

SWISS PHOTONICS

Swiss Food Tech Day, Photonics 4 Food

Zollikhofen Bern, 1. Juni 2016



**Dr. iur. Urs
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Co-Geschäftsführer Foederation der Schweiz. Nahrungsmittel-Industrie(n) FIAL, Muri bei Bern
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Co-Geschäftsführer der Foederation der schweizerischen Nahrungsmittelindustrie fial

Geschäftsführer von SCFA, SwissOlio, Glacesuisse, Suppenverband und der Interessengemeinschaft
 Tee, Gewürze und verwandte Produkte

Geschäftsführer der Arbeitsgemeinschaft für die Ausbildung von Lebensmitteltechnologien

Begrüssung



Dr. Peter Braun

**CEO Swiss Food Research and Lecturer at the Department of Health Sciences and Technology, ETH
Zurich**

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Dr. Peter Braun studied Process Engineering and is holding a PhD from ETH Zurich in the area of food
 processing and rheology. He worked 10 years for Kraft Foods holding several positions within process
 analysis and improvement in the field of cocoa and chocolate manufacturing. He continued his career
 with Bühler heading up Innovation, Design and Technology in the area of Cocoa & Chocolate for the
 last 14 years.

Since 2013 he is managing Swiss Food Research as CEO.

Einführung



**Dr. Christian
Bosshard**

Vice-President Thin Film Optics CSEM SA, Muttenz BL

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Dr. Christian Bosshard is managing the Thin Film Optics Division of CSEM in Muttenz. He received his
 degree in Physics (1986) and his doctorate (1991, Silver medal award) from ETH. Christian Bosshard is
 a Fellow of the Optical Society of America (OSA), coordinator for CSEM in the Heterogeneous
 Technology Alliance (HTA), Managing Director and board member of Swissphotonics.

Einführung



Dr. Helmut Teichmann

Systems Sales Engineer at Hamamatsu Photonics France-Swiss Office, Solothurn
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Helmut Teichmann (MSc Solid State Physics, PhD on Integrated Optics) worked as researcher at Paul Scherrer Institute and CSEM SA. Jointly with CSEM, he founded the start-up SPECTROsolutions AG, which was acquired by Hamamatsu Photonics in 2002. From that collaboration, several new and innovative mini spectrometers are out on the market today. Since 2010 Helmut Teichmann is sales engineer at Hamamatsu Photonics Swiss Office.

Optische Sensoren – Ein Überblick der Technologien und Anwendungen

Spectroscopy is a key technology for applications related to food sensing. The talk gives an overview on optoelectronic components for such applications, including standard OEM spectrometers, MEMS-FTIR and MEMS-FPI sensors, integrated Raman spectrometers and SERS solutions as well as LED light sources for MIR spectral range. If there is time, some x-ray applications for food applications are discussed additionally.



Dr. Mario Schwider

CTO, Mitglied der Geschäftsleitung Photonfocus AG, Lachen SZ
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Founded Photonfocus AG in May 2001. As technical director he is responsible for the CMOS sensor and CMOS camera developments. He studied physics in Berlin and Karlsruhe. In 1995 he founded an engineering office developing high-speed digital vision processors and CCD cameras for industrial and medical applications. From 1997 to 1998 he worked at the Fraunhofer IIS Erlangen in the field of machine vision system design. In 1998 he joined the Image Sensing Section of CSEM SA Zürich, where he was responsible for the initial operation of CMOS sensors and the design of test equipment's and cameras.

3D Imaging und Scanning – Ein Überblick der Technologien und Anwendungen

Ausgehend von der Erläuterung des Prinzips der Lasertriangulation werden die Systemkomponenten für die Realisierung von Triangulationssystemen beschrieben. Mit einigen Integrationsbeispielen in der Nahrungsgüterproduktion wird die Vielfalt der Möglichkeiten dieser Methode aufgezeigt. Weiterhin wird dargestellt, wie zukünftig die Kamertechnik näher an die Produktionslinien herangeführt wird. Im Ausblick werden Möglichkeiten der kombinierten Farb- und 3D-Inspektion sowie Applikationsmöglichkeiten von Hyperspectral Imaging Kameras vorgestellt.



Dr. Reto Wyss

CTO and co-Founder of ViDi Systems SA, Villaz-St-Pierre FR
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Dr. Wyss is CTO and co-founder of ViDi Systems SA. After studying physics at EPFL and ETH, he got his PhD from the Institute of Neuroinformatics (ETH/UNIZ) for the investigation of models about sensory and motor coding in biological system. After a PostDoc at Caltech he joined the CSEM in Alpnach in 2006, where he developed the visual inspection technology that was transferred in 2012 into the newly founded startup ViDi Systems.

