

SEMINAR / WORKSHOP

# HYDROGEN – Market and Technology Potentials

Your choice of two dates:

3-4 December 2024 (Munich)

1-2 April 2025 (Munich)



H<sub>2</sub>

Online registration: [www.sv-veranstaltungen.de/hydrogen](http://www.sv-veranstaltungen.de/hydrogen)

## Main Topics:

- Hydrogen as a competitive energy carrier?
- Hydrogen Economics
- Hydrogen Production
- Hydrogen Ecosystems
- Promising use cases and technologies and their limiting factors
- PEM fuel cell system
- Critical raw materials: Batteries, fuel cell, electrolyzer
- Worldwide hydrogen and fuel cell projects

## Your advantages:

- Discuss with the experts current questions and issues
- Benefit from the limited number of participants
- Comprehensive documentation material
- Certificate of participation

## Your Seminar Heads:



**Matthias Brendel**  
Protonik GmbH  
and Fuel Cell  
Technology Sweden AB



**Dr. Rittmar v. Helmolt**  
Protonik GmbH  
and Fuel Cell  
Technology Sweden AB



**Dr. Rasmus Andersson**  
Fuel Cell Technology  
Sweden AB

A conference organised by:

 **Veranstaltungen**



## Day 1 – Hydrogen and Ecosystems

**09:15** Welcome Reception and early Registration with Coffee & Tea

**Section 1. Why and how can Hydrogen become a competitive energy carrier?** You will learn about the hydrogen value chain and about its most relevant technologies and economics, for production, transport and storage of hydrogen.

**10:00** Overview & Basics

- Hydrogen Production, Conversion, Transport
- Hydrogen Storage (LH2, GH2, Cryo-Compr, MeH, Ads)
- Hydrogen-derived Energy Carriers (NH3, MeOH, e-Fuel)
- Energy density, Value of Energy, Efficiency
- (Hydrogen verticals)

**11:30** Hydrogen Economics

- Hydrogen Value Chain
- Subsidies
- Cost of Hydrogen: Production, Transport
- Willingness to pay
- (CO2-Footprint)

**12:50** Joint Lunch Break

**14:00** Hydrogen Production

- Industry Example
- Electrolyzer Technologies
- Grid Integration

**15:20** Coffee Break

**Section 2. What does a “hydrogen economy” start with?** Hydrogen Eco Systems are combinations of hydrogen production and usage, that can be evaluated already today in pilot projects and which can become profitable before a more mature large scale hydrogen economy is developing. A vital background information is to know about requirements and limitations that are set by the use case or application.

**15:45** Hydrogen Eco Systems

- Systemic optimization of Hydrogen production, storage and use
- Regional examples of favorable Hydrogen verticals

**16:30** Direct CO2-lean Hydrogen including Nuclear - Summary of Status & New Concepts

- Thermochemical hydrogen production
- Cost of nuclear power production
- Gen-IV nuclear reactors: Status and Outlook

**17:15** Final Discussion

**17:30** Evening Event with Finger Food and Fine Drinks

## Day 2 – Applications and Technologies

**08:45** Welcome and short summary of Day 1

**09:00** Applications – Why Hydrogen?

- Cars and Trucks
- Light Vehicles
- Maritime
- Aviation

**Section 3. What are the most promising use cases and technologies, and what are limiting factors?** In many cases, fuel cell technology is used for efficiently converting hydrogen into electric power or propulsion energy. In the market, this often competes with batteries. You will develop an understanding of the technologies which will help to assess the right choice for a propulsion system or powerplant in a given application.

**09:30** PEM Fuel Cell System

(Presented by Dr. Rasmus Andersson, Fuel Cell Technology Sweden AB)

- Industry Example
- Fuel Cell Technologies
- PEM Fuel cell status and development, competitive environment
- Focus Topics: Durability and Robustness
- Focus Topics: Cost
- System Integration

**11:00** Coffee Break

**11:30** Critical Raw Materials: Batteries, Fuel Cell, Electrolyzer

(Presented by Martin Rothbart, AVL GmbH)

- Recycling
- Iridium (for electrolyzers)
- Platinum (for fuel cells)
- Copper
- Battery materials

**12:00** Worldwide Hydrogen and Fuel Cell Projects

- Fuel Cell Application
- Hydrogen Production
- Electrolyzer Production

**12:45** Final Discussion, Summary

**13:00** Joint Lunch

**14:00** End of Seminar



## Seminar heads



### Matthias Brendel

Owner & Managing Director,  
Protonik GmbH and CEO,  
Fuel Cell Technology Sweden AB

Matthias Brendel, who has been involved in hydrogen and fuel cell development projects since 2000, studied mechanical engineering at the Technical University of Darmstadt and began working for General Motors/Opel in 1995 as a test engineer and later as a project manager. In 2000, he began working on a global hydrogen fuel cell project for General Motors. Within this project Matthias worked and lived in Germany, Detroit, Michigan and Rochester, New York and was responsible for the integration and application of GM's fuel cell demo fleet and advanced development of fuel cell systems. In 2009, he took on a leadership role in battery development for full electric vehicles - the Chevrolet Volt and Opel Ampera. After 11 years in advanced technology development, he took on a leadership role at

