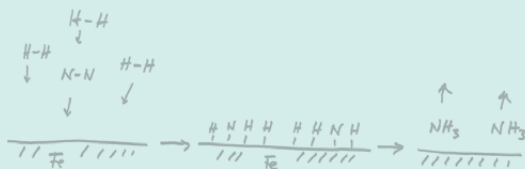


International



Program Book

# 8<sup>th</sup> Ertl Symposium on

## FUndamental to Scale-up Electrochemistry

26-29 June 2024 in Esslingen, Germany

Co-organized by

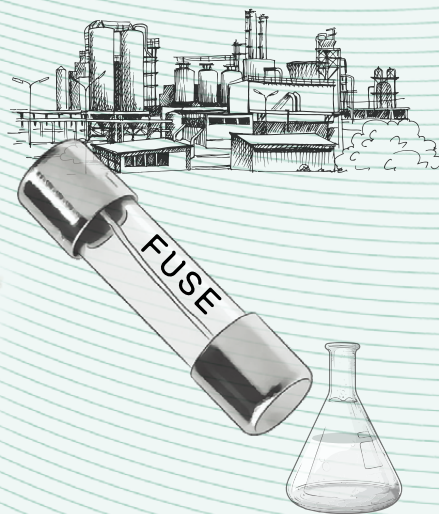


Universität Stuttgart



Prof. Dr. Gerhard Ertl  
Nobel Laureate 2007

Fritz-Haber-Institut der Max-Planck-Gesellschaft Berlin, Germany  
"for his studies of chemical processes on solid surfaces"



## Award Lectures

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### **Prof. Dr. Malte Behrens** **Kiel University**

Malte Behrens studied chemistry at Kiel University (GER), where he received his diploma degree at the Institute of Inorganic Chemistry. He obtained his Ph.D. from the same university in 2006 in the field of solid state chemistry, and joined the Fritz-Haber-Institut in Berlin (GER) for a postdoctoral stay in the Department of Inorganic Chemistry and for habilitation at the Technical University Berlin. He was appointed associate professor for inorganic chemistry at the University of Duisburg-Essen (GER) in 2014. In 2020, he returned to Kiel University as a full professor for solid state chemistry and catalysis. His research is focused on developing novel nano-materials for efficient thermal and electrocatalytic conversion of small molecules. Malte Behrens has been awarded the Jochen-Block-Prize of the German Catalysis Society in 2013 and has been speaker of the Collaborative Research Centre "Heterogeneous Oxidation Catalysis in the Liquid Phase" from 2018 to 2022.



### **Prof. Boon Siang Yeo** **National University of Singapore**

Boon Siang Yeo studied chemistry at the National University of Singapore (NUS), where he received his B.Sc. (1st class Honors) and M.Sc. degrees. He obtained his Ph.D. from the ETH Zurich in 2009, and did postdoctoral research at the Lawrence Berkeley National Laboratory. Boon Siang joined the Department of Chemistry, NUS in 2012, where he is now a tenured associate professor in the Faculty of Science. His research in the NUS focuses on developing efficient electrocatalysts for sustainable energy conversion reactions, such as the reduction of carbon dioxide to liquid fuels. Boon Siang has been awarded the Dean's Chair in the Faculty of Science, NUS (2021-2024) and multiple faculty- and university-level teaching excellence awards.

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# Program

Opening Address: 5 min | Award Lecture: 45 min | Contributed Speech: 30/20 min | Closing Remarks: 5 min

