



Workshop *Novel Materials and Processes for Energy*

University of Duisburg-Essen (UDE), September 16-18, 2024
In Collaboration with Ben-Gurion University of the Negev (BGU), Israel

Venue: NETZ, Seminar Room 2.42, Universität Duisburg-Essen
Carl-Benz-Str. 199. 47057 Duisburg
<https://www.uni-due.de/cenide/de/directions.php>

Monday, September 16, 2024	
09:00	Registration and Coffee
10:00	Welcome and Introduction BGU and UDE
Session 1: Novel Materials for Energy Applications Chair: Christof Schulz	
10:30	Raz Jelinek, BGU <i>Photo rechargeable organic supercapacitors</i>
10:50	Gabi Schierning, UDE <i>Quantum transport properties of thermoelectric materials</i>
11:10	Maya Bar-Sadan, BGU <i>Transition metal phosphides and layered materials as functional materials</i>
11:30	Coffee Break
11:50	Corina Andronesco, UDE <i>Catalyst discovery for energy conversion reactions – from nano-electrochemistry and high-throughput screening towards industrial applications</i>
12:10	Daniel Grave, BGU <i>Metal-oxide photoelectrodes for solar water splitting</i>
12:30	Stephan Schulz, UDE <i>Spinel nanoparticles for oxygen evolution reaction (OER)</i>

12:50	Open Discussion
13:00	Lunch
13:45	Lab Tour NanoEnergieTechnikZentrum (NETZ)
Session 2: Short Talks by Early Career Researchers Chair: Maya Bar-Sadan	
14:30	Viktor Colic, MPI Chemical Energy Conversion and UDE <i>Additively manufactured Ni electrodes and their electrochemical properties</i>
14:45	Lukas Fischer, UDE <i>Polymer-based thin-film electrodes with adjustable pore structure for electrochemical applications</i>
15:00	Coffee Break
15:30	Transfer
16:00	Guided Tour at Landschaftspark Duisburg-Nord (for Invited Speakers)
18:30	Dinner at Vegetarian Restaurant LoLu (for Invited Speakers)
Tuesday, September 17, 2024	
Session 3: In Situ and Operando Analysis Chair: Gabi Schierning	
09:00	Joshua Baraban, BGU <i>Ultraviolet intracavity absorption spectroscopy</i>
09:20	Christof Schulz, UDE <i>Understanding gas-phase synthesis of functional nanomaterials: kinetics, laser diagnostics, processes</i>
09:40	Igor Rahinov, OUI <i>From precursor to target material: temperature history, fate and evolution of iron(oxide) nanoparticles in flame synthesis</i>
10:00	Burak Atakan, UDE <i>Gas-phase reactions of metal diketonates: insights from microreactor studies using synchrotron radiation</i>
10:20	Open Discussion
10:30	Coffee Break

Session 4: Synthesis and Processing of Functional Materials and Scalability	
Chair: Joshua Baraban	
11:00	Michael Volokh, BGU <i>Polymeric carbon nitride films for photoelectrochemical and flow photochemical synthesis</i>
11:20	Hartmut Wiggers, UDE <i>Battery and catalyst nanomaterials from the gas phase</i>
11:40	Eran Edri, BGU <i>Functionalized membranes for water-energy applications</i>
12:00	Doris Segets, UDE <i>Hierarchically structured materials and electrodes</i>
12:20	Open Discussion
12:30	Lunch
13:00	Poster Session
14:00	Lab Tour The Fuel Cell and Hydrogen Center (ZBT)
Session 4: Systems Integration of Novel Materials for Energy Applications	
Chair: Doris Segets	
15:00	Oren Regev, BGU <i>Hydrogen transportation: problems and solutions</i>
15:20	Harry Hoster, UDE and ZBT <i>Electrolysis and fuel cells: from materials to systems</i>
15:40	Coffee Break
16:10	Open Discussion, Summary, Next Steps
17:00	Closing Remarks
18:00	Joint Dinner at Finkenkrug, Sternbuschweg 71, 47057 Duisburg (at own expenses)
Wednesday, September 18, 2024	
Individual Discussions and Lab Tours	

Invited talks: 15 min. + 5 min. discussion; short talks: 12 min. + 3 min. discussion

Posters

1. Dyuti Bandyopadhyay, BGU
Copper-cobalt phosphides for water splitting and methanol oxidation reactions
2. Bhawana Kumari, UDE
Electro-oxidation of solketal and glycerol over Cu-based electrocatalysts
3. Atharva Harshawardhan Ladole, UDE
Gas phase synthesis of SiN_x nanoparticles for battery application using a hot-wall reactor
4. Moritz Loewenich, UDE
Synthesis and upscaling of silicon nanoparticles for lithium-ion batteries in a hot-wall reactor
5. Yonatan Luzzatto, BGU
TBA
6. Alevtina Neyman, BGU
Nitrate reduction to ammonia: assessing the electrocatalytic behavior of Cu₃N
7. Andre Oliveira, MPI Chemical Energy Conversion and UDE
Exploring the role of electrochemical surface area in the electrocatalytic evaluation of structured nickel electrodes
8. Eui-Young Shin, UDE
Polyacrylonitrile-based carbon nanofibers and their applications in energy storage technologies
9. Jan Wegner, UDE
Scaling bulk metallic glasses with additive manufacturing