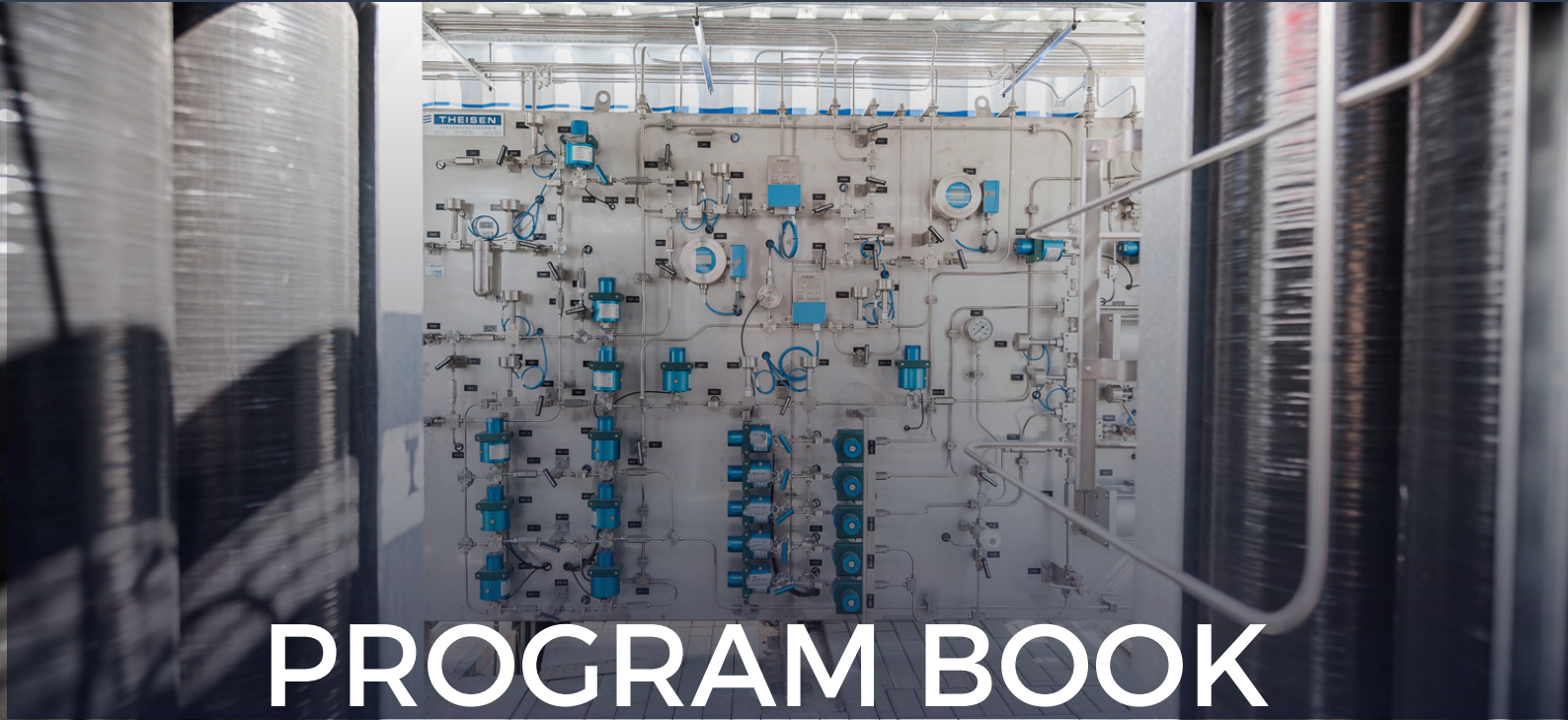


»» ZHyEnS ««

ZBT HYDROGEN ENERGY SYMPOSIUM



PROGRAM BOOK

18 NOVEMBER 2026

THIRD ANNUAL CONFERENCE

ORGANISED BY THE ZBT RESEARCH SCHOOL



THE HYDROGEN AND
FUEL CELL CENTER





HYDROGEN ENERGY SYMPOSIUM

----- Agenda -----

Wed, 18 November, 2026

Zentrum für BrennstoffzellenTechnik,
Carl-Benz-Straße 201, 47057 Duisburg

REGISTRATION OPEN FROM 8:30AM

9:00AM - 09:15AM

Welcome and Introduction

9:15AM - 10:00AM

Keynote Lecture

Prof. Dr. Richard Hanke-Rauschenbach

10:00AM - 11:00AM

Session 1: 3 Short Talks

Fuel Cells and Hydrogen Infrastructure

Coffee Break

11:30AM - 12:30PM

Session 2: 3 Short Talks

Electrolysis: Components and Manufacturing

LUNCH BREAK

1:45PM - 3:15PM

Session 3: 4 Short Talks

Electrolysis: Electrode Materials and Catalysts

Group photo & Coffee Break

3:45PM - 4:00PM

Short Recap

4:00PM - 4:45PM

Keynote Lecture

Prof. Regina Palkovits

4:45PM - 6:15PM

Poster Session

SUBMIT AN ABSTRACT FOR A SHORT TALK OR POSTER

We invite researchers from all fields related to hydrogen technologies to contribute an abstract outlining the motivation, methods, results and conclusions of their research.

Authors of selected abstracts will be invited to give a short oral presentation.

Others might be offered the chance to present a poster at the symposium.

Topics of interest include
(but are not limited to):

- **Functional Materials and Electrochemical Systems**
- **Hydrogen Storage, Transportation, Safety and Regulations**
- **Fuel cells and Electrolysers**
- **Hydrogen Applications in Mobility, Industry, and Energy Systems**

**Submit your abstract of
no more than 300 words online:**



<https://indico.h2fc.center/event/109/abstracts/>

