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

SeTBio'13

Tuesday, April 23

15:40-15:45   Opening   Room 311+312
Opening Remarks
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**
15:45   *Haruhiko Murase*
Osaka Prefecture University, Japan

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

SeTB1-3   **Efficient Plant Growth Using Automatic Position-Feedback Laser Light Irradiation**
16:30   *Y. Kakinoki, Y. Kato, K. Ogawa, A. Nakao, Z. Okai, and T. Katsuyama*
Graduate School of Engineering, University of Fukui, Japan

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

SeTB1-5   **(Invited) Current State and Research Trend in Light Environment for Plant Factory**
17:00   *Hiroshi Shimizu*
Kyoto University, Japan

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

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

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 (Tentative)

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

SeTB2-2   **Mapping Wetland Cover Types Using Remote Sensing and GIS in Can Gio Mangrove Biosphere Reserve, Vietnam**
9:30   *P. Tien Dat[1], and K. Yoshino[2]*
[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

SeTB2-3   **Spectral Imaging Analysis for Silkworm Gender Classification**
9:45   *S. Sumriddetchkajorn[1], C. Kamtongdee[2], and C. Sa-NgiamSak[2]*
[1] Intelligent Devices and Systems Research Unit, National Electronics and Computer Technology Center, Thailand, [2] Department of Electrical Engineering, Khon Kaen University, Thailand

SeTB2-4   **The Potential of Visible-Near Infrared Spectroscopy for Mapping of Multiple Soil Properties Using Real-Time Soil Sensor**
10:00   *B. S. N. Aliah[1], M. Kodaira[2], and S. Shibusawa[2]*
[1] United Graduate School of Agricultural Science, Tokyo University of Agriculture and Technology, Japan, [2] Institute of Agriculture, Tokyo University of Agriculture and Technology, Japan

----- Break （10:15-10:30） -----

Chair: F. Giametta, *University of Molise, Italy (Tentative)*

SeTB2-5   **Vibration Analysis Using a Contactless Acquisition System**
10:30   *P. Catalano[1], F. Fucci[1], F. Giametta[1], G. La Fianza[1], and B. Bianchi[2]*
[1] University of Molise, Italy, [2] University 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 [2]*
[1]Faculty of Engineering, Shinshu University, Japan, [2]Graduate School of Science and Technology, Shinshu University, Japan

SeTB2-7   **Monitoring System for Yield Qualities of Paddy**
11:00   *M. Jahari[1], K. Yamamoto[1], M. Miyamoto[2], N. Kondo[1], and Y. Ogawa[1]*
[1]Graduate School of Agriculture, Kyoto University, Japan, [2] Yanmar 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. Nawi [1,3], G. Chen [1,2], and T Jensen [1,2]*
[1]Faculty of Engineering and Surveying, University of Southern Queensland, Australia, [2]National Centre for Engineering in Agriculture (NCEA), University of Southern Queensland, Australia, [3]Department 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） -----

13:15-15:00   SeTB2: Light and Precision Agriculture
Room 311+312

Chair: J. De Baerdemaeker, *Division of Mechatronics, Biostatistics and Sensors, MeBioS - KU Leuven, Belgium (Tentative)*

SeTB2-10   **(Invited) Precision Agriculture Thanks Optical Technology**
13:15   *Sakae Shibusawa*
Tokyo University of Agriculture and Technology, Japan

SeTB2-11   **Low Altitude Aerial Remote Sensing and Mobile Ground Measurement**
13:45   *R. Pudelko, J. Kozyra, and M. B. Walker*
Department of Agrometeorology and Applied Informatics, Institute of Soil Science and Plant Cultivation, State Research Institute, Poland

SeTB2-12   **Daily Cycle of Spectral Reflectance Characteristics of Different Crops-Case Study of Poland-**
14:00   *J. Kozyra, R. Pudelko, and M. B. Walker*
Department of Agrometeorology and Applied Informatics, Institute of Soil Science and Plant Cultivation, State Research Institute, Poland

SeTB2-13   **Effects of Microwave on *Spinacia Oleracea* Growth — Survey of Germination and Long-Term Exposure —**
14:15   *J. Miyasaka [1], H. Iguchi [1], R. Yamamoto [1], Y. Ogawa [1], H. Shimizu [1], H. Nakashima [1], K. Ohdoi [1], N. Shinohara [2], and T. Mitani [2]*
[1] Graduate School of Agriculture, Kyoto University, Japan, [2] Research Institute for Sustainable Humanosphere, Kyoto University, Japan

