Conference jointly organized by

Fachgruppe Elektrochemie (GDCh)
Fachgruppe Analytische Chemie
Arbeitskreis Elektrochemische Analysenmethoden (ELACH, GDCh)
Deutsche Bunsen-Gesellschaft für physikalische Chemie (DBG)
Gesellschaft für Chemische Technik und Biotechnologie e.V. (DEHEMA)
Arbeitsgemeinschaft elektrochemischer Forschungsinstitutionen e.V. (AGEF)
Gesellschaft für Korrosionsschutz e.V. (GfKORR)
Deutsche Gesellschaft für Galvano- und Oberflächentechnik e.V. (DGO)

www.gdch.de/electrochemistry2014
Dear colleagues,

the organizing committee of the conference ELECTROCHEMISTRY 2014 has the pleasure to invite you to visit Mainz, Germany, on September 22 – 24, 2014.

Basic science and key technology for future applications is the theme of the meeting in Mainz. It reflects the innovative part of electrochemistry in current research and development. The conference aims at providing an inspiring forum to discuss the challenges faced by basic research and also engineering. The program will link fundamental and applied aspects of electrochemistry, emphasizing the interdisciplinary nature of today's electrochemistry.

The conference covers all aspects of electrochemical science and engineering. Highlights amongst others are electroorganic synthesis and a panel discussion on the new research area of microbial electrosynthesis.

Mainz is located at the river Rhine surrounded by vineyards. The Johannes Gutenberg University is home to about 37,000 students. The famous carnival in Mainz is known all over the world. Unfortunately, September is not part of the “5th season”.

The lecture halls are equipped with up-to-date technology. Poster sessions, company exhibitions and coffee breaks take place next to the lecture halls.

The conference ELECTROCHEMISTRY 2014 wants to carry on the spirit of the successful meetings 2008 in Gießen, 2010 in Bochum and 2012 in Munich. As before, the meeting will be held in English, thus opening it to the international scientific community.

S. R. Waldvogel, K.-M. Mangold and A. Fischer
(Conference Chairs)
## Monday, September 22, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 – 13:00</td>
<td>Registration</td>
</tr>
<tr>
<td>13:00 – 13:15</td>
<td>Welcome (<em>lecture hall C01</em>)</td>
</tr>
<tr>
<td>13:15 – 14:05</td>
<td><strong>Plenary Lecture by Philippe Marcus</strong></td>
</tr>
<tr>
<td>14:05 – 14:55</td>
<td><strong>Plenary Lecture by Peter Broekmann</strong></td>
</tr>
<tr>
<td>14:55 – 15:30</td>
<td>Coffee Break (<em>chemistry entrance hall</em>)</td>
</tr>
<tr>
<td>15:30 – 17:50</td>
<td>3 parallel sessions with contributed papers</td>
</tr>
<tr>
<td>18:00 – 21:00</td>
<td>Poster Session with Beer &amp; Pretzels</td>
</tr>
</tbody>
</table>

## Tuesday, September 23, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 – 09:50</td>
<td><strong>Plenary Lecture by Jun-ichi Yoshida</strong></td>
</tr>
<tr>
<td>09:50 – 10:20</td>
<td>Coffee Break (<em>chemistry entrance hall</em>)</td>
</tr>
</tbody>
</table>
| 10:20 – 12:30 | I) 2 parallel sessions with keynote lectures followed by contributed talks  
               II) German-Japanese Symposium on Electrosynthesis with keynote lectures followed by contributed talks |
| 12:30 – 14:00 | Lunch                                                                  |
| 14:00 – 15:30 | I) Special feature “Microbial Electrosynthesis – future perspectives” – panel discussion and contributed talks  
               II) Session with keynote lectures followed by contributed talks  
               III) German-Japanese Symposium on Electrosynthesis with keynote lectures followed by contributed talks |
| 15:30 – 16:00 | Coffee Break (*chemistry entrance hall*)                                |
| 16:00 – 17:40 | I) 2 parallel sessions with contributed papers  
               II) German-Japanese Symposium on Electrosynthesis with keynote lectures followed by contributed talks |
| 17:45 – 18:00 | Closing remarks (*lecture hall C01*)                                    |

## Wednesday, September 24, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 – 09:50</td>
<td><strong>Plenary Lecture by Martin Winter</strong></td>
</tr>
<tr>
<td>09:50 – 10:20</td>
<td>Coffee Break (<em>chemistry entrance hall</em>)</td>
</tr>
<tr>
<td>10:20 – 12:30</td>
<td>3 parallel sessions with keynote lectures followed by contributed talks</td>
</tr>
<tr>
<td>12:30 – 14:00</td>
<td>Lunch</td>
</tr>
<tr>
<td>14:00 – 15:30</td>
<td>3 parallel sessions with keynote lectures followed by contributed talks</td>
</tr>
<tr>
<td>15:30 – 16:00</td>
<td>Coffee Break (<em>chemistry entrance hall</em>)</td>
</tr>
<tr>
<td>16:00 – 17:40</td>
<td>Contributed talks</td>
</tr>
</tbody>
</table>

