



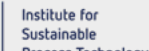
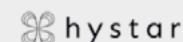
BERLIN ELECTROLYSER CONFERENCE

26-27 November 2024 | Berlin, Germany

Supported by: **SIEMENS**



We would like to thank our previous speakers & guests:



Partners:





BERLIN ELECTROLYSER CONFERENCE 2024

26-27 November 2024 | Berlin, Germany



Dear Colleagues,

As we move forward towards the decarbonization of key industrial and transport sectors, large-scale electrolyzers are set to play a critical role. While the existing electrolyser technologies are ready for scale-up, there remain a number of critical challenges that must be overcome by different stakeholders in order to achieve the ambitious objectives for reducing costs of green hydrogen production and accelerating the installations of electrolyser capacities worldwide.

This 7th edition of our highly focused electrolyser conference series will again bring together electrolyser manufacturers, component specialists, industrial users, engineering experts and researchers to discuss the development, manufacturing, deployment and integration of the next generation of industrial electrolyzers.

We look forward to meeting you!

Bernd Hamacher

Founder & Director of BEC

Bruno G. Pollet

Chairman of BEC

Monica Wick

CEO of Red Cabin

PARTNERS



Canadian
Hydrogen
Association

Association
Canadienne de
L'hydrogène



IAHE
Green Hydrogen
Division



Hydrogen Central



THE KEY OBJECTIVES OF THIS CONFERENCE

LEARN ...

... how to scale up **electrolyser units**, their different **technologies** and **manufacturing processes**.

DISCUSS ...

... how to **increase efficiency and cut costs** by improving electrolyser design, materials and components, and balance of plant (BoP).

EXPLORE ...

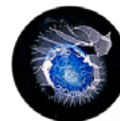
... how to **integrate large electrolyzers** into renewable systems, plants, processes and value chains to scale up their industrial application.

ENLARGE ...

... your network with **industry experts** from all parts of the electrolyser value chain and learn from each other.

For further information, sponsorship or delegate registration please contact:

Erutode Rume, erutode.rume@redcabin.de | Office: +49 30 99 40 489 11 | Mobile: +49 162 256 738 2



CONFIRMED SPEAKERS

CHAIRMAN OF BEC

BRUNO G. POLLET

President, Green Hydrogen Division IAHE/
current member of the Council of Engineers
for the Energy Transition under the auspices
of the UN Secretary-General



FOUNDER & DIRECTOR OF BEC

BERND HAMACHER

Blue Delta international conferences



SUKANTA BHATTACHARYYA

Co-founder & Chief
Technology Officer
1s1 Energy, USA



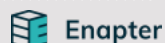
BENOÎT BARRIÈRE

Chief Technology Officer
McPhy, France



JAN-JUSTUS SCHMIDT

Co-Founder Enapter & Board Member
Wolong Enapter Hydrogen Technologies Co.,
Ltd., Germany/China



GUSTAV SIEVERS

CEO & CTO
elementarhy, Germany



NICK VAN DIJK

CEO & CTO
Oort Energy, United Kingdom



PETER MICHAEL HOLZAPFEL

Senior Consultant Hydrogen Market
Siemens, Germany



ANDREA PUSCEDDU

Business Development
Director, Hydrogen
IMI plc, Italy



AMIR NIROUMAND

Principal Scientist
Greenlight Innovation, Canada



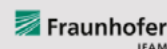
KLEMENS ILSE

Head of Group,
Materials Diagnostics for
H2 Technologies
Fraunhofer IMWS, Germany



SASCHA MORLOCK

Research Fellow,
Electrochemical Technology
Fraunhofer IFAM, Germany



THIJS DE GROOT

Associate Professor
Eindhoven University of Technology,
The Netherlands



CAROL XIAO

Director Business
Development



HANS VAN'T NOORDENDE

Principal Expert
Institute for Sustainable
Process Technology, The Netherlands

DENIS THOMAS

Global Marketing Director –
Electrolyzers



YURI VANDERVEKEN

Global Senior Product Manager –
Electrolyzer
Accelera by Cummins, Belgium

TIES VAN MAAREN

Senior Business Developer



EDUARDO DA ROSA SILVA

Medior Scientist Integrator
TNO, The Netherlands

For further information, sponsorship or delegate registration please contact:

