



GESELLSCHAFT  
DEUTSCHER CHEMIKER

Tuesday, September 27, 2022 - Friday, September 30, 2022, Berlin

## Electrochemistry 2022

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Tuesday, September 27, 2022

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06:00 p.m. - 11:30 p.m.

Audimax

06:00 p.m. - 11:30 p.m.

# Electrochemistry 2022

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Wednesday, September 28, 2022

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08:45 a.m. - 09:00 a.m.

Audimax

Welcome

08:45 a.m. - 09:00 a.m.

09:00 a.m. - 09:45 a.m.

Audimax

Plenary 1: Chorkendorff

09:00 a.m. - 09:45 a.m.

Electrochemical activation of molecular nitrogen to ammonia

09:00 a.m. - 09:45 a.m.

[I. Chorkendorff, Lyngby/DK](#)

09:45 a.m. - 10:30 a.m.

Audimax

Plenary 2: Minteer

09:45 a.m. - 10:30 a.m.

Bioelectrocatalysis for Electrosynthesis

09:45 a.m. - 10:30 a.m.

[S. Minteer, Salt Lake City/US](#)

10:30 a.m. - 10:55 a.m.

Audimax

Coffee break

10:30 a.m. - 10:55 a.m.

Wednesday, September 28, 2022

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10:55 a.m. - 12:10 p.m.

Audimax

## Batteries – Energy storage I

10:55 a.m. - 12:10 p.m.

Fundamentals and Applications of Sodium-ion Batteries  
P. Adelhelm, Berlin/DE

10:55 a.m. - 11:30 a.m.

Visualizing the structure evolution of CuS-based lithium all solid-state batteries by 3D tomography

11:30 a.m. - 11:50 a.m.

Z. G. Zhang, Berlin/DE, K. A. Mazzio, Berlin/DE, K. Dong, Berlin/DE, I. Manke, Berlin/DE, P. Adelhelm, Berlin/DE

Electrochemical Charge Storage Mechanisms in Confined Electrolytes

11:50 a.m. - 12:10 p.m.

S. Fleischmann, Ulm/DE

## Electrocatalysis – Energy conversion I

10:55 a.m. - 12:10 p.m.

Evaluation of Electrocatalyst Activity, Stability and Selectivity during dynamic operation – Online Coupling of Analytical Techniques to Electrochemical Flow Cells

10:55 a.m. - 11:30 a.m.

K. Mayrhofer, Erlangen/DE, S. Cherevko, Erlangen/DE, I. Katsounaros, Erlangen/DE, B. Berkes, Erlangen/DE, P. Nikolaenko, Erlangen/DE

Active Sites Engineering of Single-Atom Fe-N-C Electrocatalysts for the Oxygen Reduction Reaction

11:30 a.m. - 11:50 a.m.

G. Chen, Dresden/DE, X. Feng, Dresden/DE

Structural Transformations in NiFe LDH Electrocatalysts Resolved by Operando X-ray Scattering

11:50 a.m. - 12:10 p.m.

F. Dionigi, Berlin/DE, T. Merzdorf, Berlin/DE, M. Klingenhof, Berlin/DE, P. Strasser, Berlin/DE

# Electrochemistry 2022

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Wednesday, September 28, 2022

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10:55 a.m. - 12:10 p.m.

Hörsaal B

## Fundamental and theoretical electrochemistry I

10:55 a.m. - 12:10 p.m.

Beyond C2 in CO<sub>2</sub> electroreduction

10:55 a.m. - 11:30 a.m.

[N. Lopez, Tarragona/ES](#)

Electrochemistry Standing Out - A Theoretical Evaluation of Stepped and Kinked Surface Sites

11:30 a.m. - 11:50 a.m.

[S. Beinlich, Berlin/DE](#), [N. Hörmann, Berlin/DE](#), [K. Reuter, Berlin/DE](#)

Accelerating the Exploration of High Entropy Alloys through Multi-Dimensional Modeling

11:50 a.m. - 12:10 p.m.

[V. A. Mints, Bern/CH](#), [J. K. Pedersen, Copenhagen/DK](#), [J. Rossmeisl, Copenhagen/DK](#), [M. Arenz, Bern/CH](#)

## Interfacial Electrochemistry I

10:55 a.m. - 12:10 p.m.

The Role of Adsorbed OH on Platinum Electrodes in the Electrocatalysis of Fuel Cell Reactions

10:55 a.m. - 11:30 a.m.

[E. Herrero, Spain/ES](#)

The interfacial properties of Ag(111) and Au(111) electrodes in aqueous and aprotic electrolytes: double-layer capacitance and thermodynamic modeling

11:30 a.m. - 11:50 a.m.

[A. S. Shatla, Bonn/DE](#), [M. Landstorfer, Berlin/DE](#), [H. Baltruschat, Bonn/DE](#)

The Electrochemistry of Sodiumdodecylsulfonate on Au(111) in sulfuric acid –Adsorbate structure, voltammetry and friction

11:50 a.m. - 12:10 p.m.

[H. Baltruschat, Bonn/DE](#), [A. Koellisch-Mirbach, Bonn/DE](#), [I. Park,, Bonn/DE](#), [S. Iqbal, Bonn/DE](#)

12:10 p.m. - 01:30 p.m.

Audimax

Lunch break

12:10 p.m. - 01:30 p.m.

Wednesday, September 28, 2022

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01:30 p.m. - 03:30 p.m.

Audimax

## Batteries – Energy storage II

01:30 p.m. - 03:30 p.m.

Secondary FeF<sub>2</sub>-Li Batteries in Ionic Liquid Electrolytes

01:30 p.m. - 01:50 p.m.

L. F. Olbrich, Oxford/GB, A. W. Xiao, Oxford/GB, M. Pasta, Oxford/GB

Interfacial chemistry and electrolyte approaches for next generation batteries

01:50 p.m. - 02:10 p.m.

J. Popovic-Neuber, Stuttgart/DE

Novel Developments in Battery DEMS

02:10 p.m. - 02:30 p.m.

Z. Jusys, Ulm/DE, R. J. Behm, Ulm/DE

Halogen conversion-intercalation cathode for zinc-ion battery

02:30 p.m. - 02:50 p.m.

A. E. Aynalem, Manchester/GB, L. Le Fevre, Manchester /GB, R. Dryfe, Manchester /GB

Elucidating the Effect of Al<sub>2</sub>O<sub>3</sub> Coating on the Cathode-Electrolyte Interphase Stability of P2-Na<sub>2/3</sub>Ni<sub>1/3</sub>Mn<sub>2/3</sub>O<sub>2</sub> as Cathode Material for Sodium-ion Batteries

02:50 p.m. - 03:10 p.m.

D. Roscher, Ulm/DE, A. Mullaliu, Leuven/BE, M. Hekmatfar, Ulm/DE, M. Zarrabeitia, Ulm/DE, M. Polanik, Ulm/DE, J. Hirlinger-Alexander, Ulm/DE, I. Hasa, Warwick/GB, S. Passerini, Ulm/DE

Development of a High-Throughput Method to Search for New Active Materials for Redox Flow Batteries

03:10 p.m. - 03:30 p.m.

J. Noack, Pfinztal/DE, N. Roznyatovskaya, Pfinztal/DE, J. Schumacher, Winterthur/CH, P. de Silva, Kongens Lyngby/DK, M. Skyllas-Kazacos, Sydney/AU, J. Wlodarczyk, Winterthur/CH, A. Wolf, Karlsruhe/DE, J. Yu, Amiens/FR, E. Baudrin, Amiens/FR, R. Fornari, Kongens Lyngby/DK, A. Franco, Amiens/FR, D. Gerlach, Pfinztal/DE, J. Hamaekers, Sankt Augustin/DE, A. Maaß, Sankt Augustin/DE, C. Menictas, Sydney/AU, G. Mourouga, Winterthur/CH, H. Nirschl, Karlsruhe/DE, R. Schaerer, Winterthur/CH

Wednesday, September 28, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal A

## Electrocatalysis – Energy conversion II

01:30 p.m. - 03:30 p.m.