### Deadlines

- **June 2, 2014**: Notification of acceptance of talks/posters
- **June 28, 2014**: Deadline for scholarships
- **June 30, 2014**: Deadline for early registration; early registration is required for inclusion of oral contributions into the conference program (additional 50 € fee for late registration)
- **August 1, 2014**: Deadline for last-minute poster submission
- **August 21, 2014**: Deadline for cancellation (full refund minus 25 € processing fee)
To contribute to the high scientific quality of the conference, plenary and keynote lectures given by internationally recognized scientists from Germany and abroad were invited by the organizers. The topics of these talks cover a broad spectrum of problems and new trends in the field of electrochemistry.

**PLENARY LECTURES**

**Peter Broekmann, Bern/CH**
From Fundamentals towards Applications: Nanoelectroplating in the Semiconductor Industry

**Philippe Marcus, Paris/FR**
Corrosion Processes at the Nanoscale

**Martin Winter, Münster/DE**
A Feeling Sense of Déjà vu? From Lithium Metal to Lithium Ion Batteries and Back Again

**Jun-ichi Yoshida, Kyoto/JP**
New Strategies in Electroorganic Synthesis: Reaction Integration Using Electrogenerated Cationic Intermediates

**KEYNOTE LECTURES**

**Fabio La Mantia, Bochum/DE**
The Effect of Aging on the Kinetics and Thermodynamics of Lithium-ion Intercalation in TiO₂ Nanoparticles

**Izabella Brand, Oldenburg/DE**
Application of Infrared Spectroscopy under Electrochemical Control for the Analysis of Organized Films: Adsorption of Collagen on the Electrode Surface

**Karl Mayrhofer, Düsseldorf/DE**
Combinatorial Study of Fundamental Electrocatalyst Performance – the Scanning Flow Cell Coupled to online Analytics

**Marc Koper, Leiden/NL**
Proton-coupled Electron Transfer in Electrocatalysis

**Nicolas Plumeré, Bochum/DE**
Mediated Electron Transfer between Redox Enzymes and Electrodes for Sensing and Technological Applications

**Olaf Magnussen, Kiel/DE**
In operando studies of Atomic-Scale Processes in Electrodeposition

**Nuria Garcia-Araez, Southampton/GB**
Soluble Redox Catalysts to Enhance and Relocate Oxygen Reduction and Evolution in the Lithium-Air Battery

**Joachim Maier, Stuttgart/DE**
Solid State Electrochemistry – From the Macro- to the Nanoscale

**Seji Suga, Okayama/JP**
Electrochemically Generated Carbocations for Stereoselective Synthesis and Catalytic Reactions

**Shinsuke Inagi, Tokyo/JP**
Electrochemical Post-Functionalization of π-Conjugated Polymers
Last-minute poster submissions from all areas of electrochemistry and electrochemical engineering are possible till **August 1, 2014**.

The poster session will be on Monday from 18:00 to 21:00, but posters will be left mounted for viewing for the entire duration of the conference.

Abstracts for last-minute poster contributions need to follow the style guidelines published on the conference website:

**www.gdch.de/electrochemistry2014**

Eight different sections on the following topics are being planned:
- Batteries and electrochemical energy storage devices
- Bioelectrochemistry
- Corrosion science and electrochemical machining
- Electrochemical engineering
- Electrochemical water treatment
- Electroanalysis and sensors
- Electrolytes
- Electroplating
- Electrosynthesis and electrocatalysis
- Fundamental and theoretical electrochemistry
- Solid state electrochemistry and photoelectrochemistry

**SCHOLARSHIPS**

The GDCh Division of Applied Electrochemistry offers a limited number of scholarships to student Division members in education presenting a scientific contribution (main author of an oral contribution or poster). Please send your application until **June 28, 2014**, latest to the GDCh, Ulrike Bechler, u.bechler@gdch.de.

**SCIENTIFIC AWARDS**

**Promotion Prize in the Field of Applied Electrochemistry**

The division of Electrochemistry of the Gesellschaft Deutscher Chemiker e.V. (German Chemical Society, GDCh) awards the Promotion Prize in the Field of Electrochemistry (Förderpreis auf dem Gebiet der Elektrochemie) to a young chemist. The prize is donated by BASF SE and consists of a certificate, € 1000, a lecture by the Award recipient and travel expenses. The prize will be awarded during the conference dinner. Application for this prize is already closed.

