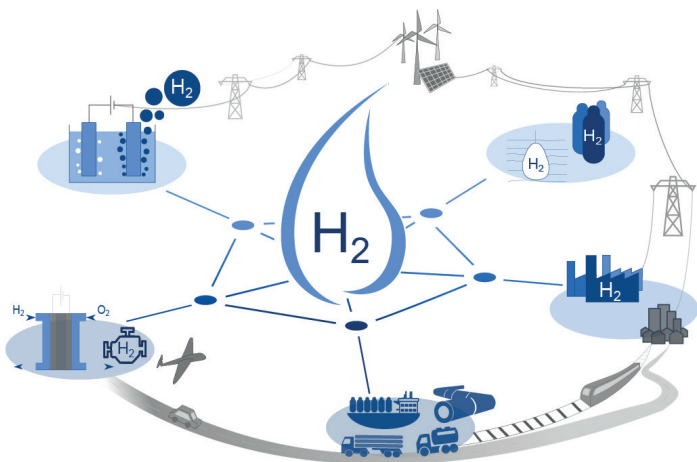


Program

Aachen Hydrogen Colloquium

Novotel | Peterstraße 66 | 52062 Aachen
April 18 - 19, 2023



Hydrogen Generation

Production of PEM Electrolyzers – Impact of flow field design on manufacturing
Martin Aretz | IPT, Fraunhofer

Inside of the MEA fabrication labyrinth – Which way to go? Stephan Zimmer,
Niklas Vollmert, Cathleen Plath | AVT.CVT, RWTH Aachen

Production and processing of inks for corrosion-resistant coatings in electrolyzer
PTLs by Aerosol Jet Printing
Max Rommerskirchen | DAP, RWTH Aachen

V-Ni binary compounds in electrochemical water splitting Büşra Mete | Institut
für Chemische Physik fester Stoffe, Max-Planck-Gesellschaft

Prometh2eus: Optimized material development for technical H₂ generation
through improved oxygen electrodes
Christian Marcks | AVT.ERT, RWTH Aachen

A model-based evaluation of overpotentials in alkaline water electrolysis
J. Raphael Seidenberg | AVT.SVT, RWTH Aachen

Solar Heat Supported High Temperature Cell Electrolysis
Timo Roeder | Future Fuels, DLR

Generation of Hydrogen from Steam using Oxygen Membrane Reactors
Kai Bittner | ZEA-1, Forschungszentrum Jülich

Hydrogen engineering and consulting Elena Borgardt | iGas energy

Grüner Wasserstoff aus Klärschlamm und Kunststoffabfällen
Nadia Romdhane | Green Hydrogen Technology

Transport & Conversion

Integration of fiber optic sensors into type-IV pressure vessels
Jannick Fuchs | IKV, RWTH Aachen

Chemical hydrogen storage by liquid organic hydrogen carriers (LOHC)
– Catalytic loading and unloading of the LOHC benzyltoluene
Barbara Bong | ITMC, RWTH Aachen

Shaped Inorganic-Organic Hybrid Catalyst Materials Based on Highly
Crosslinked Porous Polymers for the Formic Acid Decomposition
Sebastian Seidel | ITMC, RWTH Aachen

Thermodynamic Efficiency Limits for Ammonia Production
Martin Florian Seidler | IEK-5 & IEK-14, Forschungszentrum Jülich

Beyond Ammonia – The Next Generation of Chemical Hydrogen Carriers
Sebastian Thill | INW-I, Forschungszentrum Jülich

Influence of the Ni:Pt Ratio and Loading on the Catalytic Activity in the Synthesis
of Carbon Neutral Isobutanol
Johannes Häusler | IEK-14, Forschungszentrum Jülich

Comparative Well-to-Wheel LCA of green Methanol Fuels based on WLTP drive
cycle simulations Fabio Voit | FIW, RWTH Aachen

Understanding the demand of hydrogen and resulting greenhouse gas emis-
sions in the German chemical industry: a bottom-up modeling approach
Oskar Vögler | Carbon Minds

Powering artificial enzymatic cascades with electrical energy via H₂ as a media-
tor Lars Lauterbach | IAMB, RWTH Aachen

Hydrogen Applications

Vehicle Packaging and Integration of Hydrogen Powertrains
Tobias Vossball | FEV

Development of an Integration Concept for Extending the Range of Electric
Buses Using Fuel Cell Technology Karem Hadla | AE Driven Solutions

Fuel Cell MEA Production Industrialization: From Prototyping to Process devel-
opment Niels Hinrichs | PEM, RWTH Aachen

Development of an ex-situ analysis methodology for PEM fuel cells
Philipp von Tettau | TME, RWTH Aachen