Combining operando small- and wide-angle X-ray scattering to study the depth-dependent degradation of a Pt/C fuel cell catalyst

01:30 p.m. - 01:50 p.m.

R. K. Pittkowski, Copenhagen/DK, J. Schroeder, Bern/CH, I. Martens, Grenoble/FR, R. Chattot, Grenoble/FR, J. Drnec, Grenoble/FR, J. Quinson, Copenhagen/DK, J. J. K. Kirkensgaard, Copenhagen/DK, M. Arenz, Bern/CH

Lattice Strain Distortion and Dynamics in Noble Metal Nanocatalysts

01:50 p.m. - 02:10 p.m.

R. Chattot, Montpellier/FR, I. Martens, Grenoble/FR, J. Drnec, Grenoble/FR

Reconstruction of (Pre)catalysts during the Oxygen Evolution Reaction: The Role of the Precursor and the Transformation Conditions

02:10 p.m. - 02:30 p.m.

J. N. Hausmann, Berlin/DE, S. Mebs, Berlin/DE, L. Konstantin, Berlin/DE, I. Zebger, Berlin/DE, H. Dau, Berlin/DE, M. Driess, Berlin/DE, P. W. Menezes, Berlin/DE

CuNi nanoalloys applied in the Oxygen Evolution Reaction: a study of electronic and geometric effects

02:30 p.m. - 02:50 p.m.

E. Gioria, Berlin/DE, S. Li, Berlin/DE, R. Naumann d'Alnoncourt, Berlin/DE, F. Rosowski, Berlin/DE, A. Thomas, Berlin/DE

The dynamic nature of cobalt and manganese electrocatalysts for the oxygen evolution reaction

02:50 p.m. - 03:10 p.m.

M. Risch, Berlin/DE, J. Villalobos, Berlin/DE

Imaging of the Catalyst Layer Structure of Fuel Cells by Atomic Force Microscopy

03:10 p.m. - 03:30 p.m.

J. Lorenz, Oldenburg/DE, K. Rücker, Oldenburg/DE, C. Harms, Oldenburg/DE, G. Wittstock, Oldenburg/DE

Wednesday, September 28, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal B

<b>Fundamental and theoretical electrochemistry II</b>	01:30 p.m. - 03:30 p.m.
<b>Selectivity toward acetate in electrochemical CO<sub>(2)</sub> reduction on Cu from multiscale modeling and experiment</b> <u>H. H. Heenen, Berlin/DE</u> , H. Shin, Delaware/US, G. Kastkunger, Lyngby/DK, S. Overa, Delaware/US, J. A. Gauthier, Stanford/US, F. Jiao, Delaware/US, K. Chan, Lyngby/DK	01:30 p.m. - 01:50 p.m.
<b>Data-driven methodology to study the oxygen electrocatalysis</b> <u>S. Razzaq, Essen/DE</u> , K. S. Exner, Essen/DE	01:50 p.m. - 02:10 p.m.
<b>Simulating Cyclic Voltammograms from first principles</b> <u>N. Bergmann, Berlin/DE</u> , N. G. Hörmann, Berlin/DE, K. Reuter, Berlin/DE	02:10 p.m. - 02:30 p.m.
<b>Quantum-mechanical characterization of sulfur/carbon copolymer cathodes for Li-S batteries</b> <u>P. Partovi-Azar, Halle (Saale)/DE</u> , R. Kiani, Halle (Saale)/DE, D. Sebastiani, Halle (Saale)/DE	02:30 p.m. - 02:50 p.m.
Knappe cancelled / tba	02:50 p.m. - 03:10 p.m.
<b>Ion mobility in complex electrode structure: A theoretical perspective on the chevrel phase and NASICON</b> <u>K. Helmbrecht, Ulm/DE</u> , H. Euchner, Tübingen/DE, A. Groß, Ulm/DE	03:10 p.m. - 03:30 p.m.

Wednesday, September 28, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal C

## Interfacial Electrochemistry II

01:30 p.m. - 03:30 p.m.

The cationic enhancement effect on the two-electron oxygen reduction reaction towards hydrogen peroxide in acidic conditions at carbon-based cathodes

01:30 p.m. - 01:50 p.m.

J. Hübner, Berlin/DE, F. Pietschmann, Berlin/DE, G. Ruland, Berlin/DE, B. Paul, Berlin/DE, P. Strasser, Berlin/DE

All-Optical Electrochemistry with the Photonic Voltmeter: From Interfacial Structure to Earth-Abundant Solar Photoanodes

01:50 p.m. - 02:10 p.m.

F. Geiger, Evanston/US, C. E. Morrison, Evanston/US, E. H. Morrison, Evanston/US

Photoelectron spectroscopy on semiconductor electrodes using an integrated electrochemical cell for air free emersion and transfer to vacuum at the endstation SOLIAS at BESSY

02:10 p.m. - 02:30 p.m.

T. Mayer, Darmstadt/DE, W. Jaegermann, Darmstadt/DE, J.-P. Hofmann, Darmstadt/DE

ITO nanoparticulate film as a scaffold for reactions at liquid|liquid interface

02:30 p.m. - 02:50 p.m.

K. Dusio, Warsaw/PL, A. Siwiec, Warsaw/PL, M. Warczak, Warsaw/PL, W. Nogala, Warsaw/PL, M. Opao, Warsaw/PL

Investigating the Interface between Ceramic Particles and Polymer Matrix in Hybrid Electrolytes by Electrochemical Strain Microscopy

02:50 p.m. - 03:10 p.m.

P. Veelken, Jülich/DE, M. Wirtz, Jülich/DE, R. Schierholz, Jülich/DE, H. Tempel, Jülich/DE, H. Kungl, Jülich/DE, R.-A. Eichel, Jülich/DE, F. Hausen, Jülich/DE

Molecular dynamics simulations of the adsorption of different alkali metals on muscovite mica surfaces

03:10 p.m. - 03:30 p.m.

A. T. Celebi, Vienna/AT, M. Valtiner, Vienna/AZ



Wednesday, September 28, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal D

## Young Electrochemists' Pitches

		01:30 p.m. - 03:30 p.m.
Pitch01	Investigations on Reversible Calcium Plating and Stripping <u>E. Jacob, Freiburg/DE</u> , I. Krossing, Freiburg/DE	01:30 p.m. - 01:36 p.m.
Pitch02	Cost-efficient synthesis of transition metal chalcogenide doped Li <sub>2</sub> S@C-cathode materials via carbothermal reduction <u>P. Sous, Duisburg/DE</u> , S. D. Hirt, Duisburg/DE, B. Oberschachtsiek, Duisburg/DE	01:36 p.m. - 01:42 p.m.
Pitch03	Investigation and Development of Tailor-Made Core-Shell Hard Carbon Materials to be used as Negative Electrodes in Sodium Ion Batteries <u>P. Appel, Berlin/DE</u> , T. P. Fellingner, Berlin/DE	01:42 p.m. - 01:48 p.m.
Pitch04	A new strategy to unravel the sodium storage mechanism in hard carbon anodes <u>S. Wu, Berlin/DE</u> , T. Fellingner, Berlin/DE	01:48 p.m. - 01:54 p.m.
Pitch05	Simultaneous determination of different neonicotinoids using amperometric detection/mass spectrometry in capillary electrophoresis <u>M. Koall, Regensburg/DE</u> , D. Böhm, Regensburg/DE, F.-M. Matysik, Regensburg/DE	01:54 p.m. - 02:00 p.m.
Pitch06	Synthesis of Atomically Dispersed Electrocatalyst by Imprinting with Different Template Ions throughout Carbonization <u>S. Dietzmann, Berlin/DE</u> , A. Mehmood, Berlin/DE	02:10 p.m. - 02:16 p.m.
Pitch07	Development of electrocatalysts for the electrochemical water splitting <u>M. Berger, Aachen/DE</u> , R. Palkovits, Aachen/DE	02:16 p.m. - 02:22 p.m.
Pitch08	Novel Catalysts Synthesized by Particle-ALD for Enhancing the Performance and Durability of Proton Exchange Membrane Fuel Cells <u>F. Pescher, Freiburg/DE</u> , M. von Holst, Freiburg/DE, S. Vierrath, Freiburg/DE, M. Breitwieser, Freiburg/DE	02:22 p.m. - 02:28 p.m.
Pitch09	Precious-metal free electrocatalysts for a combined bio-electrochemical production of use chemicals from CO <sub>2</sub> . <u>A. Rieck, Berlin/DE</u> , T. P. Fellingner, Berlin/DE	02:28 p.m. - 02:34 p.m.