Time	26 June (Wed)	Time	27 June (Thu)	Time	28 June (Fri)
08:00-08:50	<i>Registration</i>	08:00-09:00	<i>Registration</i>	08:00-09:00	<i>Registration</i>
08:50-09:00	Opening Address				
09:00-09:30	Katharina Krischer	09:00-09:30	Marc Koper	09:00-09:30	Timo Jacob
09:30-09:50	Tobias Morawietz	09:30-09:50	HyungKuk Ju	09:30-09:50	Fabio Lima
09:50-10:20	Yujin Tong	09:50-10:20	Shen Ye	09:50-10:20	Olaf Magnussen
10:20-10:45	<i>Coffee Break</i>	10:20-10:45	<i>Coffee Break</i>	10:20-10:45	<i>Coffee Break</i>
10:45-11:15	Fabio Dionigi	10:45-11:35	Boon Siang Yeo (Ertl Prize Ceremony)	10:45-11:35	Malte Behrens (Ertl Prize Ceremony)
11:15-11:35	Jin-Soo Park				
11:35-12:05	Suriya Venkatesan	11:35-12:05	Pawel Gazdzicki	11:35-12:05	Mehtap Özaslan
12:05-12:35	Elena Savinova	12:05-12:35	Ioannis Spanos	12:05-12:35	Poster Prize Ceremony & Closing Remarks
12:35-14:00	<i>Lunch</i>	12:35-14:00	<i>Lunch</i>	12:35-14:00	<i>Lunch</i>
14:00-14:30	Robert Franke	14:00-14:30	Zhifeng Ding	14:10-20:30	Technical/Cultural Tour
14:30-15:00	Hanno Käß	14:30-15:00	Dennis Kopljär		
15:00-15:30	Jinsub Choi	15:00-15:20	Ahyoun Lim		
15:30-16:00	Elias Klemm	15:20-15:40	Julia Müller-Hülstede		
16:00-16:20	André Dourado	15:40-16:00	Michael Castro		
16:20-16:30	<i>Group Photo</i>	16:00-16:20	<i>Coffee Break</i>		
16:30-18:30	Winery Tour (Bus 16:30/17:00)	16:20-16:50	Marc Secanell		
		16:50-17:20	Ryan Richards		
		17:20-17:40	Alexander Krimalowski		
		17:40-18:00	Kiyoung Lee		
		18:00-18:30	Sang Hoon Kim		
18:30-21:45	<i>Banquet</i> (Bus 21:00/22:00)	18:30-20:30	<i>Poster Session</i> w/ F&B	29 June (Sat)	Ertl Center General Assembly

## 26 June (Wed)

Program		Time
08:00-08:50	Registration	50
08:50-09:00	Opening Address <b>Gabriele Gühling</b> (Esslingen University of Applied Sciences, Germany) <b>Andreas Friedrich</b> (University of Stuttgart, Germany)	10
09:00-09:30	<b>Katharina Krischer</b> (Technische Universität München, Germany) ► OP-01: Electrolyte effects on the alkaline hydrogen evolution reaction: a mean-field approach	30
09:30-09:50	<b>Tobias Morawietz</b> (German Aerospace Center (DLR), Germany) ► OP-02: Atomic Force Microscopy: A Useful Characterisation Tool in Low Temperature Electrolysis	20
09:50-10:20	<b>Yujin Tong</b> (University of Duisburg-Essen, Germany) ► OP-03: Measurement of local electric fields of electrocatalytic reactions with the vibrational Stark effect	30
10:20-10:45	Coffee Break	25
10:45-11:15	<b>Fabio Dionigi</b> (Technical University Berlin, Germany) ► OP-04: Bode on steroids – Water activation on Ni-based oxide surfaces	30
11:15-11:35	<b>Jin-Soo Park</b> (Sangmyung University, Republic of Korea) ► OP-05: Optimizing Water Electrolysis Catalyst Layers: Effects of Ionomer Dispersion and Solvent Selection	20
11:35-12:05	<b>Suriya Venkatesan</b> (German Aerospace Center (DLR), Germany) ► OP-06: Rapid Scalable One-step Production of Electrocatalysts for Low-Iridium Content Proton Exchange Membrane Water Electrolyzers	30
12:05-12:35	<b>Elena Savinova</b> (University of Strasbourg, France) ► OP-07: Glucose Electrooxidation in Alkaline Media on Ni and NiAu Electrodes	30
12:35-14:00	Lunch	85
14:00-14:30	<b>Robert Franke</b> (Leibniz Institute for Catalysis, Germany) ► OP-08: The Synergistic Interplay between Catalysis and Organic Electrosynthesis	30
14:30-15:00	<b>Hanno Käß</b> (University of Esslingen, Germany) ► OP-09: Influence of ionomer content: Nanomechanical and nanoelectrical atomic force microscopy analysis of catalyst layers for PEMFC	30
15:00-15:30	<b>Jinsub Choi</b> (Inha University, Republic of Korea) ► OP-10: Advancements in Sustainable Recycling and Upcycling of Lithium-Ion Battery Components for High-Performance and Cost-Effective Applications	30
15:30-16:00	<b>Elias Klemm</b> (University of Stuttgart, Germany) ► OP-11: Electrocatalytic CO <sub>2</sub> reduction to formic acid / formate: catalyst design, electrode engineering, and process concepts	30
16:00-16:20	<b>André Dourado</b> (São Paulo State University, Brazil) ► OP-12: CuO as (Electro)Catalyst for Lignin Valorization	20
16:20-16:30	Group Photo	10
16:30-18:30	Winery Tour (Bus 16:30/17:00)	120
18:30-21:45	Banquet (Bus 21:00/22:00)	195

