International Conference on Sensing Technologies for Biomaterial, Food, and Agriculture ’13
SeTBio’13

Sponsored by
The Japanese Society of Agricultural Machinery (JSAM)
The Society of Agricultural Structures, Japan (SASJ)

Organized by
Laboratory of Bio-Sensing Engineering, Kyoto University
SPIE

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Tuesday, April 23
9:30-10:00
Opening Remarks of OPIC’13
Room 301,302
10:00-11:55
Keynote Lectures of OPIC’13
Room 301,302
(See page7)
13:20-15:20
Joint Plenary Sessions of OPIC’13
Room 301,302,303
(See Page7)

15:40-15:45
Opening Remarks
Room 311,312
15:40 N. Kondo, Conference Chair of SeTBio’13
Professor, Graduate School of Agriculture, Kyoto University, Japan

15:45-18:00
SeTB1 : Light and Plant Factory
Room 311,312
Chair: I. Farkas, Program Committee Member, Szent István University, Hungary (Tentative)
Co-Chair: H. Shimizu, Vice Chair of Program Committee, Kyoto University, Japan (Tentative)

SeTB1-1 (Invited) Advanced Technologies for Plant Factory
Haruhiko Murase
Osaka Prefecture University, Japan
15:45

SeTB1-2 Development of a Monitoring System Technology Suitable for Production Process Monitoring in Small Scale Protected Horticulture
Y. Nakanishi, and R. Kudo
Shikoku Research Institute Inc, Japan
16:15

SeTB1-3 Efficient Plant Growth Using Automatic Position-Feedback Laser Light Irradiation
Graduate School of Engineering, University of Fukui, Japan
16:30

SeTB1-4 Effect of Photoperiod on Flowering of Cypress Vine (Ipomea quamoclit L.)
Y. Koike
Faculty of Agriculture, Tokyo University of Agriculture, Japan
16:45

SeTB1-5 (Invited) Current State and Research Trend in

17:00
Light Environment for Plant Factory
Hiroshi Shimizu
Kyoto University, Japan

SeTB1-6 Comparison on Machine Vision System for Sorting Melon Seedling on Grafting Robot
S. Tian, S. Dong, J. Yang, and T. Li
Key Laboratory of Protected Horticulture, Shenyang Agricultural University, China
17:30

SeTB1-7 Computer Vision Methods for Greenhouse Irrigation Control
I. Farkas
Department of Physics and Process Control, Szent István University, Hungary
17:45

18:30 - 20:30
Conference Reception
Room 501,502

Wednesday, April 24
9:00-11:45
SeTB2: Light and Precision Agriculture
Room 311,312
Chair: S. Shibusawa, Vice Chair of Program Committee,
Tokyo University of Agriculture and Technology, Japan

SeTB2-1 (Invited) Multi-scale Photonics for Precision Agriculture
Josse De Baerendaeker
Division of Mechatronics, Biostatistics and Sensors, MeBioS - KU Leuven, Belgium
9:00

SeTB2-2 Mapping Wetland Cover Types Using Remote Sensing and GIS in Can Gio Mangrove Biosphere Reserve, Vietnam
P. Tien Dat1), and K. Yoshino2)
1)Center for Agricultural Research and Ecological Studies (CARES), Hanoi University of Agriculture (HUA), Vietnam, 2)Faculty of Engineering, Information and Systems, University of Tsukuba, Ibaraki, Japan
9:30

SeTB2-3 Spectral Imaging Analysis for Silkworm Gender Classification
S. Sumriddetchkajorn1), C. Kamtongdee2), and C. Sa-NgiamSa2)
1)Intelligent Devices and Systems Research Unit, National Electronics and Computer Technology Center, Thailand, 2) Department of Electrical Engineering, Khon Kaen University, Thailand
9:45

SeTB2-4 The Potential of Visible-Near Infrared Spectroscopy for Mapping of Multiple Soil Properties Using Real-Time Soil Sensor
B. S. N. Aliiah1), M. Kodaira2), and S. Shibusawa2)
1)United Graduate School of Agricultural Science, Tokyo University of Agriculture and Technology, Japan, 2) Institute of Agriculture, Tokyo
10:00
Chair: F. Giametta, University of Molise, Italy

**SeTB2-5**
**Vibration Analysis Using a Contactless Acquisition System**
10:30  
P. Catalano¹, F. Fucci¹, F. Giametta², G. La Fianza³, and B. Bianchi⁴  
¹University of Molise, Italy, ²University of Bari, Italy

**SeTB2-6**
**Proposal of Optical Farming -Development of Several Optical Sensing Instruments for Agricultural Use-**
10:45  
Y. Saito ¹, and K. Kobayashi ³  
¹Faculty of Engineering, Shinshu University, Japan, ²Graduate School of Science and Technology, Shinshu University, Japan