# Electrochemistry 2022

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Wednesday, September 28, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal D

Pitch10	Understanding the Influence of Ionomers on Electrocatalyst Materials for the Oxygen Evolution and Reduction Reaction in Alkaline Media <u>K. Rücker, Oldenburg/DE</u> , J. Lorenz, Oldenburg/DE, C. Harms, Oldenburg/DE, M. Wark, Oldenburg/DE	02:34 p.m. - 02:40 p.m.
Pitch11	Rational Design of Gas Diffusion Electrodes for CO <sub>2</sub> Electrolysis – Young Electrochemists' Pitches <u>Q. Chen, Stuttgart/DE</u> , D. Kopljar, Stuttgart/DE, A. Kube, Stuttgart/DE, S. Geiger, Stuttgart/DE, N. Wagner, Stuttgart/DE, K. A. Friedrich, Stuttgart/DE	02:50 p.m. - 02:56 p.m.
Pitch12	Development of multilayer electrodes for electrochemical conversion of CO <sub>2</sub> to CO <u>C. Martens, Jülich/DE</u> , B. Schmid, Jülich/DE, H. Tempel, Jülich/DE, H. Kungl, Jülich/DE, R.-A. Eichel, Jülich/DE	02:56 p.m. - 03:02 p.m.
	Short Break	03:02 p.m. - 03:08 p.m.
Pitch14	Bubble dynamics on laser structured porous nickel electrodes <u>H. Rox, Dresden/DE</u> , R. Baumann, Dresden/DE, A. Bashkatov, Dresden/DE, X. Yang, Dresden/DE, F. Ränke, Dresden/DE, A. F. Lasagni, Dresden/DE, G. Mutschke, Dresden/DE, K. Eckert, Dresden/DE	03:08 p.m. - 03:14 p.m.
Pitch15	Basics of Electrochemical Imine Reduction <u>J. Kümper, Aachen/DE</u> , R. Palkovits, Aachen/DE	03:14 p.m. - 03:20 p.m.

03:30 p.m. - 04:00 p.m.

Audimax

Coffee break	03:30 p.m. - 04:00 p.m.
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Wednesday, September 28, 2022

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04:00 p.m. - 06:00 p.m.

Audimax

## Batteries – Energy storage III

04:00 p.m. - 06:00 p.m.

### Flow Optimized Structures for Vanadium Redox Flow Batteries

04:00 p.m. - 04:20 p.m.

M. Schilling, Ulm/DE, F. Hermanutz, Denkendorf/DE, L. Lan, Chongqing/CN, C. Liu, Wuhan/CN, S. Liu, Wuhan/CN, J. Li, Chongqing/CN, P.-C. Sui, Wuhan/CN, R. Zeis, Ulm/DE

### Corrosion of Aluminium Anodes in Chloroaluminate Electrolytes for Secondary Batteries

04:20 p.m. - 04:40 p.m.

B. Gollas, Graz/AT, G. Kothleitner, Graz/AT, D. Moser, Graz/AT, S. Steiner, Graz/AT, P. Materna, Graz/AT, A. Stark, Graz/AT, J. Lammer, Graz/AT, A. Csík, Debrecen/HU, J. M. Abdou, Graz/AT, R. Dorner, Graz/AT, M. Sterrer, Graz/AT, W. Goessler, Graz/AT

### Electrochemical Al<sup>3+</sup>-ion insertion into cation-deficient titanium oxides

04:40 p.m. - 05:00 p.m.

M. Rittel, Berlin/DE, Koketsu T., Berlin/DE, Strasser P., Berlin/DE, Ma J., Paris/FR, Reeves K., Paris/FR, Kang S., Paris/FR, Dambournet D., Paris/FR, Legein C., Le Mans/FR, Body M., Le Mans/FR, Fayon F., Orleans/FR, Borkiewicz O., Illinois/US

### A new differential electrochemical mass spectrometry (DEMS) setup and its application in sodium ion batteries

05:00 p.m. - 05:20 p.m.

J. Geisler, Berlin/DE, L. Pfeiffer, Ulm/DE, P. Axmann, Ulm/DE, P. Adelhelm, Berlin/DE

### Insights into the sodiation mechanism of hard carbon-like materials from electrochemical impedance spectroscopy

05:20 p.m. - 05:40 p.m.

K. Schutjajew, Jena/DE, T. Tichter, Berlin/DE, J. Schneider, Berlin/DE, M. Antonietti, Postdam/DE, C. Roth, Bayreuth/DE, M. Oschatz, Jena/DE

### Understanding the Phase Transition Involving Cationic/Anionic Redox Activities in Sodium Layered Sulfide Cathodes

05:40 p.m. - 06:00 p.m.

Y. Sun, Berlin/DE, P. Adelhelm, Berlin/DE

Wednesday, September 28, 2022

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04:00 p.m. - 06:00 p.m.

Hörsaal A

## Electrocatalysis – Energy conversion III

04:00 p.m. - 06:00 p.m.

Criterion for Finding the Optimal Electrocatalyst at any Overpotential

04:00 p.m. - 04:20 p.m.

Y. Zhang, Jülich/DE, J. Huang, Jülich/DE, M. Eikerling, Jülich/DE

Surface and near surface species active in the electrocatalytic oxidation of water revealed by operando surface and bulk X ray spectroscopies

04:20 p.m. - 04:40 p.m.

J. J. Velasco Vélez, Berlin/DE, E. Carbonio, Mülheim (Ruhr)/DE, C.-H. Chuang, New Taipei City/TW, R. Mom, Berlin/DE, L. Falling, Berlin/DE, R. Arrigo, Manchester/GB, T. Jones, Berlin/DE, D. Bernsmeier, Berlin/DE, R. Krähnert, Berlin/DE, A. Knop-Gerickle, Berlin/DE, R. Schlögl, Berlin/DE

Diagnosis of the Proton Exchange Membrane Water Electrolyzer Performance by Employing a Nonlinear Frequency Response Method

04:40 p.m. - 05:00 p.m.

T. Milič, Magdeburg/DE, V.-H. Thanh, Magdeburg/DE, L. A. Živkovi, Magdeburg/DE, T. Vidakovi-Koch, Magdeburg/DE

Fundamental Studies of Electrocatalysis for Advanced Fuel Cells and Electrolysers

05:00 p.m. - 05:20 p.m.

W. F. Lin, Loughborough/GB, X. Lin, Cambridge/GB, T. Sheng, Wuhu/CN, W. Cai, Shanghai/CN, S. G. Sun, Xiamen/CN

Bioinspired atomically dispersed M-N-C catalysts via active-site imprinting into nitrogen doped carbons

05:20 p.m. - 05:40 p.m.

T.-P. Fellingner, Berlin/DE

Operando <sup>57</sup>Fe Mössbauer Spectroscopy of FeNC Catalysts during Oxygen Reduction Reaction

05:40 p.m. - 06:00 p.m.

L. Ni, Darmstadt/DE, C. Gallenkamp, Darmstadt/DE, M. Kübler, Darmstadt/DE, S. Paul, Darmstadt/DE, P. Theis, Darmstadt/DE, S. Chabba, Mülheim (Ruhr)/DE, A. Schnegg, Mülheim (Ruhr)/DE, E. Bill, Mülheim (Ruhr)/DE, V. Krewald, Darmstadt/DE, U. I. Kramm, Darmstadt/DE

Wednesday, September 28, 2022

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04:00 p.m. - 06:15 p.m.

