han-Chao Chang, National Applied Research Laboratories, TAIWAN
O-1B-3 A Lightweight Fluorescence Diagnostic System for Dermatology

**Invited Talk**
12:10-12:30 Prof. Jin-Chern Chiou, National Chiao Tung University, TAIWAN
INV-1B-4 Wearable, Wireless EEG System and its Clinical Applications

12:30-12:45 Dr. Yoshitaka Kitamoto, Tokyo Institute of Technology, JAPAN
O-1B-5 Porous Magnetic Capsules forMagnetically-Guided Drug Delivery System

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**Lunch (& Poster)**
(Faculty Lounge, 26th Floor M&D Tower)
12:45-14:10

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**Session-C: Bioelectronics and Bioengineering**
14:10-15:50
(Chair: Prof. Jing-Quan Liu and Dr. Yoshitaka Kitamoto)

**Invited Talk**
14:10-14:30 Prof. Yuji Miyahara, Tokyo Medical and Dental University, JAPAN
INV-1C-1 Detection of Biomolecular Recognition using Biotransistors

14:30-14:45 Prof. Jin Xie, Zhejiang University, CHINA
O-1C-2 Characterization of Heavily Doped Polysilicon Films for CMOS MEMS Thermoelectric Power Generators

14:45-15:00 Dr. Koji Matsushita, Fuji Electric Co., Ltd., JAPAN
O-1C-3 Introduction of MEMS Technology in Fuji Electric for Healthcare

**Invited Talk**
15:00-15:20 Prof. Yi Chiu, National Chiao Tung University, TAIWAN
INV-1C-4 Development of Flexible Energy Harvesters for Biomedical Applications

15:20-15:35 Dr. Toshihiko Noda, Nara Institute of Science and Technology, JAPAN
O-1C-5 Intelligent Retinal Prosthetic Device Employs Smart Electrode Array Integrated with CMOS Microchips

15:35-15:50 Prof. Kazuyoshi Yano, Tokyo University of Technology, JAPAN
O-1C-6 Exploration and Characterization of DNA Aptamers Which Bind to CD4

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**Poster Session & Coffee Break**
(Foyer, 2nd Floor M&D Tower)
15:55-17:25
Plenary Lecture
17:30-18:10
(Chair: Prof. Kohji Mitsubayashi and Prof. Chengkuo Lee)

17:30-18:10 Prof. Koji Suzuki, Keio University, JAPAN
Design of Bioimaging Probes Based on Dyes and Ionophores

Banquet
(Faculty Lounge, 26th Floor M&D Tower)
18:30-
Session-D: Medical Devices and Applications  
9:00-10:25  
(Chair: Prof. Kazusuke Maenaka and Prof. Chaoyong Yang)

**Invited Talk**
9:00-9:20  Prof. Jin Ming Kong, Nanjing University of Science & Technology, CHINA  
INV-2D-1  A Carbohydrate Mediated Signal Amplification for Ultrasensitive DNA Detection

9:20-9:35  Dr. Kosuke Nozaki, Tokyo Medical and Dental University, JAPAN  
O-2D-2  Enhanced Osteoinductivity of Titanium Implant with Controlled Surface Charge

9:35-9:50  Mr. Chia-Hsien Lin, Chiba University, JAPAN  
O-2D-3  Dual-mode Wearable Antenna for Personal Healthcare System

**Invited Talk**
9:50-10:10  Prof. Kenji Kawashima, Tokyo Medical and Dental University, JAPAN  
INV-2D-4  Surgical Robot System with Force Perception

10:10-10:25  Dr. Yoshihiro Sasaki, Kyoto University, JAPAN  
O-2D-5  Tailor-made Lipid Membrane Engineering: Lipid Nanotube Networks for Nanofluidics

**Coffee Break & Poster**  
10:25-10:50

Session-E: Biosensors and “Sensing Biology”  
10:50-12:35  
(Chair: Prof. Jin Ming Kong and Prof. Kenji Kawashima)

**Keynote**
10:50-11:15  Prof. Wei-Cheng Tian, National Taiwan University, TAIWAN  
KEY-2E-1  Analytical Micro & Nano Devices & Systems for Biomedical Applications