14:30-15:00   Sponsor Presentation
Room 311+312

SeTB-SP-1   **NEC Corporation, Japan**
14:30
SeTB-SP-2   **Murata Manufacturing Co., Ltd., Japan**
14:45

----- Coffee Break （15:00-15:15） -----

15:15-17:00   SeTB3: Light and Bio-sensing
Room 311+312

Chair: S. Chen, *Program Committee Member, Department of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taiwan (Tentative)*

SeTB3-1   **(Invited) Foodborne Pathogenic Bacteria Identification with Hyperspectral Microscope Imaging**
15:15   *Bosoon Park*
United States Department of Agriculture (USDA), USA

SeTB3-2   **Mobile Device-Based Optical Instruments for Agriculture**
15:45   *S. Sumriddetchkajorn*
Intelligent Devices and Systems Research Unit, National Electronics and Computer Technology Center, Thailand

SeTB3-3   **Multiple Leaf Tracking Using Computer Vision Methods with Shape Constraints**
16:00   *J. De Vylder [1], W. Philips [1], and D. Van Der Straeten [2]*
[1] Department of Telecommunication and Information Processing, Ghent University, Belgium, [2] Department of Physiology, Ghent University, Belgium

SeTB3-4   **Early Detection of Basal Stem Rot in Oil Palm Plantations Using Gamma-Ray Computed Tomography**
16:15   *J. Abdullah [1], S. Mohd [1], H. Hassan [1], M. R. Shari [1], M. Mustapha [1], A. A. Mahmood [1], M. R. Ngah [2], and N. H. Hamid [2]*
[1] Centre for Computed Tomography and Industrial Imaging (CCTII), Malaysian Nuclear Agency, Malaysia, [2] FELDA Agriculture Services Sdn Bhd, Malaysia

SeTB3-5   **Non-Destructive Prediction of Degreening Rate of Broccoli by Hyperspectral Imaging**
16:30   *Y. Makino, Y. Kosaka, A. Hosaka, and S. Oshita*
Graduate School of Agricultural and Life Sciences, The University of Tokyo, Japan

SeTB3-6   **Determination of L-Ascorbic Acid (L-AA) in Terahertz Region Using Back Propagation Artificial Neural Networks (BP-ANN) Method**
16:45   *D. Suhandy, M. Yulia, S. Widodo, Y. Ogawa, and N. Kondo*
Graduate School of Agriculture, Kyoto University, Japan

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 (Tentative)*

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

Chair: H. Hwang, *Program Committee Member, Sungkyunkwan University, Korea (Tentative)*

SeTB3-11 **Inspection of Fecal Contamination on Strawberries Using Fluorescence Imaging**

10:30 *Y. K. Chuang [1] , S. Chen [1], C. C. Yang [2], M. S. Kim [2], D. E. Chan [2], S. R. Delwiche [3], and Y. M. Lo [4]*

[1]Department of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taiwan, [2]USDA-ARS, Beltsville Agricultural Research Center, Environmental Microbial & Food Safety Laboratory, USA, [3]USDA-ARS, Beltsville Agricultural Research Center, Food Quality Laboratory USA, [4]Department of Nutrition and Food Science, University of Maryland, 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 [2], J.Y. Hou [2], C.Y Tsai [3], and I.C. Yang [4]*

[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 Hokubu 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 [2], and T. Tahara [2]*

[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 (Tentative)*

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**

13:15 *Y. Wang, T. Suzuki, K. Shiraga, K. Hattori, Y. Ogawa, and N. Kondo*
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 [1], 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 (Tentative)*

SeTB3-21 **Multichannel Microfluidic Chip for Rapid and Reliable Trapping and Imaging Plant-Parasitic Nematodes**

14:30 *R. Amrit [1], S. Porntheeraphat [1],W. Sripumkhai [2], W. Jeamsaksiri [2], N. Tangchitsomkit [3], and B. Sutapun [4]*

[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, [4]Electronic Engineering Program, School of Telecommunication Engineering, Suranaree University of Technology, 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**
15:15	*R. Van Beers, B. Aernouts, J. De Baerdemaeker, and W. Saeys*
	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. Nicolai [1], W. Saeys [1], M. Tsuta [1,2], 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 [1], O. H. A. Nielsen [2], S. Johansson [1], and S. Andersson-Engels[1]*
	[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