**Joachim Walter Schultze Prize of the AGEF**

This prize of the AGEF (Working Party of Electrochemical Research Institutions) will be awarded at the Electrochemistry 2014 to a young electrochemist who is at the beginning of her/his scientific carrier, has made a significant contribution to electrochemical research, and has demonstrated a visible independent profile.

Application for this prize is already closed.

**Metrohm Autolab Poster Prize**

Metrohm and Metrohm Autolab offer the Metrohm Autolab poster prize (introduced at ELACH conference 1993). Three excellent poster contributions will be awarded (€ 3000 in total). Posters will be judged by the Award Committee appointed by the Scientific Advisory Board, and winners will be announced at the conference dinner.
**VENUE**

The conference will take place at the central campus of the Johannes Gutenberg-Universität Mainz
Lecture halls C01–03
Duesbergweg 10–14
55128 Mainz

**TRAVEL INFORMATION**

Johannes Gutenberg University Mainz is easily reachable by car, train, and plane. Mainz University is a campus university and as such it is integrated into the Mainz public transport network. The campus itself has multiple bus stops for various locations on campus.

**By Train and/or Bus**

We recommend to leave Mainz central station via exit “West”. Please walk along the parking area towards the bus stop with buses heading to the right hand, away from the bridge crossing the railroads. Pick either of the lines 54, 55, 58 or 9. Take a short trip ticket. You can buy it directly from the bus driver or use an automatic ticket machine. Leave the bus at the second stop “Friedrich-von-Pfeiffer-Weg” and take the pedestrian bridge. When leaving the bridge walk towards the high apartment building. After passing Staudinger-Weg, turn left (street without name). The institutes are situated on the right hand side at the end of the street.

**DB BAHN** “Deutsche Bahn” offers attractive conditions for traveling to GDCh events. Further information can be found at [www.gdch.de/bahn](http://www.gdch.de/bahn)

**By Car**

Public parking is restricted at Mainz campus and only allowed with special admission. Therefore, **travelling by car is not recommended**. If access to Campus is required, set your navigation to Ackermannweg and take the right lane to stop at the central gate.

**Public parking near Mainz campus:** Set your navigation to Dalheimer Weg 2, parking areas are on the left hand side.

Please see the attached site plan for parking in the nearest vicinity of the campus.

**By Plane – Airport Frankfurt/Main**

- Train (EC, ICE, IC) from long-distance station Frankfurt airport or train (RE, RB or S8) from airport regional station to Mainz main station
- Duration: 30-40 minutes
- Ticket price: € 4,35 – € 13 (depending on the train). When using regional trains (RB/RE/S8), your ticket will include the bus fare to campus.
REGISTRATION

Please register online via internet not later than **June 30, 2014** at:

www.gdch.de/electrochemistry2014

After **June 30, 2014**, a late registration fee of € 50 will be added. All tickets and conference papers (incl. book of abstracts) will be given to participants upon check-in at the registration desk.

Participants are requested to wear their conference badges at all times for identification and admittance to the conference rooms.

For online-registration, payment by credit card or direct debit (only with German bank account) is preferred. If you want to pay by bank transfer (free of bank commission) please do not forget to print out the invoice at the end of your online-registration.

Please pay the fees to the following account (free of bank commission):

Gesellschaft Deutscher Chemiker e.V.  
Commerzbank AG, Frankfurt/Main  
IBAN DE85 5008 0000 0490 0200 00  
SWIFT-BIC DRES DE FF  
Code: 5200 09 / Electrochemistry 2014

REGISTRATION FEES**

<table>
<thead>
<tr>
<th>Membership Type</th>
<th>Early registration until June 30, 2014</th>
<th>From July 1, 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member of joined scientific organizations</td>
<td>€ 220</td>
<td>€ 270</td>
</tr>
<tr>
<td>Non-member</td>
<td>€ 270</td>
<td>€ 320</td>
</tr>
<tr>
<td>Student/Postdoc (member)*</td>
<td>€ 110</td>
<td>€ 135</td>
</tr>
<tr>
<td>Student/Postdoc (non-member)*</td>
<td>€ 135</td>
<td>€ 185</td>
</tr>
<tr>
<td>Gold member (with over 50 years of GDCh membership)</td>
<td>free of charge</td>
<td>free of charge</td>
</tr>
<tr>
<td>Conference Dinner (including beverages)</td>
<td>€ 55</td>
<td>€ 55</td>
</tr>
<tr>
<td>Conference Dinner for Student/Postdoc (including beverages)</td>
<td>€ 35</td>
<td>€ 35</td>
</tr>
</tbody>
</table>

*) Fee applies to bachelor, master and Ph.D. students (valid student card or confirmation of supervisor required)  
**) The registration fees are not liable to value added tax (tax exemption additional § 4 Nr. 22a UstG.)

