

**Program (CET)**

# **Frontiers in Correlative Material Characterization: Samples, Techniques, Instrumentation and Data Management**

**Italian-German WE-Heraeus-Seminar**

**02 Apr - 05 Apr 2024**

**at the Physikzentrum Bad Honnef, Germany**

**WILHELM UND ELSE  
HERAEUS-STIFTUNG**



# Program (CET)

**Tuesday, 02 April 2024**

10:00 – 14:00    **Registration**

12:35            *LUNCH*

14:00 – 14:45    Scientific Organizers    **Welcome and Opening**

**Chair: Rafal E. Dunin-Borkowski; Regina Ciancio and Axel Neffe**

14:45 – 15:30    Mathieu Kociak            **Light in the electron microscope: from correlated to coincident measurements**

15:30 – 16:00    *COFFEE BREAK*

**Chair: Silke Christiansen**

16:00 – 16:45    Rosella Aversa            **Metadata Management in correlative characterization: tales from the Metadata WG**

16:45 – 17:30    Dieter Weber              **Tools and skills to survive the frontier**

17:30 – 18:15    Vincenzo Grillo            **Intelligent experiments in sample analysis and beam control for electron microscopy**

18:15 – 18:30    Stefan Jorda                **About the Wilhelm and Else Heraeus Foundation**

18:30 – 20:00    *DINNER*

20:00 – 22:00    **Poster Session I**

# Program (CET)

Wednesday, 03 April 2024

07:30            *BREAKFAST*

**Chair: Dorota Koziej**

08:30 – 09:15    Regine Willumeit-Römer            **Correlative characterization of degradable Mg-based implants**

09:15 – 10:00    Alberta Bonanni            **Correlative characterization: a perspective for quantum materials**

10:00 – 10:20    *COFFEE BREAK*

**Chair: Fabio Giavazzi**

10:20 – 11:05    Pasquale Orgiani            **Crafting the structure of materials for tailoring their quantum properties: the case of TiO<sub>2</sub> thin films**

11:05 – 11:50    Jacob Hoogenboom            **From millimeters to molecules: Integrated microscopy with coincident electron, photon and ion beams**

11:50 – 12:35    Subin Lee            **Pushing Boundaries of SEM for Richer Information**

12:35            *LUNCH*

**Chair: Marc-Georg Willinger**

14:00 – 14:45    Robin E. Schäublin            **Correlating microscopy methods: the case of precipitates in lean, bioabsorbable Mg alloys**

14:45 – 15:30    Andrew Stewart            **Leveraging Electron Microscopy for Enhanced Process Analytical Technology in Nanomaterials Production**

15:30 – 16:00    *COFFEE BREAK*

# Program (CET)

Wednesday, 03 April 2024

Chair: Rafal E. Dunin-Borkowski

16:00 – 17:20    **Short presentations**  
(4 selected talks)

Alexey Boubnov            **Correlative Characterization: Bridging  
2D/3D Imaging with Micro-Structuring**

Berit Zeller-Plumhoff    **Deep learning for digital volume  
correlation**

Sandeep Kumar  
Chaluvadi                **Unveiling Room-Temperature  
Ferromagnetism in 2D Van der Waals  
Material: Cr<sub>4</sub>Te<sub>5</sub>**

Malika Khelfallah        **Characterization of self-assembly in  
ferrofluids**

18:30 – 20:00    *DINNER*

20:00 – 22:00    **Poster Session II**

# Program (CET)

Thursday, 04 April 2024

07:30            *BREAKFAST*

**Chair: Mathieu Kociak**

08:30 – 09:15    Marc-Georg Willinger            **The beauty and complexity of non-equilibrium dynamics in simple reaction systems**

09:15 – 10:00    Fabio Giavazzi                    **Probing multi-scale dynamics of soft and bio-soft matter with differential dynamic microscopy**

10:00 – 10:20    *COFFEE BREAK*

**Chair: Axel Neffe**

10:20 – 11:05    Francesca Toma                    **Correlative Characterization of Light Absorbing and Catalytic Materials for Solar Fuel Generation**

11:05 – 11:50    Lorenzo Albertazzi                **A correlative view on nanomaterials**

11:50 – 12:35    Dorota Koziej                      **Probing Hybrid Structures Across the Length Scales with Synchrotron-based X-rays Methods**

12:35            *LUNCH*

14:00 – 18:30    **Conference photo and Excursion to Adenauer Haus**

18:30            *HERAEUS DINNER*

*(social event with cold & warm buffet and complimentary drinks)*

# Program (CET)

**Friday, 05 April 2024**

07:30            *BREAKFAST*

**Chair: Regine Willumeit-Römer**

08:30 – 09:15    Maria Harkiolaki            **The development of a correlative cryo-imaging platform for the investigation of ultrastructure at the cellular level at near-physiological states to nanometer resolution**

09:15 – 10:00    Alex Aubert                **Correlative probing of macroscopic and microscopic functional properties of magnetic materials**

10:00 – 10:20    *COFFEE BREAK*

**Chair: Regina Ciancio**

10:20 – 11:05    Markus Kühbach            **On Implementing Comprehensive Documentation for Correlative Microscopy Workflows for Materials Science Examples: Lessons of Fun, Pain, and Gain Learned**

11:05 – 11:50    Silke Christiansen            **Context Microscopy**

11:50 – 12:30    Scientific organizers        **Poster Prize Awards & Closing Remarks**

12:35            *LUNCH*

***End of the seminar and departure***