**The Call for Abstracts was
closed on 20 July**

CALL FOR ABSTRACTS

SEMINAR KEYNOTE

KEYNOTE #1

9:15 AM - 10 AM

Prof. Dr. Richard

Hanke-Rauschenbach

Leibniz University Hannover



“Aspects of cost-optimal dispatch and design of green hydrogen production systems in a regulated market environment.”

KEYNOTE #2

4 PM - 4:45 PM

Prof. Dr. Regina Palkovits

RWTH University Aachen



© Martin Braun

“Electrocatalytic conversion of renewable carbon feedstocks.”

COORDINATION

Feel free to address any questions
about the Symposium to:



Dr. Theresa Schredelseker

t.schredelseker@zbt.de

+49 203 7598-3357

Dr. María Dávila

m.davila@zbt.de

+49 203 7598-3350



SCIENTIFIC COMMITTEE



Prof. Dr. Harry Hoster

h.hoster@zbt.de

Dr. Lena Engelmeier

l.engelmeier@zbt.de



Dr. Natalia Levin

n.levin@zbt.de

Dr. Susanne Palecki

s.palecki@zbt.de



— The symposium is organized by —

S
R
E
N
Z
A
N
G
R
O



SHORT TALKS

SESSION 1: FUEL CELLS AND HYDROGEN INFRASTRUCTURE

10:00 AM - 11:00 AM

SHORT TALKS (15 min)

10:00 AM

- **Ricarda Sophie Scheich (ZBT)**

Coauthors: Thorsten Notthoff; Susanne Palecki; Jan Strater

Influence of Different Freeze Strategies on Cold-Start Measurements

10:20 AM

- **Florian Dennewitz (ZBT)**

Coauthor: Matthias Bahr

Development of a Reaction Kinetic Degradation Model Coupled with a PEM-FC Performance Model for Real-Time Prediction of State Health in Heavy-Duty Applications

10:40 AM

- **Timo Schelm (Leibniz University Hannover)**

Coauthors: Astrid Bensmann; Richard Hanke-Rauschenbach; Finn Schenke

A Systematic Framework for Uncertainty Quantification and Sensitivity Analysis of Liquid Hydrogen Supply Costs for Aviation

SESSION 2: ELECTROLYSIS – COMPONENTS AND MANUFACTURING

11:30 AM - 12:30 PM
SHORT TALKS (15 min)

