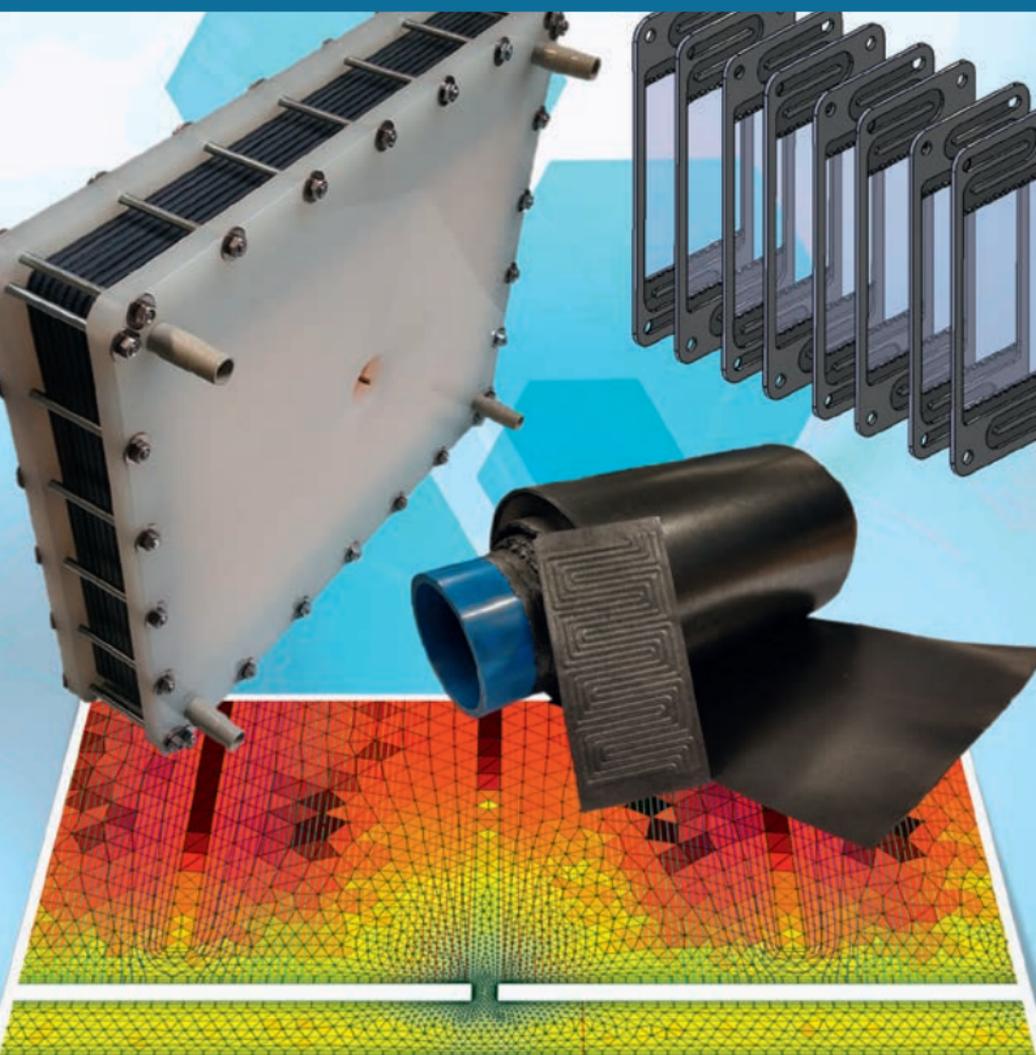


VIRTUAL **E3C**  
ELECTROCHEMICAL CELL  
CONCEPTS COLLOQUIUM





VIRTUAL **E3C**  
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For the first time ever, the "E3C – Electrochemical Cell Concepts Colloquium" is taking place, organized by the Fraunhofer UMSICHT. It was established to serve as a platform for the interdisciplinary exchange of innovations and scientific findings in the field of electrochemical reactors. Due to the current situation the event is designed as an online colloquium.

The focus of this year's colloquium lies on the question which similarities and potential combinations the designs of the different reactor types have in common. In particular, the speeches are about the cell concepts of flow reactors – like flow batteries, fuel cells, electrolysis, electrosynthesis or electro dialysis cells.

Scientists from different fields of application can combine their expertise so that the technologies can benefit from each other's developments and innovations, in order to advance the overall state of research.