Hörsaal C

## Bioelectrochemistry

04:00 p.m. - 06:15 p.m.

DNA Electrochemistry and Bioelectronic Applications: State of the Art

04:00 p.m. - 04:35 p.m.

E. Ferapontova, Aarhus/DK

Towards the development of an electrochemical equilibrium glucose biosensor

04:35 p.m. - 04:55 p.m.

A. Lielpetere, Bochum/DE, S. Shachneva, Bochum/DE, A. Muhs, Bochum/DE, S. Chandra, Bochum/DE, R. Ludwig, Vienna/AT, W. Schuhmann, Bochum/DE

Spectroelectrochemical Studies of Oxygen-Tolerant [NiFe] Hydrogenase Immobilized on Transparent Conducting Oxides for Hydrogen Oxidation

04:55 p.m. - 05:15 p.m.

V. Davis, Freiburg/DE, S. Frielingsdorf, Berlin/DE, O. Lenz, Berlin/DE, I. Zebger, Berlin/DE, A. Fischer, Freiburg im Breisgau/DE

Protein-mediated and Mediator-free Approaches for Photobiocathodes Combining Photosystem I and 3D Nanoparticulate Indium Tin Oxide

05:15 p.m. - 05:35 p.m.

S. Morlock, Wildau/DE, K. Stieger, Wildau/DE, S. Subramanian, Berlin/DE, A. Zouni, Berlin/DE, F. Lisdat, Wildau/DE

Q-lipid containing membranes show high in-plane conductivity using a membrane-on-a-chip setup

05:35 p.m. - 05:55 p.m.

M. Valtiner, Vienna/AT, U. Ramach, Vienna/AT, J. Andersson, Vienna/AT, R. Schöffbeck, Vienna/AT

Obtain "ready-to-use" electrochemical biosensors with on-chip cryo-preservation of cells and magnetic cell carriers

05:55 p.m. - 06:15 p.m.

D. Özsoylu, Jülich/DE, M. M. Demir, Izmir/TR, M. J. Schöning, Jülich/DE, T. Wagner, Jülich/DE

Wednesday, September 28, 2022

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04:00 p.m. - 06:15 p.m.

Hörsaal B

Photoelectrochemistry	04:00 p.m. - 06:15 p.m.
Functional Transition Metal Oxides and Nitrides for Photoelectrochemical Energy Conversion <u>I. D. Sharp, Munich/DE</u>	04:00 p.m. - 04:35 p.m.
Electrochemical CO <sub>2</sub> reduction on Ag <sub>x</sub> Cu <sub>100-x</sub> supported p-Silicon photocathodes synthesized by one-step electroless deposition <u>E. Torralba, Thiais/FR, H. Chaliyawala, Thiais/FR, L. Soilihi, Thiais/FR, D. Muller-Bouvet, Thiais/FR, F. Marty, Noisy-le-Grand/FR, A. Rezgui, Noisy-le-Grand/FR, T. Bourouina, Noisy-le-Grand/FR, S. Le Gall, Giff-sur-Yvette/FR, S. Bastide, Thiais/FR</u>	04:35 p.m. - 04:55 p.m.
Paired photoelectrochemical conversion of glycerol and CO <sub>2</sub> at industrially relevant current densities <u>Á. Balog, Szeged/HU, E. Kecsenovity, Szeged/HU, C. Janáky, Szeged/HU</u>	04:55 p.m. - 05:15 p.m.
From photoactivation to electrodeposition: Comparing the oxidative assembly process of the water-oxidizing Mn-complex in Photosystem II with electrodeposited inorganic metal oxides <u>N. Oliver, Berlin/DE</u>	05:15 p.m. - 05:35 p.m.
Photoelectrochemically rechargeable all-soluble iron redox-flow battery for the direct conversion and storage of solar energy <u>T. Tichter, Copenhagen/DK, P. C. K. Vesborg, Copenhagen, Kgs. Lyngby/DK</u>	05:35 p.m. - 05:55 p.m.
In-situ photovoltage analysis in buried photocathodes using Photoemission spectroscopy <u>D. Moritz, Darmstadt/DE, B. Kaiser, Darmstadt/DE, J.P. Hofmann, Darmstadt/DE, W. Jaegermann, Darmstadt/DE</u>	05:55 p.m. - 06:15 p.m.

06:30 p.m. - 08:30 p.m.

Audimax

Postersession (Foyer)	06:30 p.m. - 08:30 p.m.
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# Electrochemistry 2022

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Thursday, September 29, 2022

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09:00 a.m. - 09:45 a.m.

Audimax

09:00 a.m. - 09:45 a.m.

Application and challenges of CO<sub>2</sub> reducing gas diffusion electrodes in renewable value chains

09:00 a.m. - 09:45 a.m.

G. Schmid, Erlangen/DE

09:45 a.m. - 10:30 a.m.

Audimax

Plenary 4: Compton

09:45 a.m. - 10:30 a.m.

Single Entity Spectro-Electrofluorimetry

09:45 a.m. - 10:30 a.m.

R. G. Compton, Oxford/GB, M. Yang, Oxford/GB, C.

Batchelor-Mcauley, Oxford/GB

10:30 a.m. - 10:55 a.m.

Audimax

Coffee break

10:30 a.m. - 10:55 a.m.

Thursday, September 29, 2022

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10:55 a.m. - 12:10 p.m.

Hörsaal D

## CO<sub>2</sub> reduction reaction II

10:55 a.m. - 12:10 p.m.

Considering electrochemical double-layer effects on electrocatalytic activation barriers and ion adsorption with density functional theory

10:55 a.m. - 11:30 a.m.

[M. Janik, University Park/US](#)

The electronic structure of copper at the electrified solid-liquid interface during the CO<sub>2</sub>RR revealed by operando photo-electron spectroscopy

11:30 a.m. - 11:50 a.m.

[J. J. Velasco Vélez, Berlin/DE](#), R. V. Mom, Berlin/DE, L. Sandoval, Berlin/DE, L. Falling, Berlin/DE, C.-H. Chuang, Mülheim (Ruhr)/DE, D. Gao, Berlin/DE, R. Arrigo, New Taipei City/TW, B. Roldan-Cuenya, Berlin/DE, T. Lunkenbein, Berlin/DE, A. Knop-Gericke, Berlin/DE, R. Schlögl, Berlin/DE

The influence of copper particle size on the electrochemical reduction of CO to products with C-C bonds

11:50 a.m. - 12:10 p.m.

[F. A. Rollier, Eindhoven/NL](#), M. Costa Figueiredo, Eindhoven/NL, E. J. M. Hensen, Eindhoven/NL

## Corrosion science

10:55 a.m. - 12:10 p.m.

In situ analysis of corrosion processes by means of coupled electrochemical techniques

10:55 a.m. - 11:30 a.m.

[O. Ozcan, Berlin/DE](#)

The Mechanism of Passivation Breakdown of High and Medium Entropy Alloys in Aqueous NaCl Electrolytes at Different pH

11:30 a.m. - 11:50 a.m.

[A. Wetzel, Berlin/DE](#), D. Morell, Berlin/DE, J. Witt, Berlin/DE, O. Ozcan, Berlin/DE

Characterizing corrosion and passivation processes on steel samples

11:50 a.m. - 12:10 p.m.

[L. Kalchgruber, Vienna/AT](#), M. Hahn, Wien/AT, M. Valtiner, Wien/AT



Thursday, September 29, 2022

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10:55 a.m. - 12:10 p.m.

Hörsaal A

## Electroanalysis and sensors I

10:55 a.m. - 12:10 p.m.

State-of-the-Art of Real Time Electrochemistry -  
Electrospray Ionization Mass Spectrometry  
F.-M. Matysik, Regensburg/DE

10:55 a.m. - 11:30 a.m.

