



2nd International Workshop

01 – 02 July 2025

ZGH 03/121

01 July 2025 - Tuesday	
09:00 – 09:30	Registration
09:30 – 10:00	Welcome and Overview on CRC1625 Prof. Alfred Ludwig – Ruhr University Bochum, Germany
Session 1 - Intermetallic compounds and High Entropy Intermetallics	
10:00 – 10:30	The roles of multi-metallization and ordering in high-entropy intermetallics on catalysis for hydrocarbon and CO ₂ conversion Prof. Shinya Furukawa - The University of Osaka, Japan
10:30 – 11:00	Atomic-scale Insights into Electrocatalyst Structure and Function Prof. Anthony Shoji Hall - University of Pennsylvania, USA
11:00 – 11:15	Coffee Break
11:15 – 11:45	Element-Dependent Catalytic Properties of Heusler Alloys Prof. Takayuki Kojima - Shinshu University, Japan (online, 18:15 JST)
11:45 – 12:15	In-situ transmission electron microscopy study of nanoparticle alloys and intermetallic compounds Dr. Marc Heggen - Forschungszentrum Jülich, Germany
12:15 – 12:30	Summarizing Discussion
12:30 – 13:30	Lunch
Session 2 - Compositionally complex amorphous and solid solution electrocatalysts	
13:30 – 14:00	Heterostructured High Entropy Alloy Catalysts (online, 19:30 CST) Prof. Yonggang Yao – Huazhong University of Science and Technology, China
14:00 – 14:30	Laser-Generated High Entropy Metallic Glass Nanoparticles Prof. Stephan Barcikowski – University Duisburg-Essen, Germany (online)
14:30 – 15:00	Structure-Property Relations in Pt(MnFeCoNiCu) High-Entropy Alloy Catalysts Dr. Nicolas Schlegel - University of Copenhagen, Denmark
15:00 – 15:15	Coffee Break
15:15 – 15:45	First-Principles Investigation of Adsorptions on CoCrFeNi High Entropy Alloy Surfaces Prof. Ye Xu - Louisiana State University, USA (online, 08:15 CDT)
15:45 – 16:15	Evaluation of the water splitting electrocatalytic activity of CCSS and intermetallics enabled by scanning electrochemical cell microscopy Prof. Corina Andronesco – University Duisburg-Essen, Germany
16:15 – 17:00	Summarizing Discussion
17:00 – 18:00	Lab Tours
18:15	Dinner



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02 July 2025 - Wednesday	
Session 3 - Oxides, nitrides and further compounds	
09:00 – 09:30	Unraveling Disorder with a Multiscale Lens Prof. Christina M. Rost - Virginia Polytechnic Institute and State University, USA
09:30 – 10:00	High entropy oxides with unique magneto-electronic phase separation for advanced functionalities Prof. Abhishek Sarkar - Indian Institute of Technology Delhi, India (online, 13:00 IST)
10:00 – 10:15	Coffee Break
10:15 – 10:55	High-entropy materials for energy and electronic applications Dr. Ben Breitung and Dr. Simon Schweidler - Karlsruhe Institute of Technology
10:55 – 11:10	Summarizing Discussion
11:10 – 12:40	Group Photo and Lunch
Session 4 - Simulation of (dis)order on surfaces	
12:40 – 13:10	Simulation of segregation and ordering at surfaces Prof. Ralf Drautz , Ruhr-University Bochum, Germany
13:10 – 13:40	Accelerating Catalyst Design with Machine Learning: From Pt-Alloy Surface to Diesel Oxidation Optimization Dr. Sae Dieb - National Institute for Materials Science, Japan
13:40 – 14:00	Coffee Break
14:00 – 14:30	Decoding Surface Atomic Arrangements in Binary Alloys: The Role of Strain in ORR Activity Dr. Mailde Ozorio - University of Copenhagen, Denmark
14:30 – 15:00	Active site design in intermetallics for selective catalysis Prof. Michael Janik - Pennsylvania State University, USA (online, 8:30 EDT)
15:00 – 15:15	Summarizing Discussion
15:15 – 15:30	Coffee Break
Session 5 - Experimental determination of (dis)order on surfaces	
15:30 – 16:00	Mapping atom distributions in surface alloy electrocatalysts by scanning tunnelling microscopy Prof. Harry Hoster - University Duisburg-Essen, Germany
16:00 – 16:30	Experimental determination of surface composition of noble metal CCSS by atom probe tomography Dr. Yujiao Li – Ruhr University Bochum, Germany
16:30 – 18:00	Final Summarizing discussion - open end (Snacks are available)
18:00	End of Workshop & Farewell