11:15-11:30  Dr. Takashi Sakurai, Toyohashi University of Technology, JAPAN  
O-2E-2  2D Real-Time Analysis of Neurotransmitter Releases by an Ion Image Sensor-based Chemical Microscopy

11:30-11:45  Prof. Izumi Kubo, Soka University, JAPAN  
O-2E-3  Hot Cell-Direct PCR of Isolated Single Cells on a Microfluidic Device for the Genomic Quantification

**Invited Talk**
11:45-12:05  Prof. Xiaojun Han, Harbin Institute of Technology, CHINA  
INV-2E-4  Electrochemiluminescence Immunosensors Based on Nanomaterials for HepG2 Cell Detection

12:05-12:20  Dr. Hidefumi Mitsuno, The University of Tokyo, JAPAN  
O-2E-5  Performance Evaluation of Sf21 Cell Lines Expressing Insect Odorant Receptors as Odorant Sensor Elements
12:20-12:35  Dr. Hiroshi Aoki, National Institute of Advanced Industrial Science and Technology, JAPAN  
O-2E-6  Electrochemical Label-Free Nucleotide Sensors for RNA Analysis

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Lunch (& Poster)  
(Faculty Lounge, 26th Floor M&D Tower)  
12:35-13:50

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Session-F: BioNEMS & MEMS  
13:50-15:55  
(Chair: Prof. Wei-Cheng Tian and Dr. Hiroshi Aoki)

**Keynote**  
13:50-14:15  Prof. Kazusuke Maenaka, University of Hyogo, JAPAN  
KEY-2F-1  Demonstration Model for Human Activity Monitoring in a Shape of Adhesive Plaster

14:15-14:30  Prof. Bin Yang, Shanghai Jiao Tong University, CHINA  
O-2F-2  MEMS-based Piezoelectric Energy Harvester Based on Bulk PZT Bonding Technologies

14:30-14:45  Dr. Naoya Takeda, Waseda University, JAPAN  
O-2F-3  Differentiation of Mesenchymal Stem Cell on Nano Pattern Fabricated on the Mask Material for Electron Beam Lithography

**Invited Talk**  
14:45-15:05  Prof. Chaoyong Yang, Xiamen University, CHINA  
INV-2F-4  Massively Parallel Single-Molecule PCR in Microfluidic Agarose Droplets for Bioanalysis and Biotechnology

15:05-15:20  Mr. Chuan Zhang, Shanghai Jiao Tong University, CHINA  
O-2F-5  Implantable MEMS Electrode for Creating a Cyborg Fish

15:20-15:35  Dr. Takashi Tokuda, Nara Institute of Science and Technology, JAPAN  
O-2F-6  CMOS-based Neural Interface Device with Integrated Micro Light Source Array for Optogenetics

**Invited Talk**  
15:35-15:55  Prof. Chengkuo Lee, National University of Singapore, SINGAPORE  
INV-2F-7  Microneedle Array Integrated with Nanofilter for Selective Drug Delivery

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Closing Ceremony  
15:55-16:10
Poster Session
(Foyer, 2nd Floor M&D Tower)

Coffee Break & Poster 10:50-11:15, October 30
Lunch & (Poster) 12:45-14:10, October 30
Poster Session & Coffee Break 15:55-17:25, October 30
Coffee Break & Poster 10:25-10:50, October 31
Lunch & (Poster) 12:35-13:50, October 31

BioSensors

PS-1 Toshikazu Kawamura, Nara Institute of Science and Technology, JAPAN
Development of a CMOS-Based Implantable Glucose Monitoring Device Using Glucose-Sensitive Fluorescent Hydrogel

PS-2 Zhen Yang, VIYIA Ltd, JAPAN
Microfabrication inside a Clean Bench

PS-3 Yoshihiro Kase, Shibaura Institute of Technology, JAPAN
An Electron Transfer-Mediated Amperometric Biosensor Based on Plasma-Polymerized Thin Film

PS-4 Naoki Nagatani, Okayama University of Science, JAPAN
Detection of Amplified DNA Using Gold Nanoparticles Based-Biosensor

PS-5 Satoshi Koide, TANITA Co., JAPAN
Development of a Micro-Planar Amperometric Glutamate Sensor

PS-6 Seiichi Takamatsu, National Institute of Advanced Industrial Science and Technology, JAPAN
Development of Weaving System for Fabric Human Position Sensor