Opto-electrochemical Dissolution Reveals Biogenic CaCO<sub>3</sub>  
Sequestered by Marine Phytoplankton  
M. Yang, Oxford/GB, C. Batchelor-McAuley, Oxford/GB, S.  
Barton, Oxford/GB, R. E. M. Rickaby, Oxford/GB, H.  
Bouman, Oxford/GB, R. G. Compton, Oxford/GB

11:30 a.m. - 11:50 a.m.

Electrochemical Impedance Behaviour of a New Type of  
Inkjet Printed Ion Sensor  
E. Korek, Munich/DE, J. Frey, Munich/DE, R. Brederlow,  
Munich/DE

11:50 a.m. - 12:10 p.m.

## In-situ and operando methods I

10:55 a.m. - 12:10 p.m.

What we can learn in electrochemistry from operando  
photoemission  
R. Schloegl, Berlin/DE

10:55 a.m. - 11:30 a.m.

Continuous monitoring of transition metal oxidation states in  
NMC and NCA cathodes by operando SQUID  
magnetometry  
S. Topolovec, Graz/AT, M. Simhofer, Graz/AT, G. Klinser,  
Graz/AT, H. Kren, Graz/AT, S. Koller, Graz/AT, H. Krenn,  
Graz/AT, R. Würschum, Graz/AT

11:30 a.m. - 11:50 a.m.

Measuring local pH gradients at Cu electrodes during CO<sub>2</sub>  
electroreduction by in operando <sup>13</sup>C magnetic resonance  
imaging  
M. Schatz, Jülich/DE, S. Jovanovic, Jülich/DE, R.-A. Eichel,  
Jülich/DE, J. Granwehr, Jülich/DE

11:50 a.m. - 12:10 p.m.

12:10 p.m. - 01:30 p.m.

Audimax

## Lunch break

12:10 p.m. - 01:30 p.m.

Thursday, September 29, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal D

## CO<sub>2</sub> reduction reaction III

01:30 p.m. - 03:30 p.m.

Development of paired electrochemical CO and Cl<sup>2</sup> production

01:30 p.m. - 01:50 p.m.

R. Latsuzbaia, Delft/NL

Local Structure of Ru-Me-O Oxides and its Effect on the Activity and Selectivity in Anodic Gas Evolving Reactions

01:50 p.m. - 02:10 p.m.

P. Kritl, Prague/CZ

Role of Ionic Liquid Electrolytes as a Promoter for CO<sub>2</sub> Electrocatalysis

02:10 p.m. - 02:30 p.m.

B. Ratschmeier, Münster/DE, B. Braunschweig, Münster/DE

The influence of support material on the structural evolution of copper during the electrochemical CO<sub>2</sub> reduction.

02:30 p.m. - 02:50 p.m.

E. Koh, Darmstadt/DE, S. Geiger, Stuttgart/DE, A. Hopf, Mülheim (Ruhr)/DE, T. Imhof, Darmstadt/DE, G. Meyer, Darmstadt/DE, P. Paciok, Jülich/DE, B. Etzold, Darmstadt/DE, M. Rose, Darmstadt/DE, F. Schüth, Mülheim (Ruhr)/DE, M. Ledendecker, Darmstadt/DE

Investigations on the effects of liquid product accumulation in the electrolyte on CO<sub>2</sub> electrolysis with CuO-based electrodes

02:50 p.m. - 03:10 p.m.

B. Sahin, Munich/DE, S. K. Raymond, Munich/DE, E. Simon, Munich/DE, O. Hinrichsen, Munich/DE

Steering the structure and selectivity of electrocatalysts by potential pulses

03:10 p.m. - 03:30 p.m.

C. Rettenmaier, Berlin/DE, J. Tian, Kiel/DE, O. Magnussen, Kiel/DE, B. Roldan Cuenya, Berlin/DE, J. Timoshenko, Berlin/DE, A. Bergmann, Berlin/DE, A. Herzog, Berlin/DE, R. M. Arán-Ais, Berlin/DE, H. S. Jeon, Berlin/DE, F. T. Haase, Berlin/DE, U. Hejral, Berlin/DE, P. Grosse, Berlin/DE, S. Kühl, Berlin/DE, E. M. Davis, Berlin/DE

Thursday, September 29, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal A

## Electroanalysis and sensors II

01:30 p.m. - 03:30 p.m.

Nanoelectrical Mapping of Carbon Nanofibers by Means of PeakForce Tunneling Atomic Force Microscopy

01:30 p.m. - 01:50 p.m.

J. Borowec, Jülich/DE, V. Selmert, Jülich/DE, K. Fries, Jülich/DE, H. Tempel, Jülich/DE, H. Kungl, Jülich/DE, R.-A. Eichel, Jülich/DE, F. Hausen, Jülich/DE

Investigation of boron-doped diamond samples with the feedback mode of scanning electrochemical microscopy

01:50 p.m. - 02:10 p.m.

J. Eidenschink, Regensburg/DE, M. Zelenský, Prague/CZ, K. Schwarzová-Pecková, Prague/CZ, A. Taylor, Prague/CZ, F.-M. Matysik, Regensburg/DE

Formate Oxidase Reactivity Driving the 3,5,3',5'-Tetramethylbenzidine (TMB) Colour Reaction with a Palladium Catalyst Embedded in an Intrinsically Microporous Polyamine (PIM-EA-TB)

02:10 p.m. - 02:30 p.m.

L. Wang, Bath/GB, P. J. Fletcher, Bath/GB, F. Marken, Bath/GB, M. Carta, Swansea/GB, R. Malpass-Evans, Edinburgh/GB, N. B. McKeown, Edinburgh/GB, A. R. Martinez, Cardiff/GB

A novel Dual Detection Concept for Capillary Electrophoresis featuring Amperometric Detection and Mass Spectrometry

02:30 p.m. - 02:50 p.m.

D. Böhm, Regensburg/DE, F.-M. Matysik, Regensburg/DE

A Novel Electrochemical DNA Sensor Based on Fluorescence Modulated via Potential Controlled Energy Transfer to a Redox Probe

02:50 p.m. - 03:10 p.m.

A. Grzdowski, Vancouver/CA, T. Ma, Vancouver/CA, D. Bizzotto, Vancouver/CA

Polymer Indicator Displacement Assay in Glucose Sensing

03:10 p.m. - 03:30 p.m.

S. M. Wikeley, Bath/GB, T. D. James, Bath/GB, S. D. Bull, Bath/GB, P. J. Fletcher, Bath/GB, F. Marken, Bath/GB, P. Lozano-Sanchez, Stirling/GB, M. Caffio, Stirling/GB

Thursday, September 29, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal B

## Electrocatalysis – Energy conversion IV

01:30 p.m. - 03:30 p.m.

Electrochemical platinum recovery from new & aged fuel cell electrodes

01:30 p.m. - 01:50 p.m.

J.-F. Drillet, Frankfurt (Main)/DE, R. Gandharva, Frankfurt (Main)/DE, C. Schreiber, Frankfurt (Main)/DE, M. Sakthivel, Frankfurt (Main)/DE, W. Peters, Frankfurt (Main)/DE

Polymers of Intrinsic Microporosity in Electrocatalysis

01:50 p.m. - 02:10 p.m.

F. Marken, Bath/GB, L. N. Wang, Bath/GB, Y. Zhao, Bath/GB, Z. K. Li, Bath/GB, M. Carta, Swansea/GB, N. B. McKeown, Edinburgh/GB

Fine-Structure Analysis of highly active PtCoO<sub>x</sub> Electrocatalyst for Oxygen Re-duction Reaction (ORR) probed by High Resolution STEM-EELS

02:10 p.m. - 02:30 p.m.

M. Janssen, Braunschweig/DE, D. Park, Braunschweig/DE, J. Klein, Braunschweig/DE, M. Oezaslan, Braunschweig/DE

Electrochemical Activation of a Cobalt MOF Nanosheets for Superior Electrocatalytic Water Oxidation in Neutral Media

02:30 p.m. - 02:50 p.m.