Deep Learning - Neue Möglichkeiten für die industrielle Bildanalyse, Inspektion und Objekterkennung

Many visual inspection tasks are still done by humans due to their complexity. Ever varying appearance of objects and their properties make an automated solution based on traditional machine vision virtual impossible. New machine learning technologies based on Deep-Learning change this - computers can now learn from examples very complex visual tasks outperforming humans both in terms of speed and accuracy.



Manuel Höhener

Head of R&D Chocolate Mass & Compound Bühler AG, Uzwil SG
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Manuel Höhener is head of R&D chocolate mass at Bühler. He is responsible for development and innovation of process technology and equipment for the chocolate industry. Graduated from NTB (BSc precision engineering) and holder of an MSc mechatronic (FH Konstanz), he started his career leading the process measuring and control technology group (93-08) at CT of Bühler. Between 2008 and 2014 he was product manager for chocolate refiners and leads that refiner development team.

Smarte Maschinen- und Prozesskontrolle in der Schokoladeproduktion

Optical sensors and fast data analysis helps to measure and control process variables they, in the past, could only be checked and adjusted by operators. This wear less tools opens many possibilities to improve the stability and quality in the chocolate making process. The presentation will give some solutions and ideas how to successfully implement this technology into machines and production lines.



Dr. Francesco Dell'Endice

CEO at QualySense AG, Glattdbrugg ZH

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Francesco is a high-tech entrepreneur. He is a co-founder of QualySense, a Swiss start-up that plans to revolutionize the quality control of grains, beans and seeds with its unique high-throughput sorting devices, which are able to sort millions of grains *one by one* at a very high-speed and with respect to biochemical properties.

Francesco holds a PhD in Spectroscopy (University of Zürich, Switzerland), a Master in Aerospace Engineering (Politecnico di Milano, Italy), a Bachelor in Spacecraft and Vehicles (SUPAERO, France), and a Certificate of Applied Science (University of South Australia – International Space University, Australia).

He enjoys working in the business domain and leading product development at 360° from technical, legal, sales and marketing aspects. Francesco is fast, reliable and responsible. He firmly believes that the only keys to success are human capital and multiculturalism.

Optisches Sortieren auf Basis *opto-chemischer Analyse* – Qualitätsmerkmale erkennen

QualySense is a Swiss company providing innovative solutions for high-speed analyzing and sorting grains. By combining state-of-the-art algorithms with Machine Vision (MV) and hyperspectral sensing technologies (NIR), the QSorter Explorer analyses each individual grain based on their physical and biochemical properties. The QSorter Explorer is a reliable and customizable solution to increase the quality and safety of food products.



Dr. Yosef Akhtman

CEO and Founder Gamaya SA, Lausanne VD

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Yosef is the CEO and founder of Gamaya. Gamaya has been featured by Forbes as one of the 4 European AgTech startups with a potential to become a unicorn. Before Gamaya, Yosef for more than 10 years managed international applied research projects in UK and Switzerland, spanning the subjects of remote sensing, mobile robotics and environmental monitoring.

Mit Hyperspektralkameras die Produktion & Qualität der Landwirtschaft optimieren

Gamaya is a knowledge company that empowers farmers in agriculture with unprecedented in-depth understanding of their lands and plant health using unique hyperspectral imaging cameras, data mining and analytics technology. We translate the data from the cameras into actionable information for agricultural businesses using a simple and cost effective hyperspectral remote sensing methodology.



Prof. Dr. Klaus Frick

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Klaus Frick studied Mathematics at the University of Innsbruck and received his PhD in 2008. Afterwards he held a permanent position at the Institute for Mathematical Stochastics at the University of Göttingen. Since 2013 he is a lecturer for Mathematics and Statistics at the Interstate University of Applied Sciences of Technology NTB in Buchs. Aside to teaching mathematics he is engaged in R&D projects with focus on virtual product development and optimization, process control and big data analytics.

Mit Mathematik zu neuen Horizonten – Modellierung, Simulation und Statistik für die intelligente Prozesskontrolle

Mathematical and statistical techniques for modelling, simulation and optimization of products and processes are well developed and readily available. In the last years the applicability of these methods has increased dramatically mainly due to ever-increasing computational power, high-capacity data transmission and storage as well as affordable sensors. This talk shows by means of recent R&D projects how mathematics in a modern industrial setting can generate added-value in product development and process control.

 <p>Zollikofen 1 June 2016</p>	<p>Workshop</p> <ul style="list-style-type: none"> » Talks by Photonics Experts » Partnering & Networking 	 <p>PHOTONICS PUBLIC PRIVATE PARTNERSHIP</p> 
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