11:30 AM

- **Janna Wierper (Fraunhofer UMSICHT)**

Coauthors: Ulf-Peter Apfel; Julia Jökel; Julian Kleinhaus;
Kevinjeorjios Pellumbi; Raffaele Ruppolo; Henrik Winter

Simple Mechanical Electrode Patterning for
Performance Enhancement in PEM Water Electrolysis

11:50 AM

- **Julian Kapp (ZBT)**

Coauthor: Harry Hoster; Kyra Kunz; Verena Lukassek; Lukas Schmidt

Electrolyte Composition Effects in Ex Situ Corrosion
Testing of PEMWE Bipolar Plates

12:10 PM

- **Saiqa Hafeez (Fraunhofer UMSICHT; RUB)**

Coauthors: Ulf-Peter Apfel; Julia Jökel; Julian Kleinhaus

Optimization of Decal Transfer Method for Anion
Exchange Membrane Water Electrolysis (AEMWE)





SHORT TALKS

SESSION 3: ELECTROLYSIS – ELECTRODE MATERIALS AND CATALYSTS

1:45 PM - 3:15 PM

SHORT TALKS (15 min)

1:45 PM

- **Christina Meinert (University of Duisburg-Essen)**

Coauthor: Karla Sieker; Christian Marcks; Nicolas Wöhrle; Axel Lorke; Anna Mechler

Enhanced OER Performance by Remote Nitrogen
Plasma Nanostructuring of Nickel Electrodes

2:05 PM

- **Blaz Toplak (University of Duisburg-Essen)**

Coauthors: Leon Müller; Hatem Amin; Stefan Schulz; Hartmut Wiggers; Doris Segets; Mohaned Hammad

LaFeO₃-based Perovskite Anodes for the Alkaline
Oxygen Evolution Reaction: When Substrate
Interactions Override Elemental Substitution

2:25 PM

- **Davide Beschi (UDE); Bastian Kaufmann (ZBT)**

Coauthors: Stephan Barcikowski; Benjamin Mockenhaupt; Moritz Pilaski; Kerstin Witte-Bodnar

Composition-Support Interactions in Laser-
Synthesized Supported NiFeCoMo CCSS
Catalysts for Alkaline Water Electrolysis

SHORT TALKS (15 min)

2:45 PM

- **Benjamin Mockenhaupt (University of Duisburg-Essen)**

Coauthors: Philipp Lemm; Bakri Sato; Stephan Barcikowski

Influence of Aromatic Amine Degradation Products on the Oxygen Evolution Reaction at Nickel Electrodes





POSTERS

POSTERS

Can be exhibited during the whole day.
Dedicated Poster Session starts at 5:45pm

#1

- **Philipp Lemm (University of Duisburg-Essen)**

Coauthors: Stephan Barcikowski; Kristian Maier; Benjamin Mockenhaupt; Oleg Prymak

Laser-Induced Surface Doping of Ni-Based Electrocatalysts for the Oxygen Evolution Reaction in Alkaline Water Electrolysis

#2

- **Wajahat Khalid (Ulster University)**

Atmospheric Pressure Plasma Liquid (APPL) driven d-band modulation of Cu-BTC MOF toward Thermoneutral Hydrogen Adsorption and Optimized Alkaline Hydrogen Evolution (HER)

#3

- **Elisabeth Verweyen (ZBT)**

Coauthors: Marco Grundler; Christian Laugwitz; Lisa Stiegler

Welding strategies for highly filler polymer compound foils to be used in production of bipolar plates for low temperature PEM fuel cells

#4

- **Marco Grundler (ZBT); Paul Stannek (ZBT)**

Scalable Roll-to-Roll manufacturing of graphite-polymer bipolar plates for PEM Fuel Cells

#5

- **Annika Kirsten (Westfälische Hochschule)**

Coauthors: Sonja Grothe; Gabriela Marginean; Clemens Pollerberg

Development of a Photoanode for photoelectrochemical water Splitting

#6

- **Lukas Hadrych (ZBT)**

Development of a two-phase lumped parameter model for real-time state prediction in PEM water electrolyzers under dynamic Operation