Lunch at Mainz cafeteria (“Mensa”), the coffee breaks as well as the drinks & snacks during the Poster Session are included in the registration fee.

If fees are paid in advance, but after **September 5, 2014**, we kindly ask participants to show proof of payment when claiming their tickets and conference papers at the conference office. Credit cards (Amex, Mastercard, VISA) will be accepted.

CANCELLATION

Written cancellations received on or before **August 21, 2014** will be refunded less a € 25,- administration fee. After that date, the full amount of the invoice has to be paid. Requests for refund will not be accepted; however, registration may be transferred to another member of your organisation. In this case please send a note to tg@gdch.de.

If the conference is cancelled for whatever reason, fees paid will be refunded. Further recourse is excluded.
BEVERAGES
Coffee, tea and soft drinks will be provided for free during the breaks.

LUNCH
The Mainz cafeteria ("Mensa") is situated next to the lecture halls. Lunch is included in the registration fee. You will have access to the main area with two different main dishes, a selection of two stews, selectable side dishes as well as a salad bar. Sparkling water is included as well.

ROOM RESERVATION
Rooms are reserved for the participants in various hotels throughout the city. The mainzplus CITYMARKETING will gladly assist you in booking accommodation in all categories. Please apply no later than August 8, 2014.

The link can be found on our homepage (Accommodation)

www.gdch.de/electrochemistry2014

The customers will be held accountable for non-occupancy of reserved rooms.

COPYRIGHT PERMISSION
Photos made on GDCh conferences are used exclusively by GDCh for documentation, news coverage and advertisement.

INFORMATION CONCERNING THE SCIENTIFIC PROGRAM, ORGANIZATION AND OTHER GENERAL INFORMATION

Prof. Siegfried R. Waldvogel
Johannes Gutenberg-Universität Mainz
Duesbergweg 10 – 14
55128 Mainz
Germany
Phone: +49 6131 39-26069
E-mail: waldvogel@uni-mainz.de

Dr. Klaus-Michael Mangold
DEHEMA-Forschungsinstitut
Electrochemistry
Theodor-Heuss-Allee 25
60486 Frankfurt am Main
Germany
Phone: +49 69 7564-327
E-mail: mangold@dechema.de

INFORMATION BEFORE AND AFTER THE MEETING

Gesellschaft Deutscher Chemiker e. V.
Congress Team / Electrochemistry 2014
P.O. Box 90 04 40
60444 Frankfurt am Main
Germany
Phone: +49 69 7917-358 (Silvia Kirrwald)
E-mail: tg@gdch.de
Internet: www.gdch.de/electrochemistry2014

Executive Director: Professor Dr. Wolfram Koch,
Registered charity no: VR 4453, Registergericht Frankfurt am Main

Date: May 16, 2014
We are grateful for the financial support by:

**EVENT SPONSOR**

![BASF](image1)

**PLATINUM SPONSORS**

![ATOTECH](image2)  ![BOSCH](image3)

**GOLD SPONSORS**

![Bayer MaterialScience](image4)

**SILVER SPONSORS**

![Metrohm](image5)  ![PINE](image6)  ![SENSOLYTICS](image7)

**BRONZE SPONSORS**

![Agilent Technologies](image8)  ![CONDIA](image9)  ![Eilenburger EUT GmbH](image10)
We are grateful for the financial support by:

WILEY-VCH

The conference is also generously supported by the following organisations:

DFG Deutsche Forschungsgemeinschaft

FCI FONDS DER CHEMISCHEN INDUSTRIE

ISE INTERNATIONAL SOCIETY OF ELECTROCHEMISTRY
Scientific Programme

Monday, September 22, 2014

01:00 p.m. Welcome, Hörsaal C01

01:15 p.m. PLENARY LECTURE
Corrosion Processes at the Nanoscale
P. Marcus, Paris/FR

02:00 p.m. PLENARY LECTURE
From Fundamentals towards Applications: Nanoelectroplating in the Semiconductor Industry

02:55 p.m. Coffee Break

03:30 p.m. KEYNOTE LECTURE
The effect of aging on the kinetics and thermodynamics of lithium-ion intercalation in TiO2 nanoparticles
F. La Mantia, Bochum/DE

04:00 p.m. Fundamental Studies on Mg Ion Intercalation into different oxide based host materials

04:20 p.m. Nitrogen-Containing Polycyclic Quinones as Cathode Materials for Lithium Batteries

04:40 p.m. Ionic Liquid-Derived Hierarchically Structured Carbon/Sulfur Nanocomposite Electrodes with a High Sulfur Loading for Application in Li/S Batteries

05:00 p.m. Cr-based compounds: efficient catalyst for Li-O2 battery

05:20 p.m. A new catalyst for the oxygen evolution reaction in lithium oxygen batteries