P. Ona-Burgos, Valencia/ES

Modelling and Simulations of a Low-temperature Direct Ammonia Fuel Cell in Varying Operating Conditions

02:50 p.m. - 03:10 p.m.

E. Kemppainen, Berlin/DE, R. Schlatmann, Berlin/DE, S. Calnan, Berlin/DE

Electrochemical analysis on transition metal nitride catalysts for nitrogen reduction reaction

03:10 p.m. - 03:30 p.m.

H. D. Flosadóttir, Reykjavík/IS, E. Skúlason, Reykjavík/IS, F. Hanifpour, Reykjavík/IS

Thursday, September 29, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal C

## In-situ and operando methods II

01:30 p.m. - 03:30 p.m.

Tracking the Dynamics of Active States in Copper-based Catalysts for Electrochemical CO<sub>2</sub> Reduction Using Operando QXAFS

01:30 p.m. - 01:50 p.m.

J. Timoshenko, Berlin/DE, A. Bergmann, Berlin/DE, C. Rettenmaier, Berlin/DE, M. Rüscher, Berlin/DE, H. S. Jeon, Berlin/DE, A. Herzog, Berlin/DE, B. Roldan Cuenya, Berlin/DE

Building Fundamental Understanding of CO<sub>2</sub> Electroreduction Catalysts by In Situ Correlative Atomic Force Microscopy

01:50 p.m. - 02:10 p.m.

C. S. Kley, Berlin/DE

Spins at Work: Probing Charging and Discharging of Organic Radical Batteries by Electron Paramagnetic Resonance Spectroscopy

02:10 p.m. - 02:30 p.m.

J. Behrends, Berlin/DE, I. Kulikov, Berlin/DE, N. A. Panjwani, Berlin/DE, A. A. Vereshchagin, St. Petersburg/RU, D. Spallek, Berlin/DE, D. A. Lukianov, St. Petersburg/RU, E. A. Alekseeva, St. Petersburg/RU, O. V. Levin, St. Petersburg/RU

NIS and operando NFS investigations of <sup>57</sup>Fe-porphyrin based hydrogen evolution reaction model catalysts

02:30 p.m. - 02:50 p.m.

N. Heppe, Darmstadt/DE, C. Gallenkamp, Darmstadt/DE, S. Paul, Darmstadt/DE, N. Segura, Darmstadt/DE, I. Sergeev, Hamburg/DE, V. Potapkin, Darmstadt/DE, V. Krewald, Darmstadt/DE, U. Kramm, Darmstadt/DE

Analyzing Electrochemical Conversion Reactions by Raman-coupled Scanning Electrochemical Microscopy

02:50 p.m. - 03:10 p.m.

M. Steimecke, Halle (Saale)/DE, M. Bron, Halle (Saale)/DE

Achieving sub-millisecond time resolved characterization of electrochemical intermediates: Electrochemically-Induced Raman spectroscopy

03:10 p.m. - 03:30 p.m.

L. D'Amario, Berlin/DE

03:30 p.m. - 04:00 p.m.

Audimax

## Coffee break

03:30 p.m. - 04:00 p.m.

Thursday, September 29, 2022

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04:00 p.m. - 05:20 p.m.

Hörsaal C

## In-situ and operando methods III

04:00 p.m. - 05:20 p.m.

Combined EPR/UV-vis-NIR spectroelectrochemistry as a powerful tool for studying the optical and magnetic properties of doped organic semiconductors

04:00 p.m. - 04:20 p.m.

E. Dmitrieva, Dresden/DE, M. Rosenkranz, Dresden/DE, Y. Alesanco, Donostia-San Sebastián/ES, A. Viñuales, Donostia-San Sebastián/ES

Operando studies of anti-perovskite materials with bifunctional redox chemistry in Li-ion batteries

04:20 p.m. - 04:40 p.m.

M. Gorbunov, Dresden/DE, D. Mikhailova, Dresden/DE

Operando infrared spectroscopy of  $Ti_3C_2T_x$  MXene-confined water-in-salt electrolyte

04:40 p.m. - 05:00 p.m.

M. Lounasvuori, Berlin/DE, T. Mathis, Philadelphia/US, Y. Gogotsi, Philadelphia/US, T. Petit, Berlin/DE

Time- and Spatially Resolved Quantification of Transition Metal Dissolution in NCA/Graphite Cells via Operando X-Ray Absorption Spectroscopy

05:00 p.m. - 05:20 p.m.

L. Reinschlüssel, Garching/DE, G. Ceren Tok, Garching/DE, A. Berger, Garching/DE, H. A. Gasteiger, Garching/DE

Thursday, September 29, 2022

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04:00 p.m. - 05:40 p.m.

Hörsaal D

## CO<sub>2</sub> reduction reaction IV

04:00 p.m. - 05:40 p.m.

Operando Investigation of Bimetallic Cu-based Nanocubes during Static and Pulsed CO<sub>2</sub> Electroreduction toward Liquid Products

04:00 p.m. - 04:20 p.m.

A. Herzog, Berlin/DE, H. S. Jeon, Berlin/DE, J. Timoshenko, Berlin/DE, C. Rettenmaier, Berlin/DE, M. Rüscher, Berlin/DE, M. Lopez Luna, Berlin/DE, S. Köhl, Berlin/DE, F. T. Haase, Berlin/DE, U. Hejral, Berlin/DE, A. Bergmann, Berlin/DE, B. Roldan Cuenya, Berlin/DE

Combined modelling and experimental evaluation of advanced catholyte compartment designs for improved CO<sub>2</sub> reduction towards hydrocarbons in flow cell electrolyzers

04:20 p.m. - 04:40 p.m.

M. Filippi, Berlin/DE, T. Möller, Berlin/DE, P. Strasser, Berlin/DE

A Deep Dive into the Stability of Sn-based Electrocatalysts for the Electrochemical CO<sub>2</sub> Reduction Towards Formic Acid

04:40 p.m. - 05:00 p.m.

K. Van Daele, Wilrijk/BE, N. Daems, Wilrijk/BE, D. Pant, Mol/BE, T. Breugelmans, Wilrijk/BE

Single-Site Ni-N-C Catalyst for Electrochemical CO<sub>2</sub> Reduction: Fundamental Kinetic and Structural Parameters of the Active Sites

05:00 p.m. - 05:20 p.m.

W. Ju, Berlin/DE, V. Sudarshan, Lyngby/DK, S. Brückner, Berlin/DE

Ag electrode for CO<sub>2</sub> conversion with very high CO selectivity and mass activity

05:20 p.m. - 05:40 p.m.

N. B. D. Monti, Turin/IT, M. Fontana, Turin/IT, A. Sacco, Turin/IT, A. Chiodoni, Turin/IT, A. Lamberti, Turin/IT, C. F. Pirri, Turin/IT, J. Zeng, Turin/IT

Thursday, September 29, 2022

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04:00 p.m. - 05:40 p.m.

Hörsaal A

## Electroanalysis and sensors III

04:00 p.m. - 05:40 p.m.

FRET based nucleic acid biosensor using DNA SAMs under electrochemical control

04:00 p.m. - 04:20 p.m.

A. Grzedowski, Vancouver/CA, D. Bizzotto, Vancouver/CA

Paper-based electrode array for the analysis of neurotransmitter mixtures

04:20 p.m. - 04:40 p.m.

E. Witkowska Nery, Warsaw/PL, E. Jarosiska, Warsaw/PL, K. Kappalakandy Valapil, Warsaw/PL, W. Mazurkiewicz, Warsaw/PL

Electrochemical biosensors for the early diagnosis of small cell lung cancer

04:40 p.m. - 05:00 p.m.

E. Sehit, Berlin/DE, M. Pirzada, Berlin/DE, Z. Altintas, Berlin/DE

Voltammetric MIP sensors based on graphene quantum dots and gold nanoparticles for the diagnosis of acute myocardial infraction

05:00 p.m. - 05:20 p.m.