**SeTB2-7**
**Monitoring System for Yield Qualities of Paddy**
11:00  
M. Jahari¹, K. Yamamoto¹, M. Miyamoto², N. Kondo³, and Y. Ogawa⁴  
¹Graduate School of Agriculture, Kyoto University, Japan, ²Yanmar Co., Ltd, Japan

**SeTB2-8**
**Application of Visible-Shortwave Near Infrared Spectrometer to Predict Sugarcane Quality Based on Different Sample Forms**
11:15  
N. M. Nawi¹, G. Chen¹,², and T. Jensen¹,²  
¹Faculty of Engineering and Surveying, University of Southern Queensland, Australia, ²National Centre for Engineering in Agriculture (NCEA), University of Southern Queensland, Australia, ³Department of Biological and Agricultural Engineering, Faculty of Engineering, Universiti Putra Malaysia, Malaysia

**SeTB2-9**
**Fusion of Image and Laser-Scanning Data in a Large-Scale 3D Virtual Environment**
11:30  
J.S. Shih, T.T. Lin  
Dept. of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taiwan

----- Lunch Break (11:45-13:15) -----
Thursday, April 25

9:00-16:00

SeTB3: Light and Bio-sensing

Room 311,312

Chair: T. T. Lin, Dept. of Bio-Industrial Mechatronics Engineering, National Taiwan University

SeTB3-7 (Invited) Monitoring of ATP and/or Viable Cells on Meat Surface by Excitation Emission Matrix Fluorescence Spectroscopy
9:00 Seiichi Oshita
The University of Tokyo, Japan

SeTB3-8 Estimation of the Dielectric Changes of Detaching Adherent Cells by Terahertz Split-Ring Resonator
9:30 K. Hattori, K. Shiraga, T. Suzuki, Y. Ogawa, and N. Kondo
Graduate School of Agriculture, Kyoto University, Japan

SeTB3-9 Determination of Chlorogenic Acid (CGA) in Different Roast Degree Coffee by Near Infrared (NIR) Spectroscopy
9:45 J. Shan, T. Suzuki, D. Suhandy, Y. Ogawa, and N. Kondo
Graduate School of Agriculture, Kyoto University, Japan

SeTB3-10 Evaluation of the Hydration Effect of Monosaccharides in the Terahertz Region
10:00 K. Shiraga 1), Y. Ogawa 1), N. Kondo 1), A. Irisawa 2), and M. Imamura 2)
1) Graduate School of Agriculture, Kyoto University, Japan 2) ADVANTEST Corporation, Japan

----- Break (10:15-10:30) -----

Chair: H. Hwang, Program Committee Member, Sungkyunkwan University, Korea

SeTB3-11 Inspection of Fecal Contamination on Strawberries Using Fluorescence Imaging
10:30 Y. K. Chung 1), S. Chen 1), C. C. Yang 2), M. S. Kim 2), D. E. Chan 2), S. R. Delwiche 2), and Y. M. Lo 2)
1) Department of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taiwan, 2) USDA-ARS, Beltsville Agricultural Research Center, Environmental Microbial & Food Safety Laboratory, USA

SeTB3-12 Evaluation of Phalaenopsis Flowering Quality Using Near Infrared Spectroscopy
10:45 S. Chen 1), Y.K.Chuang 1), Y.H. Chang 1), C.C Tai 1), Y.C. A. Chang 1), J.Y. Hou 1), C.Y Tsai 1), and I.C. Yang 1)
1) Department of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taiwan, 2) Department of Horticulture and Landscape Architecture, National Taiwan University, Taiwan, 3) Bioenergy Research Center, National Taiwan University, Taiwan, 4) Taiwan Agricultural Mechanization Research and Development Center, Taiwan

SeTB3-13 Attenuated Total Reflection Terahertz Spectra of Raw Milk for Measuring Somatic Cell Count
11:00 H. Naito 1), Y. Ogawa 1), N. Kondo 1), and A. Kubota 2)
1) Graduate School of Agriculture, Kyoto University, Japan 2) Hokkaido Research Organization Agricultural Research Department, Japan

SeTB3-14 An Approach for Identification of Vitamin A Deficient Cattle by Pupillary Light Reflex Analysis in Japanese Black Cattle
11:15 S. Han 1), N. Kondo 1), T. Fujiura 1), Y. Ogawa 1), S. Tanigawa 1), M. Fukushima 2), O. Watanabe 2), and N. Kohama 2)
1) Graduate School of Agriculture, Kyoto University, Japan 2) Department of Beef Cattle Production, Hyogo Prefectural Hokabu Agricultural Institute, Japan

