

OCM 2013

International Conference on

Optical Characterization of Materials

March 6th-7th, 2013 Karlsruhe / Germany









International Conference on Optical Characterization of Materials

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-2013) 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).

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Conference Program March 6th, 2013

10:00 Tour at Fraunhofer IOSB (optional)

12:00 Registration and Snack

13:00 Welcome and Opening

13:15 Session: Measurement Principles

- Spectral imaging in process analytics using chemometrics and first principles / R.W. Kessler; Reutlingen University – Process Analysis and Technology
- MEMS based systems and their applications in NIR spectroscopy for materials analysis / H. Grüger; Fraunhofer IPMS
- Characterization and identification of plastics through microwave treatment and temperature measurement / M. Labbert; University Zittau/Görlitz

14:30 Coffee Break

15:00 Session: Spectroscopy

- Reflection and transmission Raman spectroscopy for the chemical characterization of solid materials / E. Ostertag; Reutlingen University – Process Analysis
- Raman spectroscopy for the characterization of cultural heritage and innovative products / K. Egly; Fraunhofer ISC
- Hydrogen content of CeCl 3-doped sodium alanate powder samples measured in-situ by ATR-FTIRspectroscopy and gravimetry during desorption / I. Franke; Hochschule RheinMain

16:15 Coffee Break

16:45 Session: Food Inspection I

- The potential of near infrared spectroscopy in measuring breadmaking quality characteristics of wheat / A. Hüsken; Max Rubner-Institut
- Comprehensive, non-invasive, and quantitative monitoring of the health and nutrition state of crop plants by means of hyperspectral imaging and computational intelligence based analysis / A. Backhaus; Fraunhofer IFF
- Improving optical fruit sorting by non-destructive determination of quality parameters affecting wine quality / M. Lafontain; Geisenheim Research Institute

18:00 Summary First Day

19:30 Dinner

Badische Weinstuben Schlossbezirk 6 76131 Karlsruhe

www.badische-weinstuben.de



Conference Program March 7th, 2013

09:00 Session: Food Inspection II

- Active infrared thermography as a tool for quality control in the food industry / J. Aderhold; Fraunhofer WKI
- Inline HSI food inspection and concentration measurements of pharmaceuticals / M. Kerschhaggl; EVK, Austria
- Detection of non-metallic impurities and defects through radar measurements / D. Nüßler; Fraunhofer FHR

10:15 Coffee Break

10:45 Session: Spectral Data Processing

- Evaluation of linear spectral unmixing using nonnegative matrix factorisation on stationary hyperspectral sensor data of specifically prepared mineral and rock mixtures / W. Groß; Fraunhofer IOSB
- Spectral and spatial unmixing for material recognition in sorting plants / M. Michelsburg; KIT-IIIT
- Understanding multispectral images of wood strands with matrix factorization / M. Asbach; Fraunhofer IAIS

12:00 Lunch

13:00 Session: Mineral Characterization

- Potential of NIR hyperspectral imaging in the minerals industry / C. Schropp; AMR RWTH Aachen University
- The applicability of near infra-red (NIR) spectroscopy for sensor based sorting of a porphyry copper ore / M. Dalm; TU Delft
- Luminescence and reflection spectroscopy for automatic classification of various minerals / J. Hofer; Binder + Co AG, Austria

14:15 Coffee Break

14:45 Session: X-Ray

- X-ray transmission sorting of tungsten ore / M. Robben; AMR RWTH Aachen University
- Quantitative sorting using dual energy X-ray transmission imaging / M. Firsching; Fraunhofer IIS
- Sensor sorting of non-ferrous post-consumer scrap / B. Wens; I.A.R. RWTH Aachen University

16:00 Final Summary

Poster Presentation March 6th-7th, 2013

Posters are presented during all coffee breaks

Food Inspection

 Image analysis of natural products / G. Linß; TU-Ilmenau

Measurement Principles

- Optical and electrical properties of Al/Al2O3 cermets obtained by plasma spraying: role of operating parameters and microstructure / D. Toru; Université François-Rabelais de Tours
- Time-resolved reaction monitoring by NIR spectroscopy / H. Krüger; Polytec GmbH
- Improved fault detection for inline optical inspections by evaluation of NIR-images / H. Eigenbrod; Fraunhofer IPA

Mineral Characterization

 A comparison between NIR hyperspectral imagery and NIR point spectra for characterisation of a porphyry copper ore / M. Dalm; TU Delft

Recycling

- Polymer identification with terahertz technology / A. Maul; I.A.R. RWTH Aachen University
- Characterisation of materials in the millimetre wave frequency region for industrial applications / M. Demming; Fraunhofer FHR

Spectral Data Processing

• A framework for storage, visualization and analysis of multispectral data / S. Irgenfried; KIT-IPR

Spectroscopy

- Infrared reflection absorption spectroscopy for characterization of alkylsilane monolayers on silicon nitride surfaces / X. Stammer; Bruker Optics GmbH
- Multispectral imaging from the lab to end-user applications / O. Lischtschenko; Ocean Optics



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.



Binding Conference Registration OCM-2013

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Address	Refu writi
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Fraunhofer IOSB, Fraunhoferstr. 1, 76131 Karlsruhe, Germany **Conference Venue**

Registration Fee

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

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

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nding per registration for cancellations received in ng to KCM prior February 1st, 2013 (less 80 \in essing fee). No refunding after February 1st, 2013.

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www.OCM-2013.eu/registration/ ster directly



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