



# OCM 2015

2<sup>nd</sup> International  
Conference on  
**Optical  
Characterization  
of Materials**

March 18<sup>th</sup>-19<sup>th</sup>, 2015  
Karlsruhe / Germany



## Conference Topic

Each material has its own specific spectral signature independent if it is food, plastics, or minerals. During the conference we will discuss new trends and developments in material characterization. You also will be informed about latest highlights to identify spectral footprints and their realizations in industry.

The International Conference on Optical Characterization of Materials (OCM-2015) is organized by the Karlsruhe Center for Spectral Signatures of Materials (KCM) in cooperation with the German Chapter of the Instrumentation & Measurement Society of IEEE.

KCM is an association of institutes of the Karlsruhe Institute for Technology (KIT) and the business unit Automated Visual Inspection of the Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (Fraunhofer IOSB).

# Committees and Chairs

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Fernando Puente León // Karlsruhe

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Hermann Wotruba // Aachen

Bernhard Zagar // Linz

# Conference Program

March 18<sup>th</sup>, 2015

10:00 **Tour at Fraunhofer IOSB** (optional)

12:00 **Registration and Snack**

13:00 **Welcome and Opening**

13:10 **Keynote Speech**

**Prof. Dr. Rudolf Kessler:**

Reutlingen University and Steinbeis Technology  
Transfer Center for Process Control and Data  
Analysis

## **Sensitivity and Selectivity in Optical Spectroscopy and Imaging: A Molecular Approach**

Prof. Dr. Rudolf Kessler will open the conference with a speech about the advantages and disadvantages of different techniques in optical spectroscopy. Optical spectroscopy will play a major role in the sensor technology as it provides simultaneously chemical and morphological information. Sensitivity and selectivity are important features for the use of spectroscopy in sensor applications.

13:40 **Session: Food Inspection**

- Non-destructive determination of grape berry sugar concentration using visible/near infrared imaging and possible impact on wine quality / M. Lafontaine; Hochschule Geisenheim University
- Prediction of lamb eating quality using hyperspectral imaging / J. Ren; University of Strathclyde

14:30 **Coffee Break**

### 15:00 Session: Plastic Recycling

- Plastics sorting using MEMS-based near-infrared spectroscopy / S. Hintschich; Fraunhofer IPMS
- Identification of bio-plastics by NIR-SWIR-Hyperspectral-Imaging / F. Hollstein; RTT Steinert GmbH
- Near infrared spectroscopy as a tool for in-line control of process and material properties of PLA biopolymer / W. Becker; Fraunhofer ICT

### 16:15 Coffee Break

### 16:45 Session: Waste Recycling

- Hyperspectral imaging applied to end-of-life (EOL) concrete recycling / G. Bonifazi; University of Rome
- Significant characteristics in VIS- and IR-spectrum of construction and demolition waste for high-precision supervised classification / E. Linß; Bauhaus-Universität Weimar
- Quality of open air, single-shot UBS spectra from waste particles / H. Xia; Delft University of Technology

### 19:00 Reception

Following the conference proceedings, a dinner will be held in Karlsruhe Palace.

**19:30 Dinner**    *Schloss Karlsruhe*  
                          *Schlossbezirk 10*  
                          *76131 Karlsruhe*



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# Conference Program

March 19<sup>th</sup>, 2015

## 09:00 Session: Industrial Solutions

- Protecting the food supply chain from farm to fork: Utilizing SERS and portable Raman spectroscopy / O. Lischtschenko; OceanOptics BV
- Hyperspectral imaging as process analysis technology for inline applications - Laboratory precision meets high sampling accuracy / M. Kerschhaggl; EVK DI Kerschhaggl GmbH
- Tailoring spectroscopic performance for high end material characterization by customizing grating based spectroscopic equipment / H. Kroker; HORIBA Jobin Yvon GmbH

## 10:15 Coffee Break

## 10:45 Session: Spectral Data Processing

- High frequency line cameras for sorting applications / D. Nüßler; Fraunhofer FHR
- Image texture potential for the early detection of biofilm on different surfaces / C. Malegori; University of Milan
- Towards many-class classification of materials based on their spectral fingerprints / M. Richter; Fraunhofer IOSB

## 12:00 Lunch

### **13:00 Session: Spectral Data Processing**

- NIR spectral imaging for the in-line detection of preservatives in recovered wood / J. Aderhold; Fraunhofer WKI
- Dehydrogenation reaction kinetics of CeCl<sub>3</sub>-doped sodium alanate pellets measured by simultaneous FTIR-ATR-spectroscopy and gravimetry / H.-D. Bauer; Hochschule RheinMain
- Acquisition and storage of multispectral material signatures - Workflow design and implementation / S. Irgenfried; Karlsruhe Institute of Technology IAR-IPR

