Wednesday, February 12

8:30 – 9:00  *Registration for NIR Short Course Training (in English) by Bruker Optik GmbH*

9:00 – 10:20  Basic of NIR and Instrumentation

10:30 – 10:50  **Coffee break**

10:35 – 12:00  Introduction to Quantitative Analysis

12:00 – 13:30  **Lunch**

13:30 – 15:00  Application in Food and Agriculture

15:00 – 15:15  **Coffee break**

15:15 – 16:15  Applications in Chemical, Pharmaceutical and Petrochemical

16:15 – 17:00  Hands on experience on NIR measurement in different modes

16:00 – 17:30  **Meeting for establishing of Thailand NIR (and related) Consortium**

18:00 – 19:00  **Board meeting for Asian NIR Consortium**

xx:xx – xx:xx  **Poster and Exhibition Installation**

Exactly time cannot be confirmed till 3 days before Symposium start
Thursday, February 13

8:00 – 8:30  
**Symposium Registration**

8:30 – 8:40  
**Opening by ANC**  
Satoru Tsuchikawa  
(Nagoya University, Japan)  
Chairperson of ANC

8:40 – 8:50  
**Opening Address**  
Dr. Supalerk Charmongkolpradit  
(Rajamangala University of Technology Isan, Khonkaen, Thailand)  
Chairperson of Thailand

8:50 – 9:00  
**Welcome Opening**  
Asst. Prof. Chalermpol Yuangklang  
(Rajamangala University of Technology Isan, Thailand)  
President of RMUTI

9:00 – 9:05  
**Welcome Opening Performance**

9:05 – 9:30  
**Keynote Lecture**  
**K-01:** Electromagnetic Wave Based Sensing Systems in Smart Agriculture  
N. Kondo  
(Kyoto University, Japan)

9:30 – 10:10  
**Poster and Exhibitions**

10:10 – 10:30  
**Coffee break**

10:30 – 10:55  
**Invited Lecturer**  
**K-02:** Near-infrared (NIR) spectroscopy of agri-food products: from humble beginnings to the quality control method of choice  
M. Manley  
(Stellenbosch University, South Africa)

10:55 – 11:10  
**Session I: Agriculture and Food Imaging and Instrumentation (AFI)**  
**AFI-0004:** Near-infrared Spectroscopic Sensing System for Online Real-time Milk Quality Evaluation in an Automatic Milking System  
P. Iweka, S. Kawamura, T. Mitani, T. Kawaguchi and S. Koseki  
(Hokkaido University, Japan)
Thursday, February 13 (cont.)

11:10 – 11:25  AFI-0006: Analysis of interference effects on light scattering in colloidal suspensions  
K. Nomura, H Fujii, K. Kobayashi, M. Watanabe and G. Nishimura  
(Hokkaido University, Japan)

11:25 – 11:40  AFI-0007: Numerical study on light propagation in a white bread loaf  
H. Fujii  
(Hokkaido University, Japan)

(Chungnam National University, Republic of Korea)

11:55 – 12:10  AFI-0009: Incorporation of perfluorohexane into powder samples in diffuse reflectance measurement for diverse NIR analyses  
(Hanyang university, Korea)

12:10 – 13:10  Lunch (International Buffet)

13:10 – 13:20  Company Presentation  
C01: Moving Forward to Industry 4.0 with Bruker Process FT-IR and FT-NIR spectrometers  
S. Saranwong  
(Bruker Optik GmbH, Ettlingen, Germany)

13:20 – 13:30  C02: Increased Uptime with Securely Connected Analyzers  
M. Andersson  
(Application Specialist, Digital Business Services, FOSS)

13:30 – 13:55  Invited Lecture  
K-03: NIR Applications in the Forestry Sector  
R. Meder  
(University of the Sunshine Coast, Australia)

13:55 – 14:10  Session II: Basic Science and Chemometric (BSC)  
BSC-0001: Two-trace two-dimensional correlation spectroscopy as a potential tool to improve accuracy of discriminant analysis  
W. Sohng, Y.M. Jung and H. Chung  
(Hanyang University, Korea)
14:10 – 14:25  **BSC-0002**: More Attention to X-leverage Its Usage and Effect on Calibration Equation Development  
Y. Ootake  
(NIR-AI-INSTITUTE, Japan)