06:00 p.m. Poster session

Electroanalysis and sensors, Hörsaal C02

03:30 p.m. KEYNOTE LECTURE
Mediated electron transfer between redox enzymes and electrodes for sensing and technological applications.
N. Pluméré, Bochum/DE

04:00 p.m. Simultaneous current density and topography mapping – development of omhc microscopy
I. Plettenberg, Oldenburg/DE, G. Wittstock, Oldenburg/DE

04:20 p.m. Hydrogen permeation coupled to scanning Kelvin probe measurements in a 3D printed electrochemical cell
G. Schimo, Linz/AT, W. Burgstaller, Linz/AT, A.W. Hassel, Linz/AT

04:40 p.m. Detection of hydrogen peroxide and superoxide radical during electrocatalysis of oxygen reduction on polymer-modified electrode

05:00 p.m. Wearable Organic Electrochemical Transistor for human Stress Monitoring
N. Coppede, Parma/IT, G. Tarabella, Parma/IT, M. Villani, Parma/IT, D. Calestani, Parma/IT, S. Iannotta, Parma/IT, A. Zappettini, Parma/IT

05:20 p.m. Interaction of Biphenyl and its Derivatives with Model Lipid Membranes
Corrosion/Electrosynthesis, Hörsaal C03

03:30 p.m. KEYNOTE LECTURE
Combination study of fundamental electrocatalyst performance - the Scanning Flow Cell coupled to online analytics

04:00 p.m. Scanning Electrochemical Impedance Microscopy for Corrosion Science
A. Bandarenka, Bochum/DE, A. Maljusch, Bochum/DE, V. Kuznetsov, Bochum/DE, K. Eckhard, Bochum/DE, W. Schuhmann, Bochum/DE

04:20 p.m. Prediction of blister formation on organic coatings
S. Walkner, Linz/AT, W. Burgstaller, Linz/AT, A.W. Hassel, Linz/AT

04:40 p.m. Role of Defects in the Electrochemical Formation of Oxide on Zinc
A. Erbe, Düsseldorf/DE, Y. Chen, Düsseldorf/DE, J. Zuo, Düsseldorf/DE

05:00 p.m. Diamond Electrodes used in HF – containing electrolytes for the Production of Porous Silicon
T. Matthée, Itzehoe/DE, M. Fryda, Itzehoe/DE

05:20 p.m. Nickel oxide based electrocatalysts for highly efficient electrochemical water oxidation

06:00 p.m. Postersession
Scientific program > Tuesday, September 23, 2014

Scientific Programme

Tuesday, September 23, 2014

09:00 a.m. PLENARY LECTURE
New Strategies in Electroorganic Synthesis: Reaction Integration Using Electrogenerated Cationic Intermediates
J. Yoshida, Kyoto/JP

09:50 a.m. Coffee Break

Batteries and electrochemical energy storage devices 2, Hörsaal C01

10:20 a.m. Sodium-ion batteries – is it worth the effort?
P. Adelhelm, Giessen/DE

10:50 a.m. Porous Nanocarbon Composites and Hybrids for Advanced Na-ion Battery

11:10 a.m. On the thermodynamics, the role of the carbon cathode and the cycle life of the sodium superoxide (NaO2) battery
C. L. Bender, Gießen/DE, P. Hartmann, Gießen/DE, M. Vracar, Karlsruhe/DE, J. Janek, Gießen/DE

11:30 a.m. Dynamic modeling of a Na-O2 cell for assessing the applicability of electrochemical pressure impedance spectroscopy (EPIS)

11:50 a.m. Transport phenomena in sodium superoxide (NaO2) batteries

12:10 p.m. Production and Characterization of Oxygen Electrodes for use in Li-Air Batteries

12:30 p.m. Lunch

Batteries and electrochemical energy storage devices 3, Hörsaal C01

02:00 p.m. In Situ Investigation on Spatiotemporal Changes of SEI Properties by SECM

02:30 p.m. Research on electrocatalytic centers in gas diffusion electrodes by SECM
P. Schwager, Oldenburg/DE, D. Fenske, Oldenburg/DE, G. Wittstock, Oldenburg/DE

02:50 p.m. In Situ Observation of the Insulating Character of the Solid ElectrolyteInterphase on Carbonaceous Materials through Scanning ElectrochemicalMicroscopy
G. Zampardi, Bochum/DE, F. La Mantia, Bochum/DE, W. Schuhmann, Bochum/DE

03:10 p.m. Microcalorimetric measurement of entropy changes upon electrochemical lithium bulk deposition and intercalation into graphite