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CONFIRMED SPEAKERS

SAEID KHALAFVAND



Head of Multiphysics & IP
*Battolyser Systems,
The Netherlands*

MARC D. JEDAMZIK



Managing Director &
Director of Sales Central Europe
HydrogenPro, Germany

STEFAN BARWE



Team Manager
*Air Liquide Research and
Development, Germany*

TOBIAS HAEGENS



Research Project Manager
Agfa, Belgium

WAYNE THORNHILL



Global Sales Director –
Electrode Solutions
JOLT, Spain

JÖRN BRAUNS



Development Engineer
IAV, Germany

MANUEL QUESADA VILAR



Innovation & IP Manager

ALBERTO PIÑERO

Business Development Manager

JORGE ROMERO

Senior Researcher
Matteco, Spain



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SPONSORS

SIEMENS Siemens AG is a leading partner in the hydrogen space with the focus on automation, measurement and digital twin tools for electrolysis suppliers. We offer products, systems and services that enable electrolysis manufacturers to efficiently plan, produce and integrate of the art systems within a P2X environment.



Jolt is a Spanish deeptech startup commercializing a disruptive, one-stage industrial method to produce activated electrodes and anti-corrosion coatings for use in AWE, AEM and PEM electrolysis.

Benefits include:

- very high scalability (400,000m² per annum per modular line, fully automatic, roll to roll, with batches up to 2.1m diameter produced in under 10 minutes end to end)
- low manufacturing CAPEX
- low production cost (we can offer a significant discount on existing market prices at all volumes)
- high durability (long-term stress tests completed with over 12 manufacturers)
- we can offer standard PGM catalytic compounds or PGM-free (AWE and AEM only) with excellent efficiency results.

SPONSORS



Greenlight is the global leader in the supply of testing equipment for hydrogen electrolyzers and fuel cells. Greenlight's team of 300 people produces ~150 to 200 test rigs per year at our factory near Vancouver, Canada.

Our products are the industry standard for both production and R&D testing. Since 1992, Greenlight's product line has set the benchmark for accuracy, reliability, and value. The world's leading electrolyser and fuel cell institutions rely on Greenlight's advanced testing equipment to provide world-class data and results.



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EVENT HISTORY

BEC24 is the 7th edition in a series of highly focused electrolysis conferences that has been established in 2020 by Bernd Hamacher. From 2022 onwards, a partnership with Red Cabin has transformed these conferences, reinforcing our joint mission to enhance electrolyser technologies and spark innovative breakthroughs.

BEC is held toward each year's end in Germany's capital, where it attracts top industrial electrolysis experts from across the globe. To complement this, we started organizing a North American event mid-year from 2023, aiming to further widen our network.

1st Next Generation Electrolysers

Online Technical Conference – December 8-9, 2020

2nd Next Generation Electrolysers

Online Technical Conference – December 7-8, 2021

3rd Berlin Electrolyser Conference

Technical Conference, Berlin, Germany – December 7-8, 2022

4th Next Generation Electrolysers

Technical Conference, Fort Worth, TX, USA – June 21-22, 2023

5rd Berlin Electrolyser Conference

Technical Conference, Berlin, Germany – December 6-7, 2023

6th Next Generation Electrolysers

Technical Conference, Toronto, Canada – June 4-6, 2024



WHAT YOU WILL EXPERIENCE ON SITE

WHO IS WHO

Get in touch with other experts before the conference starts. Take a look at the business cards and photos while enjoying your first conversational and networking experience.

AUDIENCE Q&A

Interact with conference speakers and moderators to ensure all of your questions are answered during these sessions.

SPEED NETWORKING

Break the ice and get to know your industry peers in these fast-paced one-to-one meetings. Greet each participant in this series of brief exchanges and share your professional background.