### **14:15 Coffee Break**

### **14:45 Session: Mineral Sorting**

- Application of near-infrared (NIR) spectroscopy to sensor based sorting of an epithermal Au-Ag ore / M. Dalm; Delft University of Technology
- Applicability of hyperspectral fluorescence imaging to mineral sorting / S. Bauer; Karlsruhe Institute of Technology IIT
- Visible and infrared reflectance spectroscopy for characterization of iron impurities in calcined kaolin clays / A. Guatame-Garcia; Delft University of Technology

### **16:00 Final Summary**

# Poster Presentation

## March 18<sup>th</sup>-19<sup>th</sup>, 2015

### Posters are presented during all coffee breaks

#### Food Inspection

- Non-destructive evaluation of Acerola quality using IR spectroscopy / C. Malegori; University of Milan
- Near-infrared optical spectroscopy of sugar-based mixtures - A snapshot to identify issues of influence / L. Boulley; Mines Nancy Graduate School of Engineering
- Monitoring the freezing process of the "milk shake" by optical or rheological analytical tools / I. Ragni; University Bologna
- Optical Sensors in the Food Chain / M. Kotthoff; Fraunhofer IME
- Utilization of spectral signatures of food for daily use / H. Schulte; Fraunhofer IOSB

#### Mineral Sorting

- Micro Sensor for Determination of Thin Layer Thickness and Refractive Index / M. Schädel; CiS Forschungsinstitut
- Automated development of vision inspection software / K. Jensen; Math & Tech Engineering GmbH
- Study on the influence of hydroxide ions on the UV-transparency of soda-lime silicate glass by means of spectroscopic methods / A. Deinhardt Fraunhofer ISC



## Waste Recycling

- Sensor-based sorting of mineral construction and demolition wastes by near-infrared / E. Linß; Bauhaus-Universität Weimar

## Spectral Data Processing

- From measurement to material – Preparing hyperspectral signatures for classification / J. Walocha; Fraunhofer IOSB
- Detecting the chemical shift of X-ray lines of Lithium, Boron and Carbon using a novel wavelength dispersive X-ray spectrometer in an ultra-high resolution SEM / J. Heindl; JEOL
- Optical characterization of clear colored liquids with multichannel spectral sensors for objective quality assurance / P.-G. Dittrich; SpectroNet
- HyperSpectral Imaging applied to monitor fertilizer production from mixed organic wastes / S. Serranti; University of Rome
- A mobile scanner to examine the BRDF of any material within seconds / G. Hasna; OPTIS GmbH
- Micro-Fluid embedded color measurement systems. What is possible via color detection? / K. Jensen; MAZeT GmbH
- BRDF: Multispectral spacial reflectance measurement / M. Richter; Fraunhofer IOSB



## Conference Venue

Fraunhofer IOSB  
Fraunhoferstr. 1  
76131 Karlsruhe, Germany

## Karlsruhe, Germany

Karlsruhe, a city in the sunny south-west of Germany, famous for its fan-shaped historic street plan, close to the French border and surrounded by the beautiful countryside of the Black Forest is a perfect place for conferences as well as for leisure time.

Karlsruhe is easily accessible via train, motorway or plane (Frankfurt, Stuttgart, Karlsruhe / Baden-Baden). The Fraunhofer IOSB, which will host the conference, is located in walking distance to the heart of the city.



Fraunhofer IOSB

## Binding Conference Registration OCM-2015

Family and First Name

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Company

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Address

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E-Mail

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### Registration Fee

- For participants 460,-€
- For speakers 320,-€
- For students 150,-€

Registration fee includes: Conference proceedings, snacks and beverages during coffee breaks as well as buffet dinner on Wednesday and buffet lunch on Thursday.

### Cancellations

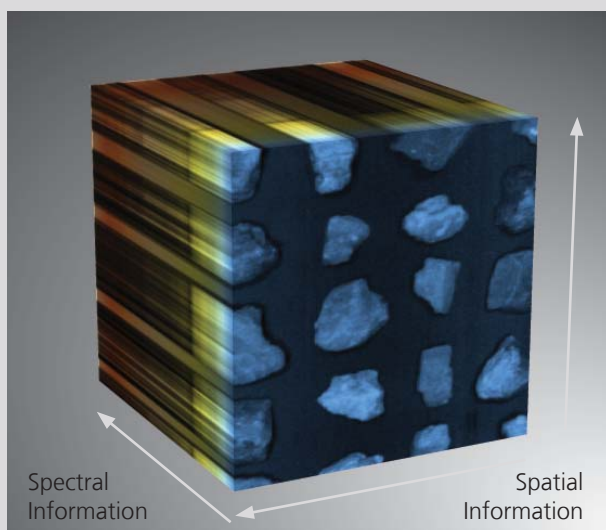
Refunding per registration for cancellations received in writing to KCM prior February 1<sup>st</sup>, 2015 (less 80 € processing fee). No refunding after February 1<sup>st</sup>, 2015.

### Contact

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Karlsruhe Center for Material Signatures



[www.OCM-2015.eu](http://www.OCM-2015.eu)

[www.materialsignatures.com](http://www.materialsignatures.com)

Updated: February 4<sup>th</sup>, 2015