SeTB3-15 Monitoring Chicken Embryo Development by VIS Transmission Spectroscopy
11:30 Md. H. Islam 1), N. Kondo 1), Y. Ogawa 1), T. Fujiura 1), S. Nakajima 1), S. Fujitani 1), and T. Tahara 1)
1) Graduate School of Agriculture, Kyoto University, Japan 2) NABEL Co. Ltd., Kyoto, Japan

----- Lunch Break (11:45-13:00) -----

Chair: S. Oshita, Vice Chair of Program Committee, The University of Tokyo, Japan

SeTB3-16 Optical Coherence Tomography Biospeckle Imaging for Fast Monitoring Varying Surface Responses of A Plant Leaf Under Ozone Stress
13:00 L. K. T. Srimal 1), H. Kadono 1), and U. M. Rajagopalan 2)
1) Graduate School of Science and Engineering, Saitama University, Japan, 2) Laboratory for Integrative Neural Systems, RIKEN Brain Science Institute, Japan

SeTB3-17 Glass Beads Counting by Using Metallic Mesh Sensor in Terahertz Region for Pollen Counting Application
Graduate School of Agriculture, Kyoto University, Japan
SeTB3-18 Hyperspectral Spectroscopy for Monitoring Fungal Contamination in Cereal Grains
13:30 U. Siripatrawan 1), Y. Makino 2), and S. Oshita 2)
1) Department of Food Technology, Faculty of Science, Chulalongkorn University, Thailand,
2) Graduate School of Agricultural and Life Science, The University of Tokyo, Japan

SeTB3-19 In Situ Nondestructive Imaging of Functional Pigments in Micro-Tom Tomato Fruits by Multi Spectral Imaging Based on Wiener Estimation Method
13:45 I. Nishidate 1), S. Ooe 1), S. Todoroki 1), and E. Asamizu 2)
1) Graduate School of Bio-Applications & Systems Engineering (BASE), Tokyo University of Agriculture and Technology, Japan,
2) Graduate School of Life and Environmental Sciences, Gene Research Center, University of Tsukuba, Japan

SeTB3-20 Development of Noncontact Integrated Egg Quality Measurement System
14:00 D.G. Lee 1), S.H Cho 1), H. Hwang 3), and W.B. Yoon 2)
1) Department of Biomechatronics, Sungkyunkwan University, Korea,
2) Department of Food Science and Biotechnology, Kangwon National University, Korea

----- Break (14:15-14:30) -----

Chair: B. Park, Program Committee member, United States Department of Agriculture (USDA), USA

SeTB3-21 Multichannel Microfluidic Chip for Rapid and Reliable Trapping and Imaging Plant-Parasitic Nematodes
14:30 R. Amrit 1), S. Porntheeraphat 1), W. Sripunakha 2), W. Jeamsaksiri 3)
1) Photonics Technology Laboratory, National Electronics and Computer Technology, Thailand,
2) Thai Microelectronic Center, National Electronics and Computer Technology, Thailand,
3) Plant Protection Research and Development Office, Department of Agriculture, Thailand

SeTB3-22 Measuring the Key Shape Features of Onion Bulbs Using 2-D and 3-D Images
14:45 W. Wang, and C. Li
College of Engineering, University of Georgia, USA

SeTB3-23 Detection of Escherichia Coli Deposited on a Filter Using Metallic Mesh Sensor
15:00 T. Suzuki 1), Y. Ogawa 1), N. Kondo 1), T. Kondo 2), and S. Kamba 2)
1) Graduate School of Agriculture, Kyoto University, Japan
2) Murata Manufacturing Company, Japan

SeTB3-24 Apple Ripeness Detection Using Hyperspectral Laser Scatter Imaging
Division of Mechatronics, Biostatistics and Sensors, MeBioS - KU Leuven, Belgium

SeTB3-25 Spatially Resolved Spectroscopy for Nondestructive Quality Measurements of Braeburn Apples
15:30 N. Nguyen Do Trong 1), C. Erkinbaev 1), B. Nikolai 1), W. Saeyes 1), M. Tsuta 2), and J. De Baerdemaeker 1,3)
1) Division of Mechatronics, Biostatistics and Sensors, MeBioS - KU Leuven, Belgium,
2) National Food Research Institute, Tsukuba, Ibaraki, Japan,
3) Graduate School of Agriculture, Kyoto University, Japan

SeTB3-26 Broadband Photon Time of Flight Spectrometer for Characterization of Food and Pharmaceutical Products
15:45 D. Khoptyar 1), A. A. Subash 2), O. H. A. Nielsen 2), S. Johansson 3), and S. Andersson-Engels 3)
1) Department of Physics, Lund University, Sweden,
2) DTU Informatics, Department of Informatics and Mathematical Modeling, Technical University of Denmark, Denmark

16:00-16:05 Closing
Room 311,312

Closing Remarks
16:00 Y. Ogawa. Program Committee Chair of SeTBio’13
Professor, Graduate School of Agriculture, Kyoto University, Japan