#7

- **Manuel Forster (Westfälische Hochschule)**

Coauthor: Clemens Pollerberg

Hydraulically compressed electrochemical cells for the purpose of hydrogen compression

#8

- **Miriam Knoke (Ruhr University Bochum)**

Coauthors: Ulf-Peter Apfel; Julia Jökel; Julian Kleinhaus

Towards Green Recycling of EoL PEM Electrolyzers

#9

- **Aneeta Jose Puthussery (University of Duisburg-Essen)**

Influence of Catalyst Ink Formulation on the Microstructure and OER Performance of CoFe_2O_4 Anodes for Anion Exchange Membrane Water Electrolysis

#10

- **Benjamin Mockenhaupt (University of Duisburg-Essen);**
Eise Draaijer (University of Duisburg-Essen)

Coauthors: Stephan Barcikowski; Md Rakibul Hasan; Denis Makhmutov; Varatharaja Nallathambi; Sven Reichenberger; Sebastian Wohlrab

Low-Temperature CO_2 Hydrogenation with laser-synthesized High Entropy Alloy nanoparticles for Hydrogen Utilization

#11

- **Vimanshu Chanda (ZBT)**

Coauthors: Alexis Bordet; Sebastian Hirt; Hooman G. Zahedi; Natalia Levin

Low-Temperature Molecular Synthesis of Cobalt Phosphide Nanoparticles for the Hydrogen Evolution Reaction



#12

- **Vineetha Vinayakumar (University of Duisburg Essen)**

Coauthors: Mohit Chatwani; Christian Marks; Adarsh Jain; Jacob Johnny; Marc F. Tesch; Lars Grebener; Ali Raza Khan; Viktor Čolić; Anna K. Mechler; Doris Segets

Mechanochemical Activation to Enable Binder-Free Functional Materials for Efficient Alkaline Water Electrolysis

#13

- **Inci Nur Sahin (University of Duisburg-Essen)**

Coauthors: Sepideh Izadi; Thomas Lampke; Lisa-Marie Rymer; Gabi Schierning; Lisa Winter

Electrochemical and Transport Characterization of Hydrogenated Ni_xFeCoCr Alloys

#14

- **Felix Lohaus (Fraunhofer UMSICHT)**

Coauthors: Laura Huwald; Maximilian Wand

Continuous Hollow Embossing Rolling of Composite Foils: Challenges and Development Goals

#15

- **Marcel Gretzki (ZBT)**

Lightweight air-cooled PEM fuel cell stack development based on a novel aircraft propulsion system: Results from BeHyPSy - A founded collaborative project

#16

- **Henrik Winter (Fraunhofer UMSICHT, Ruhr University Bochum)**

Coauthors: Ulf-Peter Apfel; Saiqa Hafeez; Julia Jökel; Julian Kleinhaus

Degradation analysis of Carbon Bipolar Plates in Anion Exchange Membrane Water Electrolysis (AEMWE)

#17

- **Jannik Plass (ZBT)**

Coauthors: Hugo Franßen; Michael Steffen

Spatially Resolved Measurements in an Ammonia Cracker under Industrially Relevant Conditions

#18

- **Dino Woelk (Westfälische Hochschule)**

Hierarchical Ni-NiFe Electrode Structures for Oxygen Evolution Reaction Fabricated by Powder Sintering and Electrodeposition

#19

- **Dennis Tonder (ZBT)**

Coauthors: Sebastian Brokamp; Frank Filusch

Laser Transmission Welding of Highly Filled Polypropylene Compounds for Modular Composite Bipolar Plates

#20

- **Fabian Ketter (RWTH Aachen University)**

Coauthors: Regina Palkovits; Cordula F. Ridder

Advancing Decentralized Hydrogen Supply: Processing LOHC-derived H₂ with Electrochemical Pumping