This interdisciplinary exchange on the design of electrochemical reactors is divided into three sessions:

- Functional components
- Cell design and fluid flow
- Stack design, testing and sealing technology

**9.00 Opening and greetings**

Prof. Dr.-Ing. Christian Doetsch, Jan Girschik  
Fraunhofer UMSICHT, Oberhausen

KEYNOTES

Chair: Dr. Benedikt Rösen, Senior-Experte Energieforschung, Cluster EnergieForschung.NRW

**9.15 Application of electrochemical processes to energy and environmental applications**

Prof. Dr. Edward Roberts  
University of Calgary, Alberta, Canada

**10.00 Free from fabrication of electrochemical membrane reactors**

Prof. Dr. Matthias Wessling  
RWTH Aachen University, Aachen

**10.45 COFFEE BREAK**

**SESSION 1  
FUNCTIONAL COMPONENTS**

Chair: Prof. Dr. Ulf-Peter Apfel, Fraunhofer UMSICHT, Oberhausen

**11.00 One for all or one for each application?  
Recent advances in membrane development for electrochemical energy converters**

Dr. Matthias Breitwieser  
IMTEK – Department of Microsystems, University of Freiburg

**11.20 Characterization of gas-diffusion electrodes through experiment and simulation**

Prof. Dr. Thomas Turek  
Clausthal University of Technology, Clausthal

**11.40 Degradation and SOC monitoring @ vanadium flow batteries**

Dr. Claudia Weidlich  
DEHEMA-Forschungsinstitut (DFI), Frankfurt/Main

**12.00 Carbon fiber materials for electrochemical energy converters**

Dr. Frieder Scheiba  
Karlsruhe Institute of Technology (KIT), Karlsruhe

**12.20 Poster pitch**

Chair: Prof. Dr. Ulf-Peter Apfel, Fraunhofer UMSICHT, Oberhausen

**12.40 LUNCH BREAK**

**SESSION 2  
CELL DESIGN AND FLUID FLOW**

Chair: Prof. Dr. Christian Doetsch, Fraunhofer UMSICHT, Oberhausen

**13.40 A tubular cell concept for redox flow batteries**

Simon Ressel  
HAW Hamburg, Hamburg

**14.00 PEM fuel cells: Variety of cell and stack designs**

Dr. Ludwig Jörissen  
Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW), Stuttgart

**14.20 Electrochemical cells for water desalination and material separation**

Dr. Carsten Pietzka  
Fraunhofer IGB, Stuttgart

**14.40 PhotoFlow: Solar light rechargeable redox flow battery**

Dr. Christoph Haisch  
DEHEMA-Forschungsinstitut (DFI), Frankfurt/Main

**15.00 COFFEE BREAK**

**SESSION 3  
STACK DESIGN, TESTING AND SEALING TECHNOLOGY**

Chair: Dr. Peter Beckhaus, The Hydrogen and Fuel Cell Center ZBT, Duisburg

**15.20 Bipolar plates: Functional core components of electrochemical cells**

Dr. Michael Joemann  
Fraunhofer UMSICHT, Oberhausen

**15.40 Coating characterization of metallic bipolar plates in fuel cells – from pre-coated materials to stack level results**

Dr. Jörg Karstedt, Lars Kühnemann  
The Hydrogen and Fuel Cell Center ZBT, Duisburg

**16.00 Seal-less stack designs for batteries and electrolyzers**

Lukas Wilhelm, Lucas Hoof  
Fraunhofer UMSICHT, Oberhausen

**16.20 Summary and conclusion**

**16.30 END OF THE COLLOQUIUM**

## ORGANIZER | PARTNERS

**Fraunhofer UMSICHT** is a pioneer for sustainable energy and raw materials management by supplying and transferring scientific results into companies, society and politics. The dedicated UMSICHT team researches and develops, together with partners, sustainable products, processes and services, which inspire. This is our mission.

### Competence of the department "Electrochemical Energy Storage"

We develop electrochemical energy storage systems for the demand-oriented provision of electricity. Our concepts contribute to the sector coupling of energy and production. We specialize in the development and manufacture of batteries and in the technological, economic, and systemic evaluation of power-to-x technologies.

## PARTNERS



## ORGANIZATIONAL

### REGISTRATION AND PARTICIPATION FEE

Please register by **May 7th** using our online registration on the internet at "[s.fhg.de/E3C20](https://s.fhg.de/E3C20)".

The participation fee is 40 € and will be charged by invoice. A small contingent of free tickets is available for students (certificate of study required). If this is exhausted, the reduced participation fee is 15 €. You will receive a confirmation of participation by e-mail. In case of non-participation without prior written cancellation (at least one week before the event), we charge the full participation fee. Members of the UMSICHT-Förderverein attend the event free of charge (1 participant per company).

### YOUR CONTACT

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