INTERACTIVE WORKING GROUPS

Get an in-depth approach to these hands-on themes. Discuss, brainstorm, elaborate and work together in this interactive session.

Tutorials and workshops are also an excellent chance to interact at this perceived as the, go-to' place for knowledge, best practice and credible solutions.

NETWORKING RECEPTION

RedCabin invites our delegates to enjoy an informal evening get-together with speakers and peers.

Discuss the outcome of the first conference day and expand your network in a relaxed environment.



BERLIN ELECTROLYSER CONFERENCE 2024

26-27 November 2024 | Berlin, Germany



BEC DAY 1 | Tuesday NOVEMBER 26, 2024

07:45 REGISTRATION & WELCOME COFFEE

WHO IS WHO

Get in touch with other experts before the conference starts. Take a look at the business cards and photos while enjoying your first conversational and networking experience.

08:45 WELCOME NOTE

Bernd Hamacher – Founder/Director of Electrolysis North America (ENA) and Berlin Electrolyser Conference (BEC)

Bruno G. Pollet – Chairman of Berlin Electrolyser Conference (BEC) and President of Green Hydrogen Division at the International Association for Hydrogen Energy (IAHE)

09:00 Enapter – Leading the world in AEM electrolysis

- Introduction to AEM electrolysis
- Enapter's unique approach and value proposition
- Partner strategy for industrialization and scale

Jan-Justus Schmidt – Co-Founder, Enapter, Board Member, Wolong Enapter Hydrogen Technologies Co., Ltd., Germany/China

09:30 PEM electrolysis by Accelera: technology status, lessons learnt and way forward

- Products & technology updates
- Lessons learnt: products, manufacturing/supply chain, projects
- The future of PEM electrolysis

Yuri Vanderveken – Global Senior Product Manager – Electrolyzer, Accelera by Cummins, Belgium

Denis Thomas – Global Marketing Director – Electrolyzers, Accelera by Cummins, Belgium

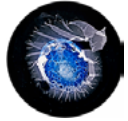
10:00 The Hydrogen Performance Suite

- Optimizing the production with AI
- Transparency via dashboard
- Integration of prediction models
- Forecast driven operations e.g. via weather forecasts
- Integration of digital twins into operation

Peter Michael Holzapfel – Senior Consultant Hydrogen, Siemens, Germany

SPEED NETWORKING

10:30 *Break the ice and get to know your industry peers in these fast-paced, one-to-one meetings. Greet each attendee in a series of brief exchanges and share your professional background. Make sure you bring a whole stack of business cards with you!*



BEC DAY 1 | Tuesday NOVEMBER 26, 2024

11:00 NETWORKING COFFEE BREAK

11:30 Industrial challenges of pressurized alkaline electrolysis

- Challenges from the cell level to the multi-stack operations
- A short focus on degradation phenomena
- The key for success: Partnerships and large test benches

Benoît Barrière – Chief Technology Officer, *McPhy, France*

12:00 Next generation electrodes for the Hydrogen Economy

- Introduction to Sparkfuzee electrode production
- Overview of production capacity and scale
- Performance and durability assessment

Wayne Thornhill – Global Sales Director – Electrode Solutions, *JOLT, Spain*

12:30 Pressurised high-performance alkaline electrolyzers for dynamic operation

- Introduction of HydrogenPro's high-performance alkaline electrolyser technology
- Pressurised alkaline electrolyzers for dynamic operation in the renewable energy grid
- Technology development roadmap

Marc D. Jedamzik – Managing Director & Director of Sales Central Europe, *HydrogenPro, Germany*

13:00 NETWORKING LUNCH BREAK

14:00 Scaling up alkaline water electrolysis: Does size matter?