14:25 – 14:40  **BSC-0003**: A Wavelength Selection Method for NIR Spectra to Facilitate Development of Neural Network Based Calibration Models  
A. Ghosh, Supriya, S. Kumar, A.K. Hazarika, S. Sabhapondit, B. Tudu and R. Bandyopadhyay  
(National Institute of Technology Patna, India)

M. Tsuta and X. Li  
(National Agriculture and Food Research Organization, Japan)

14:55 – 15:10  **BSC-0009**: Dirichlet-PLS – mathematically reasonable prediction of concentrations  
S. Shibayama and K. Funatsu  
(The University of Tokyo, Japan)

15:10 – 16:00  **Coffee Break, Poster, and Exhibitions**

16:00 – 16:30  **ANC general meeting (everyone is invited)**

18:00 – 20:30  **Welcome Banquet (Convention Hall I)**
<table>
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<tr>
<th>Time</th>
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<tr>
<td>8:00 – 8:30</td>
<td><em>Symposium Registration</em></td>
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<td>8:30 – 8:55</td>
<td><strong>Keynote Lecture</strong></td>
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<td></td>
<td><strong>K04:</strong> The Development of Near Infrared Spectroscopy on Evaluation of Total Soluble Solids of Intact Mango</td>
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<td>P. Sirisomboon</td>
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<tr>
<td></td>
<td>(King Mongkut Institute of Technology Ladkrabang, Thailand)</td>
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<td>8:55 – 9:20</td>
<td><strong>Invited Lecture</strong></td>
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<td><strong>K05:</strong> Combination of near-infrared spectroscopy with other potential analytical methods to enhance overall accuracy of analysis</td>
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<td>H. Chung, W. Sohng and C. Eum</td>
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<td></td>
<td>(Hanyang University, Korea)</td>
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<td>9:20 – 9:35</td>
<td><strong>Session III: Medical and Pharmaceutical (MDP) and Advanced Technology and Engineering (ATE)</strong></td>
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<td><strong>MDP-0001:</strong> Device independent screening for detecting falsified medicines</td>
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<td>Y. Hoshi, Y. Hattori, S. Managaki, Y. Sugiura and M. Otsuka</td>
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<td>(Musashino University, Japan)</td>
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<td>9:35 – 9:50</td>
<td><strong>MDP-0003:</strong> Discrimination of malignant gallbladder disease by NIR spectroscopy using human bile samples</td>
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<td>E. Jang, D. Choi and H. Chung</td>
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<td>(Hanyang University, Korea)</td>
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<td>9:50 – 10:05</td>
<td><strong>MDP-0004:</strong> Quantification of piperine in Piper Nigrum using a portable Raman Spectrometer</td>
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<td>D. Sing, R. Mallik, S.N. Jana, B. Tudu, K. Majumdar and R. Bandyopadhyay</td>
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<td>(Jadavpur University, India)</td>
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<td>10:05 – 10:20</td>
<td><strong>ATE-0003:</strong> Assessment of the human albumin in acid precipitation process using NIRS and multi-variable selection methods combined with SPA</td>
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<td>Z.Y. Sun, F. Wang, L. Nie, L. Li and H.C. Zang</td>
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<td></td>
<td>(Shandong University, China)</td>
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<td>10:20 – 10:45</td>
<td><strong>Coffee break Poster and Exhibition</strong></td>
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Session IV: Non-Destructive Techniques and Biology (NDB) and Agriculture and Food Imaging and Instrumentation (AFI)

NDB-0001: Overall Precision Test for Determination the Nutrient in Durian Leaf in Durian Orchard using Near-Infrared Spectroscopy
T. Phanomsophon, N. Jaisue, N. Tawinteung, L. Khurnpoon, and P. Sirisomboon
(King Mongkut’s Institute of Technology Ladkrabang, KMITL, Thailand)