PS-7 Shuhei Imura, Osaka University, JAPAN
Single-Beam Optical Biosensing Based on Horseradish Peroxidase

PS-8 Akiteru Kono, Toyohashi University of Technology, JAPAN
2D Real-Time Analysis of Neuronal Function Studied by Novel K+ Imaging System

PS-9 Kouta Harisaki, Kyushu University, JAPAN
Shearing Force Measurement Device with a Built-In Integrated Micro Displacement Sensor

PS-10 Hirofumi Nogami, Advanced Institute of Science and Technology, JAPAN
Flexible Temperature Sensor for an Early Diagnosis System of Pneumonia in Calves

PS-11 Wilfred Espulgar, Osaka University, JAPAN
Microfluidic Chip for Cardiomyocyte Study

PS-12 Hiromi Yatsuda, Japan Radio Co. Ltd., JAPAN
SH-SAW Biosensors for Home Diagnostics

PS-13 Tsubasa Saito, Soka University, JAPAN
The Rapid Detection of α-Fetoprotein(AFP) with Use of a Microfluidic Disc for ELISA
BioElectronics

PE-1    Chien-Hung Chen, Instrument Technology Research Center, TAIWAN
Pulse Gate Voltage Using in Nano-Wire FET Applications

PE-2    Norimitsu Wakama, Nara Institute of Science and Technology, JAPAN
Application Demonstration of Polarization-Analyzing CMOS Image Sensor for Micro-Chemical Systems

PE-3    Miyuki Tabata, Tokyo Medical and Dental University, JAPAN
Fabrication and Electrochemical Properties of the Self-assembled Monolayer/AgCl Mixed Surface

PE-4    Nobuo Misawa, Toyohashi University of Technology, JAPAN
Fabrication of Microelectrodes for Compact Two-electrode Voltage Clamping System

PE-5    Chiemi Oka, Tokyo Institute of Technology, JAPAN
Preparation of Magnetic and Biodegradable Beads for Drug Carrier

PE-6    Yasunori Tada, Gunma University, JAPAN
Characteristics of a Stretchable Conductive Ink Wire

PE-7    Yau Ka Ho, Hong Kong University of Science and Technology, CHINA
High-Throughput Detection of Microorganisms Using Capillary Electrophoresis System

PE-8    Takashi Kogai, Japan Radio Co. Ltd., JAPAN
Surface Acoustic Wave Biosensors for Point-of-Care Testing Applications

PE-9    Nanako Yuyama, Kokushikan University, JAPAN
Electromagnetic Field Analysis of Body Area Communication Using Electromagnetic Resonance Coupling

BioMedical Devices

PM-1    Ying Lin, National Taiwan University, TAIWAN
Determining Autonomic Nervous States of Suicidal Patients with Respiratory Sinus

PM-2    Yusuke Tsutsumi, Tokyo Medical and Dental University, JAPAN
Enhancement in Biocompatibility of Metallic Biomaterials by Micro-Arc Oxidation Treatments

PM-3    Makito Haruta, Nara Institute of Science and Technology, JAPAN
Development of an Implantable Imaging Device for Observation of Intrinsic Signals in the Brain

PM-4    Sho Hosokawa, Tokyo National College of Technology, JAPAN
Prototyping of a Blood Sampling Simulator Using Haptic Technology

PM-5    Naohiro Horiuchi, Tokyo Medical and Dental University, JAPAN
Evaluation of Electric Field on Polarized Hydroxyapatite Using Vibrating Electrode

PM-6    Dairoku Muramatsu, The University of Tokyo, JAPAN
Evaluation of Homogenous Medium Model for Analyses in Human Body Communication Characteristics
PM-7  Shuhei Takeuchi, Tokyo Medical and Dental University, JAPAN
Pharyngeal Manometry with an Optic-Fiber Sensor for Swallowing Analysis

PM-8  Yiwei Shu, Hong Kong University of Science and Technology, CHINA
A Simple Multi-Chamber Sensitive PCR Microchip for Diseases Verification and Genotype Identification

PM-9  Takashi Yonekura, Iwate University, JAPAN
Relationship between Psychosomatic Stress and Salivary Cortisol in Junior High School Students

PM-10  Misaki Kurosu, Kokushikan University, JAPAN
Human Body Communication between Wearable and Stationary Devices