- Influence of stack and system design on the process performance
- Challenges and benefits of dynamic operating concepts
- Rightsizing of electrolyzers

Jörn Brauns – Development Engineer, *IAV, Germany*

14:30 How ZIRFON Membranes Help Unlock The Field of Alkaline Water Electrolysis

- ZIRFON: Unwavering quality and large scale production, empowering Alkaline Water Electrolyzers to achieve peak performance, thereby attaining the most competitive hydrogen costs
Lowest energy consumption: High ionic conductivity which allows alkaline water electrolyzers to operate at high efficiency
- Coupling with renewables: Alkaline water electrolyzers using ZIRFON membranes can operate at a minimal load as low as 10%
- Enables safe operation: Designed to minimize gas crossover, thereby guaranteeing exceptional hydrogen and oxygen purities, even at low loads
- High durability: ZIRFON membranes, established in the market since 2007, boast an impressive track record of longevity, with demonstrated lifespans exceeding 8 years

Tobias Haegens – Research Project Manager, *Agfa, Belgium*



BEC DAY 1 | Tuesday NOVEMBER 26, 2024

15:00 Testing and Diagnostic Methods for Electrolyzer Research and Development

Amir Niroumand – Principal Scientist, *Greenlight Innovation, Canada*

15:30 NETWORKING COFFEE BREAK

WORKSHOP SESSION A

16:00 Design challenges for alkaline water electrolyzers

- What is the best design for future alkaline electrolyzers in terms of cell design, nr. of cells, manifold design and operating temperature and pressure?
- What is best design for the balance of plant of an alkaline electrolyzer?
- What are the operational requirements for future alkaline electrolyzers in terms of operating range, shutdown frequency and ramping?

HOSTED BY: **Thijs de Groot** – Associate Professor, *Eindhoven University of Technology, The Netherlands*

WORKSHOP SESSION B

17:00 Solid Oxide Electrolyzers: Applications and Technology Status, Opportunities and Challenges

PRESENTATION: The fundamentals of steam, co-, and CO₂ solid oxide electrolysis technology, including the current status of the technology in terms of applications, scales, and demonstrations

WORKING GROUPS: Review of case studies for SOE applications, and discussion of main opportunities and challenges of the technology when integrated into different types of industries and scales

HOSTED BY: **Ties van Maaren** – Senior Business Developer, *TNO, The Netherlands*

Eduardo da Rosa Silva – Medior Scientist Integrator, *TNO, The Netherlands*

18:00 CLOSING REMARKS BY CHAIRMAN BRUNO G. POLLET

END OF CONFERENCE DAY 1

18:15 EVENING NETWORKING RECEPTION

MEETING POINT: HOTEL LOBBY

At a location in walking distance to the conference hotel, enjoy an informal evening get-together with drinks, snacks, and networking opportunities.



BEC DAY 2 | Wednesday NOVEMBER 27, 2024

08:15 REGISTRATION & WELCOME COFFEE

08:45 WELCOME NOTE

Bruno G. Pollet – Chairman of Berlin Electrolyser Conference (BEC) and President of Green Hydrogen Division at the International Association for Hydrogen Energy (IAHE)

08:50 ISPT Hyscaling project:

Making better electrolyzers in a better way

- The Netherlands has a strong high-tech industry, but lacks a complete value chain for large-scale hydrogen production
- A complete value chain is necessary to realize the large-scale 'hydrogen factories' required for the energy transition
- Current state-of-the-art electrolyser technology produces hydrogen at a cost that is too high to be competitive

Carol Xiao – Business Development Director, ISPT, The Netherlands

H2-Safety2 – Safety Standardisation of Green Hydrogen Electrolyser Systems

- Scenarios of inequipment explosion
- Standardization of electrolyzers

Hans van't Noordende – Principal Expert, ISPT, The Netherlands

09:30 IMI Vivo safety oriented design for containerized PEM Electrolyzers

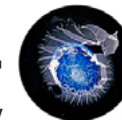
- Brief Company Introduction
- ATEX assessment and HAZOP, lessons learnt and main takeaways from our experience in Oil & Gas
- Advanced FEM techniques, example of a explosion shock-wave simulation on a O2 separator vessel
- Advanced CFD to simulate an H2 leakage in the container and check venting fans efficiency
- Conclusions