#21

- **Alexandros Perrakis (ZBT)**

Coauthor: Marco Grundler

Influence of screw configuration of twin screw extruder (TSE) on electrical, mechanical and thermal properties of highly filled compounds used for bipolar plates in PEM-Fuel cells

#22

- **Benni Zou (RWTH Aachen University)**

Coauthors: Regina Palkovits

Insights into electro-oxidative dehydrogenation of aldehydes on copper foam

#23

- **Elias Klarhorst (ZBT)**

Coauthors: Lukas Feierabend; Jens Wartmann

Model-Based Analysis of Dynamic Ammonia Production Following the Output of Fluctuating Renewable Energy



#24

- **Patrick Kienzerle (RWTH Aachen University)**

Coauthors: Fabian Ketter; Ina Kohlhaas; Regina Palkovits

Pulsed Potential Operation for Impurity Management in Electrochemical Hydrogen Pumps

#25

- **Caroline Schmidt (RWTH Aachen University)**

Coauthors: Sonja D. Mürtz; Regina Palkovits

Coupling Hydrogen Evolution with Plastic Recycling – A study on the electro-oxidation of polyvinyl(alcohol) on nickel foams

#26

- **Amir Najafi (ZBT)**

Coauthors: Lars Kühnemann; Jörg Karstedt; Mounir Kouachi

Development and Evaluation of Advanced Sealing Concepts for High-Pressure PEM Electrolyzer Stacks

#27

- **Lukas Feierabend (ZBT)**

Coauthors: Sercan Erdogan; Ulrich Gardemann; Maik Messing

CFD-Based Heat-Transfer Intensification of Fixed-Bed Methanation Reactors Using Helically Finned Tubes

#28

- **Sercan Erdogan (ZBT)**

Coauthor: Lukas Feierabend

Towards a pore-network-based assessment of microstructured bipolar-plate ribs for lateral water drainage in PEMFC gas diffusion layers

#29

- **Joshua Barteit (ZBT)**

Coauthors: Miriam Hesse; Bastian Kaufmann; Moritz Pilaski; René Jahn; Natalia Levin

Direct Membrane Deposition for Improved Catalyst-Membrane Interfaces in AEM Water Electrolysis

#30

- **Florian Kuschel (ZBT)**

Coauthor: Lukas Feierabend

From pAST to future: Implementation of Advanced Accelerated Stress Testing for Electrolyzer Lifetime Prediction

#31

- **Leonard Böhm (Westfälische Hochschule)**

Coauthors: Ulf-Peter Apfel; Maximilian Cieluch; Norbert Kazamer; Florian Wirkert

Comparison of electrochemical activity and degradation behavior for NiMo and Pt based carbon electrodes in AEMWE

#32

- **Lisa Sagewka (Westfälische Hochschule)**

Coauthors: Sourav Bhowmick; Maximilian Cieluch; Norbert Kazamer; Gabriela Marginean; Annika Neuwinger; Michel Prestat; Ulrich Rost; Jeffrey Roth; Florian Wirkert

Comparative Performance and Degradation Study of Stainless-Steel Woven Mesh and Felt as Anode for AEM Water Electrolysis

#33

- **Annika Neuwinger (Westfälische Hochschule)**

Coauthors: Lisa Sagewka; Jeffrey Roth; Florian Wirkert; Mathias Spree; Burkhard Stahlmecke; Tim Hülser; Norbert Kazamer; Elnaz Asgharieh; Sebastian Hardt

Towards Platinum-Free Titanium PTLs: Laser-Sintered Doped TiOx Coatings for PEM Water Electrolysis

#34

- **Marco Brand (Westfälische Hochschule)**

Coauthors: Michael Brodmann; Tim Hülser; Norbert Kazamer; Frederik Kunze; Gabriela Marginean; Martin Underberg; Florian Wirkert

Perovskite and graphene-based membrane electrode assemblies for sustainable proton exchange membrane electrolysis



- ## Platinum-Free PTLs in PEMWE via Ti-based Alloys deposited by Magnetron Sputtering

Electrochemical Reduction of Nitrate to Ammonia on Transition-metal Sputtered Copper Foams