



## **5<sup>TH</sup> DRESDEN NANOANALYSIS SYMPOSIUM “IN-SITU MICROSCOPY”**

*Organized by Dresden Fraunhofer Cluster Nanoanalysis and Dresden Center for Nanoanalysis at TU Dresden, supported by the European Materials Characterization Council*

*September 1, 2017, Dresden, Germany  
Fraunhofer Campus Dresden, Winterbergstraße, Lecture Hall*

### **Scope**

The 5th Dresden Nanoanalysis Symposium, jointly organized by the Dresden Fraunhofer Cluster Nanoanalysis (DFCNA) and the Dresden Center for Nanoanalysis (DCN) at TU Dresden, and supported by the European Materials Characterization Council (EMCC) will be held at the Fraunhofer Campus Dresden, Winterbergstrasse, on September 1, 2017. It will provide highlights in the field of materials characterization, represented by invited talks and poster sessions. In addition, we will offer to visit institutes. In this year, the symposium will have the particular motto: "In-situ Microscopy".

The symposium will cover the topics of nanoanalysis and materials characterization along the whole value and innovation chain, from fundamental research up to industrial applications. It will bring scientists and engineers together from universities, research institutions, equipment manufacturers and industrial end-users. New results in disruptive nanoanalysis techniques will be reported in several talks and in the poster sessions, and novel solutions in the field of materials characterization for process and quality control will be shown. The discussions and interactions between the stakeholders will help to identify gaps in the fields of advancing nanoanalysis and materials characterization and to propose actions to close them and to support industrial exploitation of innovative materials. The symposium is supposed to reinforce ongoing collaborations and to discuss ideas for new collaborations.

## **Chair and Scientific Committee**

### ***Symposium Chair:***

Ehrenfried Zschech, Fraunhofer IKTS Dresden and Technical University Dresden, Germany

### ***Members of the Scientific Committee:***

Thomas Chudoba, ASMEC, Dresden-Rossendorf (Germany)  
Giovanni Cuniberti, Technische Universität Dresden, Dresden (Germany)  
Reiner Dietsch, AXO Dresden, Dresden (Germany)  
Lukas Eng, Technische Universität Dresden, Dresden (Germany)  
Narciso Gambacorti, CEA LETI MINATEC, Grenoble (France)  
Wolfgang Jäger, University of Kiel (Germany)  
Joachim Mayer, Ernst Ruska-Centre, Jülich (Germany)  
Eckhard Langer, GLOBALFOUNDRIES, Dresden (Germany)  
Andreas Leson, Fraunhofer IWS, Dresden (Germany)  
Malgorzata Lewandowska, Warsaw University of Technology, Warsaw (Poland)  
Rodrigo Martins, UNINOVA, Lisbon, Portugal.  
Michael Mertig, Technische Universität Dresden, Dresden (Germany)  
Eva Olsson, Chalmers University of Technology, Gothenburg (Sweden)  
Rainer Rauh, Airbus, München (Germany)  
Gerd Schneider, Helmholtz-Zentrum, Berlin (Germany)  
Robert Sinclair, Stanford University, California (USA)  
Olivier Thomas, University Marseille (France)  
Wilfried Vandervorst, IMEC, Leuven (Netherlands)  
Oden Warren, Hysitron, Minnesota (USA)  
Thomas Weissgaerber, Fraunhofer IFAM, Dresden (Germany)

### **Local Organizing Committee:**

Martin Gall, Fraunhofer IKTS Dresden (Germany)  
Elke Göring, innotec21, Leipzig (Germany)  
Kristina Kutukova, Fraunhofer IKTS Dresden (Germany)

### **Web page:**

<http://www.nanoanalytik.fraunhofer.de/en/events/5DNS.html>

## PROGRAM

*Coffee / Registration (8:30 am – 9:00 am)*

*Welcome (9:00 am – 9:10 am)*

Ehrenfried Zschech, Fraunhofer IKTS Dresden and Technische Universität Dresden, Germany

*Session 1 (9:10 am – 10:50 am)*

KEYNOTE TALK

**“Instrumentation for a comprehensive investigation of the nano-world: Multimode systems for imaging and analysis”**

Jaroslav Klima, Tescan Orsay Holding, Brno, Czech Republic

KEYNOTE TALK

**“Infrared spectro-microscopy for on/in line metrology in manufacturing 4.0”**

Tofail Syed, University of Limerick, Ireland

**“Beyond standard nanoindentation: New methods for the mechanical characterization of surfaces and coatings”**

Thomas Chudoba, ASMEC Dresden, Germany

**“Protochips™ in-situ electron microscopy solutions: Capabilities and applications”**

Mathias O. Mosig, Protochips, Morrisville/NC, USA

*Coffee break and poster session (10:50 am – 11:20 am)*

*Session 2 (11:20 am – 1:00 pm)*

**“Mechanical properties at the nanoscale: Recent developments using nano-focused synchrotron X-ray diffraction”**

Olivier Thomas, University Marseille, France

**“New challenges in high-resolution diffraction”**

Horst Borrmann, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany

**“Scanning X-ray microscopy at MAXYMUS combining chemical, magnetic, depth and temporal sensitivity”**

Gisela Schütz, Max-Planck Institute for Intelligent Systems, Stuttgart, Germany

**“Nanoanalysis with soft X-ray microscopes”**

Gerd Schneider, Helmholtz Center Berlin, Germany

**“Advances in laboratory X-ray technology enabling synchrotron capabilities in home-labs”**

Wenbing Yun, sigray, Concord/CA, USA

*Lunch break and poster session (1:00 pm – 2:00 pm)*

*Session 3 (2:00 pm – 4:00 pm)*

**“Recent considerations and applications of in-situ, environmental TEM”**

Robert Sinclair, Stanford University, Palo Alto/CA, USA

**“Analysis of the transformation sequence in reactive metallic multilayers using in-situ TEM observations”**

Jerzy Morgiel, Institute of Metallurgy and Materials Science, Academy of Science, Krakow, Poland

**“Towards atomic resolution magnetic imaging of nanoscale materials in the TEM”**

Rafal E. Dunin-Borkowski, Ernst Ruska Center for Microscopy, Jülich, Germany

**“Exploring nanoscale material processes with nanosecond time-resolved electron microscopy”**

Thomas LaGrange, EPFL Lausanne, Switzerland

**“Accessing reaction kinetics via direct imaging of atoms – example of graphene”**

Andrey Chuvilin, CIC nanoGUNE, San Sebastian, Spain

**“In-situ microscopy of processes in nanostructured materials using electrons, X-rays and scanning probes”**

Erdmann Spiecker, University Erlangen-Nürnberg, Germany

*Best poster award ceremony and closing remarks (4:00 pm – 4:15 pm)*

Ehrenfried Zschech, Fraunhofer IKTS Dresden and Technische Universität Dresden, Germany

*Coffee and cake, and poster session (4:15 pm – 5:30 pm)*

Ehrenfried Zschech, Fraunhofer IKTS Dresden and Technische Universität Dresden, Germany

*Lab tours at Fraunhofer Campus Dresden (4:15 pm – 5:30 pm)*

Ehrenfried Zschech, Fraunhofer IKTS Dresden and Technische Universität Dresden, Germany

*Poster sessions*

*10:50 am – 11:20 am*

*1:00 pm – 2:00 pm*

*4:15 pm – 5:30 pm*