General Motors Europe as Director Electrical Systems and later as Director Interior and Safety. In 2017, he started as Vice President for Electrification at AVL List GmbH in Graz and was responsible for the Hybrid, Battery and Fuel Cell Electric Powertrain Development business unit. In 2021, Matthias joined H2FLY GmbH as Co-CEO, a start-up for hydrogen fuel cell propulsion systems for the aviation industry. From 2022-2024, he worked as Managing Director for PGUB Management Consultants GmbH and established business development and technology development of hydrogen and fuel cell applications. In early 2024 he founded Protonik GmbH with the focus on hydrogen technology and in parallel is working as CEO of FCT Sweden, a fuel cell technology start-up in Stockholm.



### Dr. Rittmar v. Helmolt

Managing Partner, Protonik GmbH  
and Technology Management,  
Fuel Cell Technology Sweden AB

Rittmar is founding member and managing partner of Protonik GmbH, an innovation and consultancy firm with focus on hydrogen. He also has a position in technology management at Stockholm-based Fuel Cell Technology Sweden AB. Rittmar has been working with fuels cells and hydrogen since 1995, when he developed fuel cells at Siemens R&D. He then moved to General Motors

for the lead of fuel cell development for hydrogen electric vehicles. He later worked on electric vehicles and urban mobility projects, including autonomous vehicles, car- and ridesharing projects. He also had assignments at Stuttgart-based startup H2Fly Austrian engineering service provider AVL. Rittmar studied physics at the Universities of Göttingen and Augsburg.



### Dr. Rasmus Andersson

Development Engineer,  
Fuel Cell Technology Sweden AB

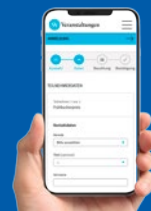
Rasmus is a development engineer focusing on the LAMINA fuel cell's core chemical and electrochemical processes and its development at Fuel Cell Technology Sweden AB, a position he started at the end of the summer of 2024.

Previously, he was a PhD student at Uppsala University, Sweden, which he finished by defending his doctoral thesis before the summer of 2024. During his PhD studies, he investigated the ion transport processes of

lithium and the futuristic cations sodium, potassium and magnesium in solid polymer electrolytes for batteries. He also prepared and examined novel polymer electrolytes for lithium-ion batteries, for which the impact of the host material on the ion transport was studied.

Before the PhD years, Rasmus has a bachelor's and master's degree from 2018 in materials chemistry at Uppsala University, Sweden.

Please register online  
[www.sv-veranstaltungen.de/hydrogen](http://www.sv-veranstaltungen.de/hydrogen)



## Content

Hydrogen is widely seen as future versatile energy carrier, with applications in transportation, energy production, industrial processes, and heating, making it a crucial component of future energy scenarios. As of today, on the other hand, the market for applications outside of the “traditional” hydrogen use cases such as chemical industry and refineries, have not yet taken off, and also green hydrogen production makes up only a small fraction of the global hydrogen consumption.

The potential of hydrogen for decarbonizing sectors traditionally reliant on fossil fuels is significant, particularly as a clean fuel for fuel cells and a storage medium for renewable energy. While the cost of hydrogen production has historically been higher compared to fossil fuels and alternatives like batteries, advancements in technology and increased investment in renewable energy are

driving down costs. As hydrogen becomes more economically viable, it can play a pivotal role in reducing greenhouse gas emissions and enhancing energy security, facilitating a transition to a sustainable and resilient energy future.

In the seminar, you will get a deep look into why and how can Hydrogen become a competitive energy carrier, and what are the crucial factors for a hydrogen value chain. Furthermore, you will get an introduction into hydrogen ecosystems, which could be starting points for developing a hydrogen economy. First-hand information most promising use cases and technologies as well as their limiting factors will be provided. Our industry experts will help you to develop an understanding of the current market and hydrogen technology potentials.

Seminar / Workshop

## HYDROGEN — Market and Technology Potentials



### Event Location

**Munich, SZ Main Tower**  
Hultschiner Straße 8  
81677 Munich,

**Participation fee: € 1,795 plus VAT**

### Accommodation

**Hyperion Hotel München**  
Truderingstr. 13  
81677 Munich  
+49 (0) 89 / 909017200  
<https://short.h-hotels.com/ak8125163>  
**Single room: € 149 incl. breakfast and VAT**

**Room contingent:** Please make your own room reservation directly in the hotel by using the code word “SV Veranstaltungen”. We have a room contingent with a preferential rate reserved until two weeks prior to the event. Reservations afterwards can only be made according to availability.

### Services Included in the Participation Fee

- Participation in the seminar/workshop
- Seminar documentation
- Lunch on both days
- Get-together
- Refreshments during breaks and snacks
- Participation at the evening get-together with finger food and drinks

## Your Contacts:



### Registration and Organisation

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### Project Management

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