NDB-0003: A Preliminary Study on an Improvement of the Determination of Fiber Content in Sugarcane Stalks Using NIR-hyperspectral Imaging with Axis Rotation of the Stalk
J. Chiatrakul, K. Phuangsombut, A. Phuangsombut and A. Terdwongworakul
(Kasetsart University Kamphaeng Saen Campus, Thailand)

AFI-0010: Classification of Soil based on Spectral Characteristics to what extent it has been achieved?
Y. Ootake
(NIR-AI-INSTITUTE, Japan)

AFI-0011: Interpretation of 2D correlation data of NIR and visible-light spectroscopy in the study of wood thermal degradation.
S.H. Mahdyanti, T. Inagaki and S. Tsuchikawa
(Nagoya University, Japan)

S. Sharma, S. K.C and P. Sirisomboon
(King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand)

AFI-0019: Monitoring water state in cabbages during storage with near infrared spectroscopy
S. Nakajima, T. Genkawa and A. Ikehata
(NARO, Japan)

Session V: NIR Related Topics (NRT)

NRT-0008: Finite element investigation of light propagation in the human neck using the time-dependent radiative transfer theory
S. Endo, H. Fuji, K. Kobayashi and M. Watanabe
(Hokkaido university, Japan)
13:30 – 13:45  **NRT-0009:** The prediction of moisture content of Para rubber timber using small portable NIR spectrometer Ms. Sutida Ruangkhasap S. Ruangkhasap, S. Noypitak, A. Terdwongworakul, A. Puttipipatkajorn, and A. Puttipipatkajorn (Kasetsart University, Thailand)

13:45 – 14:00  **NRT-0011:** Feasibility of geographical origin discrimination of Monthong Intact durian fruits between Trat and Rayong province in the East of Thailand by Near infrared spectroscopy K. Chanachot and P. Sirisomboon (King Mongkut's Institute of Technology Ladkrabang, KMITL, Thailand)

14:00 – 14:15  **NRT-0015:** Classification of Adulterated Para Rubber Sheet Using Hyperspectral Imaging System Mr Dharell Siano D. Siano, A. Terdwongworakul, W. Abdullakasim and K. Phuangsonbut (Kasetsart University Kamphaeng Saen Campus, Thailand)

14:15 – 14:30  **NRT-0021:** Estimating Sensory Quality of Tomatoes Using Visible-Near-Infrared (Vis-NIR) Spectroscopy X. Li, F. Hayakawa, Y. Kazami, M. Tsuta and A. Ikehata (Food Research Institute of National Agriculture and Food Research Organization, Japan)

14:30 – 14:45  **NRT-0022:** Near-Infrared Spectroscopic Analysis of Organic Matter and Total Nitrogen in Maize Growing Soils for Nitrogen Fertilizer Recommendation P. Khawmak, H. Kimhenglee and N. Chittamart (Kasetsart University, Thailand)

14:45 – 15:00  Coffee break

15:00 – 15:10  **Best Oral Presentation and Poster Awards**

15:10 – 15:20  **Symposium Closing**
**Saturday, February 15**

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<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>8:00 – 12:00</td>
<td>Travel by bus, visit Mitr Phu Wiang Sugar Factory, Coffee during sight-seeing, leave from Avani Khon Kaen Hotel</td>
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<tr>
<td>12:00 – 13:30</td>
<td>Lunch with local Thai food</td>
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<tr>
<td>13:30 – 17:00</td>
<td>Visit Phu Wiang Dinosaur Museum. Coffee during Sight-seeing</td>
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<td>17:00 – 17:00</td>
<td>Visit Phara-Mahathat Kaen-Nakhon, a Royal temple.</td>
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<td>18:00 – 20:00</td>
<td>Dinner (Bua-Luang Restaurant, dancing performance with best of lake view)</td>
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<td>20:00 – 21:00</td>
<td>Visit Ton-Tan Night Market, the biggest night market in Khonkaen.</td>
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<td>21:00</td>
<td>Back to the Avani hotel</td>
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