PM-11  Tsuyoshi Kimura, Tokyo Medical and Dental University, JAPAN
Regeneration of cornea by deep lamellar keratoplasty with a graft of decellularized corneal matrix

BioNEMS & BioMEMS

PNM-1  Songsong Zhang, National University of Singapore, SINGAPORE
Piezoresistive Silicon Nanowires Based NEMS Pressure Sensors for Potential Biomedical Applications

PNM-2  Huicong Liu, National University of Singapore, SINGAPORE
Vibration-Based Electromagnetic MEMS Energy Harvester with Multiple Operation Frequencies

PNM-3  Hitomi Oku, Waseda University, JAPAN
Controllable Three-Dimensional Sheath Flow Microfluidic Device Focusing and Embedding Cells in Center of Double Layered Hydrogel Fiber for Tissue Engineering Applications

PNM-4  Hironari Takehara, Nara Institute of Science and Technology, JAPAN
A CMOS Image Sensor Having Stacked Photodiodes for Fluorescence Observation of Digital Enzyme-linked Immunosorbent Assay (ELISA)

PNM-5  Chenyang Jiang, The University of Tokyo, JAPAN
Development of Shape-Memory Polymer Microvalve and Its Evaluation Using Fluorescence Spectroscopy

PNM-6  Takaaki Fujisawa, Kokushikan University, JAPAN
Input Impedance Characteristics of Horseshoe-Shaped Electrode for Intra-Body Communication

PNM-7  Naoki Shozen, Soka University, JAPAN
Analysis of Gene Expression Using a Microfluidic Disc for Single Cell Isolation

PNM-8  Nami Hanamura, The University of Tokyo, JAPAN
Characterization of Individual Exosomes Using On-Chip Microcapillary Electrophoresis

PNM-9  Cheng-Kun He, National Chung Hsing University, TAIWAN
Dual-well Microdevice for Single Cell Trapping and Culture

PNM-10  Yuichiro Kiriyama, Osaka University, JAPAN
Research of PCR System for Application in POCT Device

PNM-11  Kei Nishihara, Kyushu University, JAPAN
MEMS blood flow meter for chicken and daily fluctuation of the blood flow
Microfluidic chip manipulation of neural cells in neurospheres

Sensing Biology

PSB-1 Ming Ye, Tokyo Medical and Dental University, JAPAN
NADH-Fluorometric Biochemical Gas Sensor (Bio-Sniffer) for Sub-ppb Monitoring of Formaldehyde Vapor

PSB-2 Po Jen Chien, Tokyo Medical and Dental University, JAPAN
D-Lactate Biosensor Based on Optical Detection of NADH by UV-LED Excitation

PSB-3 Rei Sato, Tokyo Medical and Dental University, JAPAN
Improvement of a Chemo-Mechanical Reaction Unit “Organic Engine” in Autonomous Drug Release System for Blood Sugar Control in Diabetes

PSB-4 Yusuke Kuroki, Tokyo Medical and Dental University, JAPAN
A Contact-Lens Type Glucose Sensor for Non-Invasive Monitoring on the Eye Site

PSB-5 Toshiyuki Sato, Tokyo Medical and Dental University, JAPAN
A Spatio and Temporal Gaseous Ethanol Imaging System for Real Time Analysis of Alcohol Metabolism

PSB-6 Yurika Suzuki, Tokyo Medical and Dental University, JAPAN
Fiber-Optic Chemifluorescent Immunoassay System for On-Site Monitoring of Airborne Mite Allergen Der f1

PSB-7 Hiroyuki Takagi, Tokyo Medical and Dental University, JAPAN
A Biochemical Motor with Active Transportation for Hydrogen Peroxide

PSB-8 Daisuke Miki, Tokyo Medical and Dental University, JAPAN
Fiber-optic Fluoroimmunoassay System for On-Site Determination of Der f1 in Residential Environment

PSB-9 Hidehisa Mori, Tokyo Medical and Dental University, JAPAN
Fiber Optical Biosensor for Monitoring of Ethanol Vapor Using Enzymatic Reaction

PSB-10 Kengo Funahashi, Tokyo Medical and Dental University, JAPAN
Fiber-Optic Biosensor for Phenylketonuria Diagnosis with UV-LED