03:30 p.m. Coffee Break

Batteries and electrochemical energy storage devices 4, Hörsaal C01

04:00 p.m. Gassing and Passivation of Li4Ti5O12 Electrodes in Carbonate-Based Electrolytes in Li-Ion Batteries – An In-Situ FTIR Study
M. Wachtler, Ulm/DE, A. Tost, Ulm/DE, E. A. Ramirez Gutierrez, Ulm/DE, M. Wohlfahrt-Mehrens, Ulm/DE

04:20 p.m. In situ Raman spectroscopy of Li-ion batteries under working conditions
T. Groß, Darmstadt/DE, C. Hess, Darmstadt/DE

04:40 p.m. In situ light microscopy on lithium electrodeposition and dendrite growth: New insights into an old problem
D. Kramer, Ulm/DE, J. Steiger, Karlsruhe/DE, R. Mörgel, Karlsruhe/DE

05:00 p.m. New Intercalation Cathode Materials for Lithium Ion Batteries

05:20 p.m. Ultrafast lithium insertion in nanosized titanate morphologies
07:30 p.m. Conference Dinner, Kurfürstliches Schloss, Mainz

Electroplating, Hörsaal C02

10:20 a.m. KEYNOTE LECTURE
In operando studies of atomic-scale processes in electrodeposition
O. Magnussen, Kiel/DE

10:50 a.m. Enhancement of particle incorporation in Zn- TiO2 dispersion coatings via surface functionalization with L-cysteine

11:10 a.m. Nucleation and growth of Pd nanodeposits in lyotropic liquid crystal mixtures
N. Al Abass, Southampton/GB, G. Denuault, Southampton/GB

11:30 a.m. Electroplating dysprosium from ionic liquids as the first step of the grain boundary diffusion process for stronger Nd-Fe-B magnets
G. Suppan, Regensburg/DE, M. Rührig, Erlangen/DE, H. J. Gores, Regensburg/DE

11:50 a.m. Magnetic field assisted Electroforming: From basic research to technical applications

12:10 p.m. Magnetic field templated patterning of the soft magnetic alloy CoFe

12:30 p.m. Lunch

02:00 p.m. Fördermöglichkeiten Elektrochemie, Hörsaal C02

Electrochemical engineering, Hörsaal C02

02:30 p.m. Electrochemical decomposition of micropollutants
M. Fryda, Itzhoe/DE, B. Behrendt-Fryda, Itzhoe/DE, A. Schmitd, Itzehoe/DE

02:50 p.m. Characterisation of MT-PEM Based Stack for Application in Micro-Combined Heat and Power Systems

03:10 p.m. N.N., Hörsaal C02

03:30 p.m. Coffee Break

Electrolytes, Hörsaal C02

04:00 p.m. PM-IRRAS Spectroelectrochemistry at the Glassy Carbon/Deep Eutectic Solvent Interface
B. Gollas, Graz/AT, L. Veira, Graz/AT, R. Schennach, Graz/AT

04:20 p.m. Electrolytes for secondary Zinc/Air batteries

04:40 p.m. Spectroelectrochemical evidence of redox transitions in ultra thin MnO2 electrodes in a new protic ionic liquid

05:00 p.m. Li0.5SnP2S12: Properties of an affordable Lithium Superionic Conductor
P. Bron, Marburg/DE, S. Dehnen, Marburg/DE, B. Roling, Marburg/DE

05:20 p.m. Fast lithium ion conduction in Li10La2Zr2TaO12 and Li6BaLa2Ta2O12 garnet-type thin films

07:30 p.m. Conference Dinner, Kurfürstliches Schloss, Mainz

Electrosynthesis 1, Hörsaal C03

10:20 a.m. KEYNOTE LECTURE
Electrochemical Post-functionalization of π-Conjugated Polymers
S. Inagi, Yokohama/JP

10:50 a.m. Environmentally-Friendly Emulsion Electrosynthesis Using Tandem Acoustic Emulsification
M. Aloe, Yokohama/JP, T. Koizumi, Yokohama/JP, K. Nakabayashi, Yokohama/JP

11:10 a.m. Electrosynthesis of Branched EDOT Containing Conducting Copolymers – Electrochemical and Spectroscopic Studies