## 27 June (Thu)

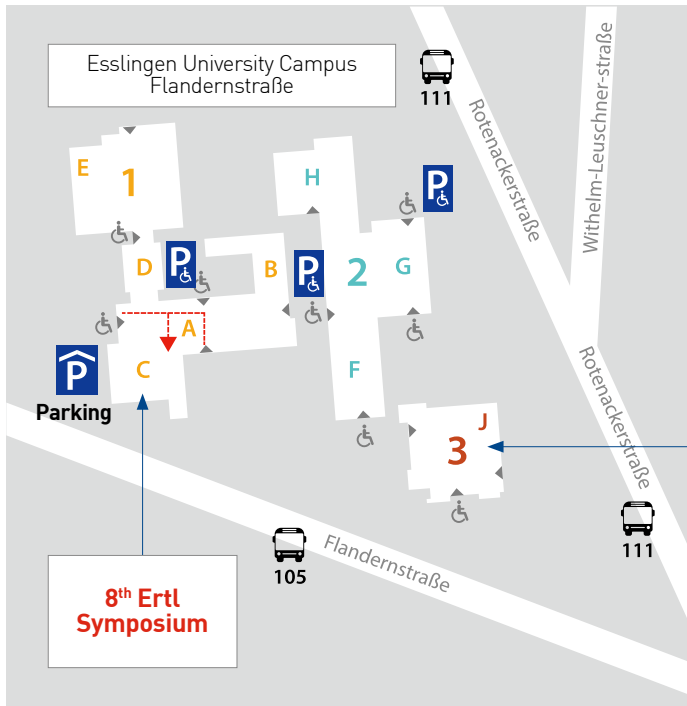
	Program	Time
08:00-09:00	<i>Registration</i>	60
09:00-09:30	<b>Marc Koper</b> (Leiden University, Netherlands) ► OP-13: Electrolyte effects on electrocatalytic hydrogen and oxygen evolution	30
09:30-09:50	<b>HyungKuk Ju</b> (Dankook University, Republic of Korea) ► OP-14: Alchemy of air and water: Green ammonia synthesis via electrochemical surface reaction	20
09:50-10:20	<b>Shen Ye</b> (Tohoku University, Japan) ► OP-15: Stability of Organic Solvents during the Charge/Discharge Processes of Aprotic Lithium-Oxygen Batteries	30
10:20-10:45	<i>Coffee Break</i>	25
10:45-11:35	<b>Boon Siang Yeo</b> (National University of Singapore, Singapore) ► AL-01: Electrosynthesis of Oxygenates and Hydrocarbons Ertl Prize Ceremony	50
11:35-12:05	<b>Pawel Gazdzicki</b> (Pawel Gazdzicki (German Aerospace Center (DLR), Germany) ► OP-16: tba	30
12:05-12:35	<b>Ioannis Spanos</b> (Max Planck Institute for Chemical Energy Conversion, Germany) ► OP-17: Operando investigation of Iridium reactive species transformation during OER regeneration	30
12:35-14:00	<i>Lunch</i>	85
14:00-14:30	<b>Zhifeng Ding</b> (The University of Western Ontario, Canada) ► OP-18: Methodologies for Absolute Electrochemiluminescence Quantum Efficiencies and Beyond	30
14:30-15:00	<b>Dennis Kopljär</b> (German Aerospace Center (DLR), Germany) ► OP-19: Advanced Techniques for a Better Understanding of Gas-Diffusion Electrodes	30
15:00-15:20	<b>Ahyoun Lim</b> (Max Planck Institute for Chemical Energy Conversion, Germany) ► OP-20: Understanding Mechanisms of Reversible De-/Re-activation of Iridium Catalysts for Lifetime-Extension of PEMWE	20
15:20-15:40	<b>Julia Müller-Hülstede</b> (German Aerospace Center (DLR), Germany) ► OP-21: Pathways towards reduction of Pt-loading in HT-PEMFC	20
15:40-16:00	<b>Michael Castro</b> (University of the Philippines Diliman, Philippines) ► OP-22: A Multi-Scale Perspective in Batteries: A Combined Multi-physics and Systems Modeling Approach	20
16:00-16:20	<i>Coffee Break</i>	20
16:20-17:50	<b>Marc Secanell</b> (University of Alberta, Canada) ► OP-23: Reducing Iridium Loading in Proton Exchange Membrane Water Electrolyzers	30
16:50-17:20	<b>Ryan Richards</b> (Colorado School of Mines, USA) ► OP-24: Doped NiOx faceted nanosheets for electrocatalytic water oxidation	30
17:20-17:40	<b>Alexander Kralowksi</b> (Zahner-Elektrik GmbH & Co KG, Germany) ► OP-25: Validation and Reconstruction of Impedance Data – Combining Measurement Model and ZHIT Algorithm	20
17:40-18:00	<b>Kiyoung Lee</b> (Inha University, Republic of Korea) ► OP-26: Enhanced Photoelectrochemical Hydrogen Production via BiVO4 Modified Anodic Metal Oxide Nanostructures	20
18:00-18:30	<b>Sang Hoon Kim</b> (Korea Institute of Science and Technology, Republic of Korea) ► OP-27: Highly-efficient cathodes for electrochemical removal of organic pollutants	30
18:30-20:30	Poster Session w/ F&B	120