G. Hasabnis, Berlin/DE

Study of the electrochemical behavior of l-tyrosine and its determination

05:20 p.m. - 05:40 p.m.

S. Bagherimetkazini, Regensburg/DE, F.-M. Matysik, Regensburg/DE



Thursday, September 29, 2022

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04:00 p.m. - 05:40 p.m.

Hörsaal B

## Electrocatalysis – Energy conversion V

04:00 p.m. - 05:40 p.m.

Screening of transition metal nitrides as electrocatalysts for nitrogen reduction using operando ammonia quantification on gas diffusion electrodes

04:00 p.m. - 04:20 p.m.

A. B. Gunnarsdóttir, Reykjavík/IS, F Hanifpour, Reykjavík/IS, A Luther, Reykjavík/IS, A Sveinbjörnsson, Reykjavík/IS, E Skúlason, Reykjavík/IS, H.D Flosadóttir, Reykjavík/IS

Titanium Hydride Formation as a Way to Increase Efficiency of PEM Water Electrolysis

04:20 p.m. - 04:40 p.m.

T. Bystron, Prague/CZ, T. Bautkinova, Prague/CZ, N. Utsch, Jülich/DE, M. Shviro, Jülich/DE, K. Bouzek, Prague/CZ

Product Selectivity in Reduction Reactions versus Hydrogen

04:40 p.m. - 05:00 p.m.

A. Bagger, Copenhagen/DK, H. Wan, Copenhagen/DK, X. Wang, Berlin/DE, M. Filippi, Berlin/DE, I. Stephens, London/GB, P. Strasser, Berlin/DE, J. Rossmeisl, Copenhagen/DK

Assessing Fuel Cell Catalyst Layer Activity and Stability Using Gas Diffusion Electrodes

05:00 p.m. - 05:20 p.m.

K. Ehelebe, Erlangen/DE, S. Cherevko, Erlangen/DE

Unveiling active sites and reaction mechanisms of Cu<sub>2</sub>O nanocubes for ammonia synthesis from electrocatalytic nitrate and nitrite reduction

05:20 p.m. - 05:40 p.m.

L. Bai, Berlin/DE, F. Franco, Berlin/DE, J. Timoshenko, Berlin/DE, H. Jeon, Berlin/DE, A. Yoon, Berlin/DE, M. Rüscher, Berlin/DE, S. Köhl, Berlin/DE, S. W. Chee, Berlin/DE, A. Bergmann, Berlin/DE, B. Roldan Cuenya, Berlin/DE

05:20 p.m. - 05:40 p.m.

Hörsaal C

## Batteries – Energy storage IV

05:20 p.m. - 05:40 p.m.

In situ stress measurements and ex situ high resolution microscopy of interphases of battery anodes

05:20 p.m. - 05:40 p.m.

S. Mück, Karlsruhe/DE, D. Kramer, Karlsruhe/DE, R. Mönig, Karlsruhe/DE

# Electrochemistry 2022

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Thursday, September 29, 2022

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07:00 p.m. - 11:00 p.m.

Audimax

Conference Dinner

07:00 p.m. - 11:00 p.m.

# Electrochemistry 2022

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Friday, September 30, 2022

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09:00 a.m. - 09:45 a.m.

Audimax

Plenary 5: Rossmeisl

09:00 a.m. - 09:45 a.m.

Predicting Electrocatalysis at the Atomic Scale  
J. Rossmeisl, Copenhagen/DK

09:00 a.m. - 09:45 a.m.

09:45 a.m. - 10:30 a.m.

Audimax

Award Ceremony

09:45 a.m. - 10:30 a.m.

10:30 a.m. - 10:55 a.m.

Audimax

Coffee break

10:30 a.m. - 10:55 a.m.

Friday, September 30, 2022

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10:55 a.m. - 12:10 p.m.

Hörsaal C

<b>Electrodeposition and nanostructured materials</b>	10:55 a.m. - 12:10 p.m.
<b>Operando SXR/XAS Studies of CoOx Epitaxial Thin Films Catalysts</b>	10:55 a.m. - 11:30 a.m.
<u>P. Allongue, Palaiseau/FR, M. Bouvier, Palaiseau/FR, I. Pacheco, Palaiseau/FR, T. Wiegmann, Kiel/DE, C. Qiu, Kiel/DE, F. Reikowski, Kiel/DE, J. Stettner, Kiel/DE, O. M. Magnussen, Kiel/DE, F. Maroun, Palaiseau/FR</u>	
<b>Nitrogen-rich Carbon Materials from Molecular Precursors and their Structure-Property Relationships in Electrochemical Nitrogen Reduction and Sodium Ion Battery Anodes</b>	11:30 a.m. - 11:50 a.m.
<u>M. Oschatz, Jena/DE, K. Schutjajew, Jena/DE, W. Zhang, Jena/DE, M. Antonietti, Potsdam/DE</u>	
<b>Electrodeposition of lithium metal - Influence of electrolyte additive vinylene carbonate on growth morphology</b>	11:50 a.m. - 12:10 p.m.
<u>B. Wolff, Jülich/DE, P. Jakes, Jülich/DE, F. Hausen, Jülich/DE</u>	
 <b>Electrosynthesis I</b>	 10:55 a.m. - 12:10 p.m.
<b>The Synergistic Interplay between Catalysis and Electrosynthesis</b>	10:55 a.m. - 11:30 a.m.
<u>R. Francke, Rostock/DE, A. Prudlik, Rostock/DE, N. Mohebbati, Rostock/DE, P. Enders, Rostock/DE, P. Woite, Berlin/DE, M. Roemelt, Berlin/DE, I. Sokolovs, Riga/LV, E. Suna, Riga/LV</u>	
<b>Direct Electrosynthesis of 2-butanone from Fermentation Supernatant</b>	11:30 a.m. - 11:50 a.m.
<u>T. Harhues, Aachen/DE, C. Plath, Aachen/DE, R. Keller, Aachen/DE, M. Wessling, Aachen/DE</u>	
<b>Converting Organic Molecules from Nature to Valuable Products</b>	11:50 a.m. - 12:10 p.m.
<u>S. B. Beil, Groningen/NL</u>	

Friday, September 30, 2022

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10:55 a.m. - 12:10 p.m.

Hörsaal B

## Engineering

10:55 a.m. - 12:10 p.m.

Mechanistic insights into electrochemical CO<sub>2</sub> reduction via high-resolution operando mass spectrometry

10:55 a.m. - 11:30 a.m.

J. W. Ager, Berkeley/US, H. Ren, Oxford/GB, M. Kovalev, Singapore/SG, A. A. Lapkin, Cambridge/GB

Ionic Diode Desalination: Combining Cationic Nafion™ and Anionic Sustainion™ Rectifiers

11:30 a.m. - 11:50 a.m.

Z. Li, Bath/GB, T. Pang, Bath/GB, J. Shen, Bath/GB, F. Marken, Bath/GB

Scaling-up electrochemical production of bio-based maleic acid

11:50 a.m. - 12:10 p.m.

R. Latsuzbaia, Delft/NL

## Solid state electrochemistry

10:55 a.m. - 12:10 p.m.

Characterization of Solid Electrolytes and All-Solid-State Batteries under Pressure Control

10:55 a.m. - 11:30 a.m.

B. Roling, Marburg/DE, N. Kaiser, Marburg/DE, M. Kroll, Marburg/DE, M. Cronau, Marburg/DE, V. Miß, Marburg/DE, C. König, Marburg/DE, A. Ramanayagam, M./DE

Na<sup>+</sup>-alumina – exploring the next steps for the most applied solid electrolyte

11:30 a.m. - 11:50 a.m.

C. Dirksen, Hermsdorf/DE, M. Schulz, Hermsdorf/DE, M. Fertig, Hermsdorf/DE, K. Skadell, Hermsdorf/DE, M. Stelter, Hermsdorf/DE

Catalyst Particles Caught Between two Stools: Reversible Activity Switching by Applying Electrochemical Polarization

11:50 a.m. - 12:10 p.m.

