

Sunday, August 3, 7:00 - 9:30 p.m.

Moderator - Don Dahm, Rowan Univ.

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Dave Burns, McGill Univ.

Fabiano Pandozzi, McGill Univ.

Jonathan Dion, McGill Univ.

Veronique Bellon Maurel, Cemagref-Montpellier

Physics of Light Scattering and Absorption and Tomas Hirschfeld Award Lecture

"The Legend of the Absorption Coefficient."
Theory of diffuse reflectance and scattering/absorption projects overview.
Scattering by power law analysis and evanescent field contribution from back layers in a scattering media.
Two sections on ultrasound as measurement tool in scattering media in particular smart hydrogel sensors.
Tomas Hirschfeld Award Lecture - "Near Infrared Spectroscopy from Lab. to Plant."

Monday, August 4, 8:00 a.m. - 12:00 noon

Moderator - Rob Lodder, Univ. of Kentucky

Alexey Yamilov, Missouri S&T
Alexey Yamilov presenting Hui Cao's (Yale Univ.) lecture
Brent Wagner, Georgia Tech.
Gang Yao, Univ. Missouri
Dave Wetzel, Kansas State Univ.

From Chemistry to Biology

Simulations and statistical analysis of electromagnetic wave propagation in random amplifying media.
Mesoscopic transport and localization in active random media.
Quantum dots, their properties, synthesis and applications.
Optical diffuse reflectance in skeletal muscle.
Near infrared imaging using a focal plane array.

Monday, August 4, 7:00 - 9:15 p.m.

David Honigs, Perten Instruments

Jim de Haseth, Univ. Georgia
Bob Messerschmidt

John Shenk, CNIRS Honorary member
Eli Margalith, Opotek
Gabor Kemeny, Middleton

Advances in Instrumentation

FT-IR/NIR theory and practice.
Instrumentation.
The analysis of agriculture/food products using the 400-1100 nm region of the spectrum.
Laser-based imaging.
Imaging instrumentation.

Tuesday, August 5, 8:00 a.m. - 12:00 noon

Moderator - Lois Weyer, ATK

Jim de Haseth, Univ. Georgia
Deanne Snavelly, Bowling Green State Univ.

Heinz Siesler, Univ. Essen

Yuki Ozaki, Kwansai-Gakuin Univ.
Chris Brown, Univ. Rhode Island
Christian Huck, Univ. Innsbruck

Chemical / Spectral Understanding

Fundamentals with examples.
Band assignments of methyls, olefins, etc., including higher order overtones.
The use of isotope exchange and polarization measurements for overtone- and combination band assignments.
NIR spectra of alkanes, alcohols, and water - how we go about understanding them.
Interpretation of aqueous solutions and other matrices using a new approach.
Characterization of nanocomposited materials.

Tuesday, August 5, 7:00 - 9:00 p.m.

Moderator - Howard Mark, Mark Electronic

Vendors Night

Any exhibitor who wishes to speak should see Howard Mark by 10:00 a.m. Tuesday.

Wednesday, August 6, 8:00 a.m. - 12:00 noon

Moderator - Tom Fearn, London College

Charlie Hurburgh, Iowa State Univ.
Benoit Igne, Iowa State Univ.
Pierre Dardenne, Cra-W
Christian Mora, Univ. Georgia
Tom Fearn, Univ. College London

Chemometrics

Economic considerations in calibration.
The Frequency domain: Data treatment after data compression.
Variable selection for PLS.
Modelling serial correlation between observations in PLS.
TBA.

Wednesday, August 6, 2:00 - 4:30 p.m.

Moderator - Phil Williams, PDK Grain

Any person wishing to participate should see Phil Williams by 12:00 noon Wednesday.

Software Shoot-out

Wednesday, August 6, 7:00 - 9:30 p.m.

Moderator - David Hopkins, Consultant

Organ recital, Cumberland Valley School of Music
Paul Geladi, Swedish Univ. Agric. Sci.
David Haaland, Sandia National Labs
Award Ceremony, Doug Evans, Unity Scientific

James Burger, Burgermetrics, Jelgava, Latvia

Gerald Birth Award Session

TBA.
TBA.

Gerald Birth Award Lecture - "Hyperspectral NIR Image Analysis Data Exploration, Correction, and Regression."

Thursday, August 7, 8:00 a.m. - 12:00 noon

Moderator - Robert Cogdill, Univ. Nebraska

Lawrence A. Nafie, Syracuse University

Robert Mattes, Foss NIRSystems

Heather L. Teague, Metrics, Inc.

Charles E. Miller, Eigenvector Research

Pharmaceutical Applications and Process Control

Pharmaceutical and biopharmaceutical applications of vibrational optical activity.
Prediction of key analytes in mammalian cell culture media with in-line near-infrared spectroscopy
Comprehensive modeling of molecular associations in reacting systems using NIR: 1-Butanol/Acetic Anhydride.
Chemometrics and PAT- from a six sigma perspective.

Thursday, August 7, 2:00 - 4:00 p.m.

Moderator - Roumiana Tsenkova, Kobe Univ.

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Aoife Gowen, Univ. College, Dublin

Akifumi Ikehata, National Food Research Institute, Japan

Phil Williams, PDK Grain

Roberto Giangiaco and Tiziana Cattaneo, CRA-FLC

Sirinnapa Saranwong, Natl. Food Research Institute, Japan

Aquaphotomics

Aquaphotome: Data base of water absorbance bands.
Different levels of mushrooms mechanical damage explained by different water matrix absorbance band: hyperspectral imaging study.
An implication of aquaphotomics by a novel concept partial molar absorption of O-H stretching band of water.
"Shoot out" data set reveals how wheat physical properties are related to different water absorbance patterns.
Sugar as a perturbation of water matrix.
Role of water absorptions in the bacteria quantification of raw milk.

Thursday, August 7, 6:00 - 9:30 p.m.

Moderator - Stephen Delwiche, USDA/ARS

Social hour 6:00 - 7:00, with pianist

Dinner 7:00 - 8:00 p.m.

Awards and Recognition 8:00 - 8:30 p.m.

CNIRS Banquet

David Crisp, JPL/NASA Guest Speaker

NASA's Orbiting Carbon Observatory project.

Friday, August 8, 8:00 a.m. - 12:00 noon

Moderator - Sumio Kawano, Natl. Food Res. Inst.

John W. Shenk, Unity Scientific

Woody Barton, Light Light Solutions

Tomas Isaksson, Norwegian Univ. of Life Sciences

Sumio Kawano, National Food Research Institute, Japan

Peter Flinn, Kelspec Services Pty Ltd, Australia

Stephen Delwiche, USDA-ARS

Food, Agriculture, and Natural Resources

The transfer of flax calibrations to simpler instruments and the use of those instruments in processing flax fiber.

Can omega-6 and omega-3 fatty acids be determined using spectroscopy?

Quantitative analysis of pesticides using DESIR-NIRS.

Forage, grain and feed Down-Under – can the giant take a nap?

Real-time optical detection of grain kernels for sorting using pulsed high power LEDs.

Instrument matching