## 28 June (Fri)

	Program	Time
08:00-09:00	<i>Registration</i>	60
09:00-09:30	<b>Timo Jacob</b> (Ulm University, Germany) ► OP-28: Theoretical Evaluation of Cu-Oxide Based Catalysts for N <sub>2</sub> reduction	30
09:30-09:50	<b>Fabio Lima</b> (University of São Paulo, Brazil) ► OP-29: Copper Complexes with Water-insoluble Ligands and with Controlled Restructuration for the Electrocatalytic Reduction of CO <sub>2</sub>	20
09:50-10:20	<b>Olaf Magnussen</b> (Kiel University, Germany) ► OP-30: Cu surface restructuring during electrochemical CO <sub>2</sub> reduction	30
10:20-10:45	<i>Coffee Break</i>	25
10:45-11:35	<b>Malte Behrens</b> (Kiel University) ► AL-02: Materials Chemistry of Cobalt-based Mixed Hydroxycarbonates and Oxides in Anodic Electrocatalysis	50
11:35-12:05	<b>Mehtap Özasan</b> (Technische Universität Braunschweig, Germany) ► OP-31: Fundamental Understanding the OER Reaction Mechanisms and Water Transport for PEM Water Electrolysis	30
12:05-12:35	Poster Prize Ceremony & Closing Remarks <b>Jaeyoung Lee</b> (GIST Ertl Center & ifRC-CHESS)	30
12:35-14:00	<i>Lunch</i>	85
14:10-20:30	Technical/Cultural Tour	
29 June [Sat]	Ertl Center General Assembly	



# How to find us?



## Address:

Flandernstraße 101, 73732  
Esslingen am Neckar,  
Germany

## Parking:

~ 500 parking lots in garage  
(2€/ day; open 24h)

Cafeteria

▲ Entrance Building

▲ 8th Ertl Symposium

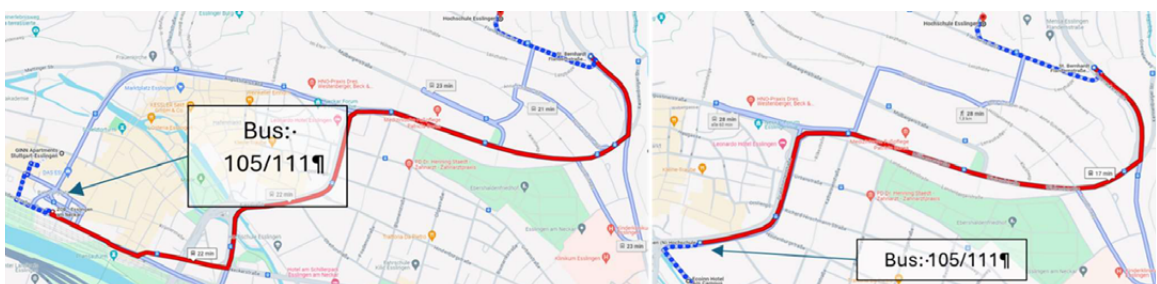
## By car:

- From Munich A8 until exit Esslingen, follow signs "Esslingen"
- From Frankfurt: A5,A67,A6,A81 (one highway) exit Stuttgart city centre follow B10 to exit Esslingen city centre

## By plane/train:

- Frankfurt: ICE to Stuttgart – S1, RE 5 or MEX 12/18 to Esslingen (1:30 h)
- Munich: S1 to Munich Hbf – Ulm or Stuttgart -RE/MEX to Esslingen (3 h)
- Stuttgart: Bus 122 to Esslingen ZOB (40 min) or S2 to Schwabstraße then S1

From hotels by bus/walking (Shuttle service will be provided):



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## 26 June 2024

### Banquet and start of winery tour: Weinsicht Teamwerk Esslingen

Address: Lerchenbergstraße 16, 73733 Esslingen am Neckar

**16:30/17:00 - Symposium Bus at the Venue**

Walk for around 45 min from ECOInn hotel, 35 min from GINN hotel

S1 from Esslingen main station to Mettingen can be used (16 min + 8 min walk)



**21:00/22:00 - Symposium Bus at the Restaurant**