Andrea Pusceddu – Business Development Director, Hydrogen, IMI plc, Italy

10:00 Multiphysics Modelling and Digital Twin of Electrolyzers: Battolyser's Perspective

- How to assess system performance at component and physics levels
- Multi-scale and Multiphysics analysis for optimizing electrolyser efficiency
- Implementing digital twins for Stack and Balance of Plant (BoP)

Saeid Khalafvand – Head of Multiphysics & IP, Battolyser Systems, The Netherlands



BEC DAY 2 | Wednesday NOVEMBER 27, 2024

10:30 NETWORKING COFFEE BREAK

11:00 Advanced Materials and CCM Architecture for PEM Water Electrolysis

- Innovative Proton Conducting Groups
- Novel Catalyst System
- Robust Chemistry
- Concept Applications

Sukanta Bhattacharyya – Chief Technology Officer,
1s1 Energy, USA

11:30 Transforming the Green Hydrogen Economy with High Performance PGM-free Catalysts and Electrodes

- A New Standard for Alkaline & AEM Electrolysis
- Advanced Materials' proprietary technology and process to improve performance and stability
- From lab to industry: scaling up production and volumes

Alberto Piñero – Business Development Manager,
Matteco, Spain

Jorge Romero – Senior Researcher, *Matteco, Spain*

Manuel Quesada – Innovation & IP Manager, *Matteco, Spain*

12:00 NETWORKING LUNCH BREAK

13:00 Microstructure analysis and new diagnostic tools for quality assurance in the production and operation of electrolyzers

- How to find and identify material defects and degradation problems in large area electrolyser components
- The potential of magnetic field analysis to detect current density variations and anomalies during electrolyser operation
- Application examples of high-resolution and 3D microstructural analysis tools - and why it is important to have materials experts doing the work

Klemens Ilse – Head of Group, Materials Diagnostics for H2 Technologies, *Fraunhofer IMWS, Germany*

13:30 High-Performance Materials for Water Electrolysis

- Optimization of Electrode and Catalyst Materials
- Alkaline water electrolysis
- AEM electrolysis
- Thorough analysis of electrolyzer components

Sascha Morlock – Research Fellow, Electrochemical Technology, *Fraunhofer IFAM, Germany*



BEC DAY 2 | Wednesday NOVEMBER 27, 2024

14:00 NETWORKING COFFEE BREAK

14:30 Building the elementary part: Scaling green hydrogen with innovative technologies

- Revolutionary eMEA technology for PEM electrolyzers
- 95% less critical raw materials, PFAS-free
- Cost savings of up to 50% with best-in-class performance
- Path to mass production and advanced TRL levels

Gustav Sievers – CEO & CTO, *elementarhy, Germany*

15:00 An introduction to Oort Energy

- Oort Energy's range of electrolyzers, including a high-pressure (200 bar) electrolyser stack
- Latest developments in Oort's high-performance electrolyser
- Discussion of high-pressure testing results from Oort's electrolyser

Nick van Dijk – CEO & CTO, *Oort Energy, United Kingdom*

15:30 Water electrolysis – One piece of the hydrogen value chain puzzle

- Water electrolysis operation from an industrial gas production point of view
- How to tackle optimized operation in a multi variable and constraint environment

Stefan Barwe – Team Manager, *Air Liquide Research and Development, Germany*

16:00 CLOSING REMARKS BY CHAIRMAN

16:15 END OF CONFERENCE





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INVESTMENT PER DELEGATE

DATE	2 DAY CONFERENCE INVESTMENT
ORIGINAL INVESTMENT	Euro 2.795,-

CONFERENCE VENUE AND PARTNER HOTEL

NHOW HOTEL BERLIN

Stralauer Allee 3, 10245, Berlin, Germany

+0049 (0) 30 22380233

reservierungen@nh-hotels.com

*Code RedCabin Event

FOR FURTHER INFORMATION, SPONSORSHIP OR DELEGATE REGISTRATION PLEASE CONTACT:

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