Investigation of different simulation approaches of aero-specific Bipolar plate
forming Jan Sommer | WZL, RWTH Aachen

Container Solution for Power to Power or Power to X using H₂
Chandra Kanth Kosuru | Tec4Fuels

Research and Development of an rSOC System
Felix Kunz | IEK-9, Forschungszentrum Jülich

Modeling and Simulation of a Fuel-Flexible Solid Oxide Fuel Cell
Sreejoe Kaniyampambal | TME, RWTH Aachen

Wasserstoffbetriebene KWK-Anlagen – Heute Erdgas morgen Wasserstoff
Jörg Lösing | 2G Energietechnik

Ceramic Matrix Composites for the combustion of Hydrogen in modern Gas
Turbine Plants Fabian Jung | ITA, RWTH Aachen

Hydrogen Technologies for high temperature heating systems - Activities at IOB
Thomas Echterhof | IOB, RWTH Aachen

Effects of H₂ content on CH₄-air flames and pollutant formation in a swirled,
radially multi-staged, multi-injector industrial burner
Salvatore Nardi | ITV, RWTH Aachen

Decarbonizing the glass melting process: Assessing the potential of energy
efficiency measures and fuel switching to hydrogen
Daniel Jost | LTT, RWTH Aachen

Hydrogen Society

Techno-Economic Analysis of a Local Renewable Power-to-Hydrogen System in
Germany Tobias Sieker | IKGD, RWTH Aachen

Investigation of a pure hydrogen pipeline for the Solent region
Breanna Vekeria | Uni Southampton

A hydrogen-based microgrid to cover the entire hydrogen value chain
Mirko Gronert, Stefan Stollenwerk | Westnetz

How to cover Hydrogen in your IT? Frank Sent | CGI

COORDINATION


RWTHAACHEN
UNIVERSITY

PARTNER

 **JÜLICH**
FORSCHUNGSZENTRUM

TUESDAY, APRIL 18, 2023

Main Hall Plenary Session

-  08:30 Introduction Prof. Dr.-Ing. Stefan Pischinger | Head of Institute | TME, RWTH Aachen University
- 08:50 Keynote Dr. Thomas Wintrich | Senior Vice President Fuel Cell Mobility Solutions | Robert Bosch GmbH
- 09:10 Keynote Dr. Goetz Baumgarten | Vice President Membranes | Evonik Operations GmbH
- 09:30 Keynote Ann-Kathrin Lipponer | Associate Programme Officer | IRENA
- 09:50 Panel Discussion
- 10:20 Welcome Prof. Dr. rer. nat Dr. h. c. mult. Ulrich Rüdiger | Rector | RWTH Aachen University



10:30 BREAK



11:00 Poster Pitch Session

12:00 LUNCH BREAK

Main Hall Session: PEM Electrolysis I

PEM Water Electrolyzers: Key enabler of the energy transition?
Marcelo Carmo | NEL

Sizing of integrated GreenH2 projects
Lukas Duwe | ITM Linde

Time dependence of the contact pressure in PEM electrolysis stacks
Sebastian Holtwerth | H-Tec



14:30 BREAK

Session: AEM & Electrochemical Compression

Mechanical and physio-chemical properties of Anion Exchange Membranes and their Implications on Industrial Scale Water Electrolysis
Andre Klinger | Siemens Energy

Development of high differential pressure AEM electrolyzer
Anirudh Venugopal | HyET

Production of novel tubular electrochemical hydrogen compressors
Wibke Zängler | AVT.CVT, RWTH Aachen



16:30 BREAK

17:00

Session: Building a Hydrogen Society

Will it prevail or will it niche - the future of hydrogen as technology field in 2035. Applying the Delphi method on technology field foresight in the sustainability transition
Leo Leyboldt | TIME, RWTH Aachen

Advanced technologies for the H2 value chain
Tina Andr  | Freudenberg

Potential conditions for green hydrogen acceptance: how social acceptance literature can help
Mariana Galv o Lyra | LUT University



18:30 BREAK + WALK



19:00 DINNER RATSHELLER | MARKT 40 | 52062 AACHEN

Second Hall Session: High-Temperature Industry

How to realise the potential of hydrogen in the aluminium cast house?
Galyna Laptyeva | Speira

Numerical and physical simulation of a jet-type burner used for NG-hydrogen mixtures
Andreas Kemminger | SMS group

Influence of hydrogen burners in the electric arc furnace
Lily Schüttensack | IOB, RWTH Aachen

Session: Sealing Hydrogen

Numerical Simulation of Hydrogen Spread in an Industrial Building Using containmentFoam
Khaled Yassin | IEK-14, Forschungszentrum J lich