A. K. Opitz, Vienna/AT, H. Summerer, Vienna/AT, A. Nening, Vienna/AT, C. Rameshan, Vienna/AT

12:10 p.m. - 12:40 p.m.

Hörsaal C

## General meeting

12:10 p.m. - 12:40 p.m.

# Electrochemistry 2022

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Friday, September 30, 2022

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12:10 p.m. - 01:30 p.m.

Audimax

Lunch break

12:10 p.m. - 01:30 p.m.

01:30 p.m. - 01:50 p.m.

Hörsaal C

Electrodeposition and nanostructured materials

01:30 p.m. - 01:50 p.m.

Imaging and In Situ Force Probing of Electrodeposited Zinc  
Moderated by Polycationic Polymers

01:30 p.m. - 01:50 p.m.

L. L. E. Mears, Vienna/AT, G. F. Tiétcha, Herdecke/DE, P.  
Bilotto, Vienna/AT, M. Roth, Herdecke/DE, I. Klüppel,  
Herdecke/DE, M. Valtiner, Vienna/AT

Friday, September 30, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal A

## Batteries – Energy storage V

01:30 p.m. - 03:30 p.m.

The energetics of ion and electron transfer across  $\text{-MnO}_2$  electrode interfaces in aqueous solution

01:30 p.m. - 01:50 p.m.

K. Malaie, Greifswald/DE, F. Scholz, Greifswald/DE, U. Schröder, Greifswald/DE, H. Wulff, Greifswald/DE, H. Kahlert, Greifswald/DE

Understanding ion mobility mechanism using descriptors and scaling relations in solid crystals

01:50 p.m. - 02:10 p.m.

M. Sotoudeh, Ulm/DE, A. Groß, Ulm/DE

Platinum–Palladium Bulk Alloy Single Crystals: Preparation, Characterization and Electrocatalysis Towards Formic Acid Oxidation Reaction

02:10 p.m. - 02:30 p.m.

R. M. Arán-Ais, Alicante/ES, G. Melle, Alicante/ES, J. M. Feliu, Alicante/ES, E. Herrero, Alicante/ES, F. Scholten, Berlin/DE, B. Roldán-Cuenya, Berlin/DE

Outstanding ionic conductivity induced by non-classical defects

02:30 p.m. - 02:50 p.m.

M. R. Ghazanfari, Berlin/DE, G. Thiele, Berlin/DE

Exploring  $\text{Li}^+$  and  $\text{Na}^+$  ion insertion into  $\text{H}_2\text{V}_3\text{O}_8$  by in-operando XRD

02:50 p.m. - 03:10 p.m.

S. Pokrant, Salzburg/AT, P. Darge, Salzburg/AT, J. Schoiber, Salzburg/AT, D. Söllinger, Salzburg/AT

A low-cost Al-graphite battery with urea and acetamide-based electrolytes

03:10 p.m. - 03:30 p.m.

F. Jach, Erlangen/DE, M. Wassner, Erlangen/DE, E. Brendler, Freiberg/DE, M. Bamberg, Freiberg/DE, S. Khodabakhshjavinani, Freiberg/DE, G. Frisch, Freiberg/DE, U. Wunderwald, Erlangen/DE

Friday, September 30, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal B

## Electrocatalysis – Energy conversion VI

01:30 p.m. - 03:30 p.m.

Molybdenum Sulfide as Non-noble Water Electrolysis Catalysts: the Crucial Impact of Phase in Activity-Stability Relationships

01:30 p.m. - 01:50 p.m.

D. Escalera-López, Erlangen/DE, C. Iffelsberger, Brno/CZ, P. Holzappel, Erlangen/DE, M. Bühler, Erlangen/DE, C. van Pham, Erlangen/DE, S. Thiele, Erlangen/DE, M. Pumera, Erlangen/DE, S. Cherevko, Erlangen/DE

Hydrogen peroxide, an oxidant, or a potential fuel for next generation batteries

01:50 p.m. - 02:10 p.m.

S. Siahrostami, Calgary/CA

Intermetallic Compounds as Water Splitting (Pre)catalysts

02:10 p.m. - 02:30 p.m.

P. W. Menezes, Berlin/DE, J. N. Haussmann, Berlin/DE, H. Dau, Berlin/DE, M. Driess, Berlin/DE

Stability of electrocatalysts on the nanoscale

02:30 p.m. - 02:50 p.m.

M. Ledendecker, Darmstadt/DE

Activation of Ni-based Electrodes for Oxygen Evolution in Alkaline Water Electrolysis

02:50 p.m. - 03:10 p.m.

A. K. Mechler, Aachen/DE, S. Bhandari, Aachen/DE, C. Gohlke, Aachen/DE

High-performing and durable catalyst coated diaphragms for alkaline water electrolyzers

03:10 p.m. - 03:30 p.m.

F. P. Lohmann-Richters, Jülich/DE, K. Cinar, Jülich/DE, M. Shviro, Jülich/DE, G. P. Keeley, Jülich/DE, M. Müller, Jülich/DE, M. Carmo, Jülich/DE, D. Stolten, Jülich/DE



Friday, September 30, 2022

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01:30 p.m. - 03:30 p.m.

Hörsaal D

## Electrosynthesis II

01:30 p.m. - 03:30 p.m.

Electrochemical hydrogenation of carbohydrates: cathodic reduction of cellobiose to cellobitol

01:30 p.m. - 01:50 p.m.

M. Chávez Morejón, Leipzig/DE, N. Kurig, Aachen/DE, Y. Tschauder, Aachen/DE, R. Palkovits, Aachen/DE, F. Harnisch, Leipzig/DE

Simple and Scalable Anodic Synthesis of N,N'-Disubstituted Indazolin-3-ones

01:50 p.m. - 02:10 p.m.

J. C. Bieniek, Mainz/DE, S. R. Waldvogel, Mainz/DE

Electrochemically Generated Periodates as a Versatile Platform Oxidizer

02:10 p.m. - 02:30 p.m.

S. Waldvogel, Mainz/DE

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Towards value-added product generation using non-noble metal-based electrocatalysts for alternative anode reactions

02:30 p.m. - 02:50 p.m.

A. C. Brix, Bochum/DE, M. Dreyer, Essen/DE, M. Behrens, Kiel/DE, C. Andronescu, Duisburg/DE, D. M. Morales, Berlin/DE, W. Schuhmann, Bochum/DE

Advances in Electrochemical Synthesis of <sup>3</sup>- and <sup>5</sup>-iodanes

02:50 p.m. - 03:10 p.m.

T. Bystron, Prague/CZ, B. Devadas, Prague/CZ, M. Jirasko, Prague/CZ, B. Devadas, Prague/CZ, M. Krupicka, Prague/CZ, J. Kvicala, Prague/CZ

01:50 p.m. - 02:10 p.m.

Hörsaal C

## Interfacial Electrochemistry II

01:50 p.m. - 02:10 p.m.

Motion reversals of rising electrogenerated hydrogen bubbles

01:50 p.m. - 02:10 p.m.

A. Babich, Dresden/DE, A. Bashkatov, Dresden/DE, X. Yang, Dresden/DE, S. Hossain, Dresden/DE, G. Mutschke, Dresden/DE, K. Eckert, Dresden/DE

# Electrochemistry 2022

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Friday, September 30, 2022

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02:10 p.m. - 03:30 p.m.

Hörsaal C

## Award lectures

02:10 p.m. - 03:30 p.m.

GDCh Fachgruppenpreis

02:10 p.m. - 02:30 p.m.

Joachim Walter Schultze Prize 2020

02:30 p.m. - 03:00 p.m.

Joachim Walter Schultze Prize 2022

03:00 p.m. - 03:30 p.m.

03:30 p.m. - 04:00 p.m.

Audimax

## Farewell Coffee break

03:30 p.m. - 04:00 p.m.