11:30 a.m. Anodic oxidation of organoboron compounds
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:50 a.m.</td>
<td>Organic Electrosynthesis: Scope and Selectivity</td>
</tr>
<tr>
<td></td>
<td>H. J. Schäfer, Münster/DE</td>
</tr>
<tr>
<td>12:10 p.m.</td>
<td>Electrochemical Bioinspired Catalytic Reactions Mediated by Hydrophobic Vitamin B₁₂</td>
</tr>
<tr>
<td></td>
<td>Y. Hisaeda, Fukuoka/JP</td>
</tr>
<tr>
<td>12:30 p.m.</td>
<td>Lunch</td>
</tr>
<tr>
<td>02:00 p.m.</td>
<td>Electrochemically Generated Carbocations for Stereoselective Synthesis and Catalytic Reactions</td>
</tr>
<tr>
<td></td>
<td>S. Suga, Okayama/JP</td>
</tr>
<tr>
<td>02:30 p.m.</td>
<td>Redox Mediators Based on the Phenanthro[9,10-d]imidazole Framework</td>
</tr>
<tr>
<td></td>
<td>R. Francke, Santa Barbara/US, R. D. Little, Santa Barbara/US</td>
</tr>
<tr>
<td>02:50 p.m.</td>
<td>Synthesis and Electrochemical Behavior of π-Extended Hexa(2-thiényl)benzenes</td>
</tr>
<tr>
<td>03:10 p.m.</td>
<td>On the mechanism of oxidative esterification of aromatic aldehydes in BMImBF₄: the role of electrogenerated NHC.</td>
</tr>
<tr>
<td></td>
<td>G. Forte, Roma/IT, I. Chiariotto, Roma/IT, A. Inesi, Roma/IT, M. Feroci, Roma/IT</td>
</tr>
<tr>
<td>03:30 p.m.</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>04:00 p.m.</td>
<td>Electrochemical Automated Synthesis of TMG-chitotriomycin</td>
</tr>
<tr>
<td>04:20 p.m.</td>
<td>Electrochemical Synthesis of Glycoconjugates from Activated Sterol</td>
</tr>
<tr>
<td></td>
<td>A. Sobkowiak, Rzeszow/PL, J. Kowalski, Rzeszow/PL, J. Ploszynska, Rzeszow/PL, J.W. Morzycki, Bialystok/PL, L. Siergiejczyk, Bialystok/PL, A.M. Tomkiewicz, Bialystok/PL</td>
</tr>
<tr>
<td>04:40 p.m.</td>
<td>Anodic oxidation of C-glycosides and asymmetric induction using sugar derivatives as chiral templates</td>
</tr>
<tr>
<td>05:00 p.m.</td>
<td>Anodic Approach for the Synthesis of Modified Nucleosides</td>
</tr>
<tr>
<td>05:20 p.m.</td>
<td>Anodic oxidation of morphinan skeleton to afford novel opioid derivatives</td>
</tr>
<tr>
<td>07:30 p.m.</td>
<td>Conference Dinner, Kurfürstliches Schloss, Mainz</td>
</tr>
</tbody>
</table>
Scientific Programme

Wednesday, September 24, 2014

**t.b.a., Hörsaal C01**
09:00 a.m. PLENARY LECTURE
  t.b.a., Hörsaal C01
09:50 a.m. Coffee Break

**Batteries and electrochemical energy storage devices 5, Hörsaal C01**
10:20 a.m. Novel approach for differential electrochemical mass spectrometry studies on the decomposition of ionic liquids
  J. Schnaidt, Ulm/DE, Y.T. Law, Ulm/DE, R.J. Behm, Ulm/DE
10:50 a.m. The importance of the electrodes mass ratio in an asymmetric Supercapacitor based on Activated Carbon and Li₄Ti₅O₁₂
11:10 a.m. AC/AC electrochemical capacitors with enhanced performance in water based electrolytes
  Q. Abbas, Poznan/PL, F. Béguin, Poznan/PL
11:30 a.m. Performance of a bidirectional vanadium/air redox flow battery comprising a two-layered cathode
11:50 a.m. New ex situ kinetic characterization of carbon felt electrodes for vanadium redox-flow batteries
12:10 p.m. The Influence of Material Properties on the positive Half-cell Reaction in all-Vanadium Redox Flow Batteries
12:30 p.m. Lunch

**Batteries and electrochemical energy storage devices 6, Hörsaal C01**
02:00 p.m. Advances in Electrolytes for Lithium Ion Batteries: A Mechanistic Understanding
  B. Lucht, Kingston, RI/US
02:30 p.m. A surface science approach to ionic electrode-electrolyte interfaces
  R. Haubbrand, Darmstadt/DE, Wolfram Jaegermann, Darmstadt/DE
02:50 p.m. Electrochemical Intercalation Behavior of Electrolyte Anions into Conductive Additives for High Voltage Cathodes
03:10 p.m. Effects of Electrolytes on the Stability and Morphology of Discharge Products in Lithium-Air Batteries
03:30 p.m. Coffee Break

**Batteries and electrochemical energy storage devices 7, Hörsaal C01**
04:00 p.m. Power-to-X – Will Water Electrolysis Change Our Greenhouse Gas Emissions?
  H. Pütter, Neustadt/DE
04:20 p.m. Activity and stability of water oxidation electrocatalysts in acidic media studied by SFC-ICPMS
04:40 p.m. Linking HOR/HER and H-UPD Rates on Pt₅₀ in Alkaline Electrolyte
05:00 p.m. Preparation and Characterization of Polymeric Phthalocyanine Sheets as Possible Electro catalyst for Water-Splitting
  C. Geis, Gießen/DE, F. Münzle, Gießen/DE, D. Schießlwein, Gießen/DE
05:20 p.m. A bottom-up approach to synthesize hierarchically structured electrodes