Development of mechanical seals optimized for hydrogen applications
Felix Meier | Eagle Burgmann

Development of a multiscale approach for hydrogen induced cracking
Berk Tekkaya | IEHK, RWTH Aachen

Session: Mobile High-Pressure Storage and Refilling

Fueling and Transportation Concepts in Heavy Duty Applications
An Insight in Technical Challenges
Filipp Kratschun | NPROXX

H2 refueling technology for Off-highway machines - Challenges and Solutions
Bart Rosendaal | Wystrach

A Techno-economic Investigation of Relevant Hydrogen Refuelling Concepts for Heavy-duty Vehicles
Tobias Otto | IEK-3, Forschungszentrum J lich

Main Hall

Session: Fuel Cells

Development of a prototype fuel cell powered Toyota Hilux
Timothy D'Herde | Toyota

Model predictive thermal management of fuel cell systems
Simon Mertes | TME, RWTH Aachen

Aircraft Propulsion Systems with PEM Fuel cells - Potential & Challenges
Peter Jeschke | IST, RWTH Aachen

BREAK

Session: Changing Perspectives

People, technology, and the environment: The role of green hydrogen in Senegal's sustainable development path
Marcel Kottrup, Jakob Kulawik, Rega Sota | WASCAL, RWTH Aachen

Which way to choose? Technical, economic and environmental evaluation of different hydrogen production pathways
Christina Kockel | EON.ERC, RWTH Aachen

Ultrapure water from seawater
Raw material for green offshore hydrogen
Hans-Ulrich Baldes | Sobek-Tec

LUNCH BREAK

Session: PEM Electrolysis II

Dynamic Simulation of a PEM Electrolyzer with Modelica
Max Ellerich | Neuman und Esser

Challenges of operation of a Hydrogen plant in MW scale
Manuel Langemann | RWE Generation

Corrosion resistant coatings for PEM electrolysis
Robert Vaßen | IEK-1, Forschungszentrum Jülich

BREAK

Main Hall

Plenary Session

Keynote | Dr. Wiebke Lüke | Founder and Managing Director | WEW GmbH

Keynote | Prof. Dr. Richard van de Sanden | Scientific Director | Eindhoven Institute for Renewable Energy Systems

Keynote | Dr. Jörg Walter | Head of Hydrogen Technical | RWE Generation

Panel Discussion

Closing Address incl. Awards

Second Hall

Session: H2 in Gas Grids

The construction of H2 transport networks
Daniel Bick | Open Grid Europe

Perspectives in repurposing natural gas pipelines for the hydrogen economy
Julius Langenberg | IWT Solutions

Turbomachinery Solutions for Zero Emissions
Jan Philipp Schnitzler | MAN Energy Solutions

Session: Electrochemical Materials

Electrocatalytic Performance Enhancement of Metal Oxides and their Mixtures towards Oxygen Evolution Reaction in Alkaline Electrolyte via Ball Milling
Sabita Bhandari | AVT.ERT, RWTH Aachen

Lanthanum-Nickel-based Perovskite-coated Nickel Electrodes for the OER Electrocatalysis
Nikolas Mao Kubo | ITMC, RWTH Aachen

Glycerol oxidation to improve electrochemical hydrogen production: Prospects with regard to thermodynamics and economics
Katharina Ebeling | AVT.SVT, RWTH Aachen

Session: H2 Internal Combustion Engines

Development of a Hydrogen Combustion Engine for Passenger Car Application
Roman Pelzetter | Hyundai

Hydrogen Internal Combustion Engines for Light Duty Applications
Gavin Dober | BorgWarner

H2 ICE, sustainable solution for on and off-road sector
Lukas Virnich | FEV

08:30



10:00



10:30

12:00



13:00

14:30



15:00

15:20

15:40

16:00

16:30



PARTICIPANTS

FULL PARTICIPATION	330,- €
Online Participation	119,- €

MEMBERS

FULL PARTICIPATION	230,- €
Online Participation	83,- €



UNIVERSITY/RESEARCH

FULL PARTICIPATION	165,- €
Online Participation	59,- €

CONFERENCE APP

- » Agenda and program overview
- » Livestream for both rooms
- » Rating of presentations and posters
- » Exchange with other participants



ABOUT US

Hydrogen as an energy carrier offers the possibility of establishing a global and local CO₂-neutral energy economy. The Hydrogen Clusters4Future bundle already existing expertise in the field of hydrogen technologies in and around Aachen with actors from Industry, Science and Society. All while considering the entire hydrogen life cycle – from production to storage and distribution to use.

CONTACT



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