Solid state electrochemistry and photoelectrochemistry, Hörsaal C02
10:20 a.m. KEYNOTE LECTURE
Solid State Electrochemistry — From the Macro- to the Nanoscale
J. Maier, Stuttgart/DE

10:50 a.m. Engineering of interfaces for enhanced photo(electro)catalysis
R. Beranek, Bochum/DE

11:10 a.m. Gold nanostructures on silicon for photoelectrochemical CO₂ reduction

11:30 a.m. Bombardment induced ion transport through glasses and thin films: analysis of conductivity and diffusion profiles
K.-M. Weitzel, Marburg/DE

11:50 a.m. Complex bulk transport and oxygen exchange kinetics: Ba₀.₅Sr₀.₅Fe₀.₈Zn₀.₂O₃₋δ as cathode material for fuel cells based on proton conducting oxides

12:30 p.m. Lunch

02:00 p.m. Podiumsdiskussion - Microbial electrochemical technologies, Hörsaal C02

Bioelectrochemistry, Hörsaal C02
02:50 p.m. KEYNOTE LECTURE
Application of infrared spectroscopy under electrochemical control for the analysis of organized films: adsorption of collagen on the electrode surface

04:00 p.m. Nanostructured supramolecular protein clusters on electrodes: A switchable cascadic reaction scheme for dual-analyte detection

04:20 p.m. Spectroelectrochemical Insights into Oxygen-tolerant [NiFe]-hydrogenase immobilized on electrodes - An Approach towards Enzymatic Biofuel Cells

05:00 p.m. Bioanalytical Application of Electrochemically Assisted Injection - Capillary Electrophoresis - Mass Spectrometry
M. Cindric, Regensburg/DE, F.-M. Matysik, Regensburg/DE

Electrosynthesis 4, Hörsaal C03
10:20 a.m. KEYNOTE LECTURE
Multiple proton-coupled electron transfer and structure sensitivity in electrocatalysis
M. Koper, Leiden/NL

10:50 a.m. Catalytically active sites for the CO electrooxidation on PtRu electrodes
A. K. Engstfeld, Ulm/DE, S. Brimaud, Ulm/DE, J. Klein, Ulm/DE, R.J. Behm, Ulm/DE

11:10 a.m. Electrochemical CO₂ Reduction: A Combinatorial High-Throughput Approach for Catalytic Activity, Stability and Selectivity Investigations

11:30 a.m. Towards systematic investigations in electrocatalysis: colloidal catalysts as a toolbox synthesis
M. Arenz, Copenhagen/DK

12:10 p.m. XAS Investigations on Unsupported Extended Pt-Pd Aerogels

12:30 p.m. Lunch
### Fundamental and theoretical electrochemistry 1, Hörsaal C03

**02:00 p.m.** **KEYNOTE LECTURE**  
**Soluble Redox Catalysts to Enhance and Relocate Oxygen Reduction and Evolution in the Lithium-Air Battery**  

**02:30 p.m.** **New insights to the concept of Helmholtz-planes in electrochemical double layers**  

**02:50 p.m.** **Chlorine Evolution Reaction on RuO\textsubscript{2}(110) Catalyst in Hydrochloric Acid Solution: Mechanistic ab initio Thermodynamics DFT Study**  

**03:10 p.m.** **Oxidation of Formate on Au(111) in Phosphate Buffer Solutions: pH Effects versus specific Adsorption of Anions**  
L. Köler, Ulm/DE, J. Herrmann, Ulm/DE, M. Al-Shakran, Ulm/DE, T. Jacob, Ulm/DE

### Fundamental and theoretical electrochemistry 2, Hörsaal C03

**04:00 p.m.** **Probing the potential energy surface for the proton equilibrium on gold**  
M. Wessel, Essen/DE

**04:20 p.m.** **Nanoscale Electrochemical Characterization of Materials by Means of Spatially Resolved Electrostatic Force, Current and Strain Measurements**  

**04:40 p.m.** **Quantitative determination of H\textsubscript{2}Se formation at Chalcogenide surface: DEMS and SPM studies**  
S. Iqbal, Bonn/DE, C. Bondu, Bonn/DE, H. Baltruschat, Bonn/DE

**05:00 p.m.** **Correlation of Cu and Pt dissolution from Pt-Cu thin-film alloys**  

**05:20 p.m.** **Ångstrom resolved real-time monitoring of oxide growth and reduction on noble and engineering metals**  