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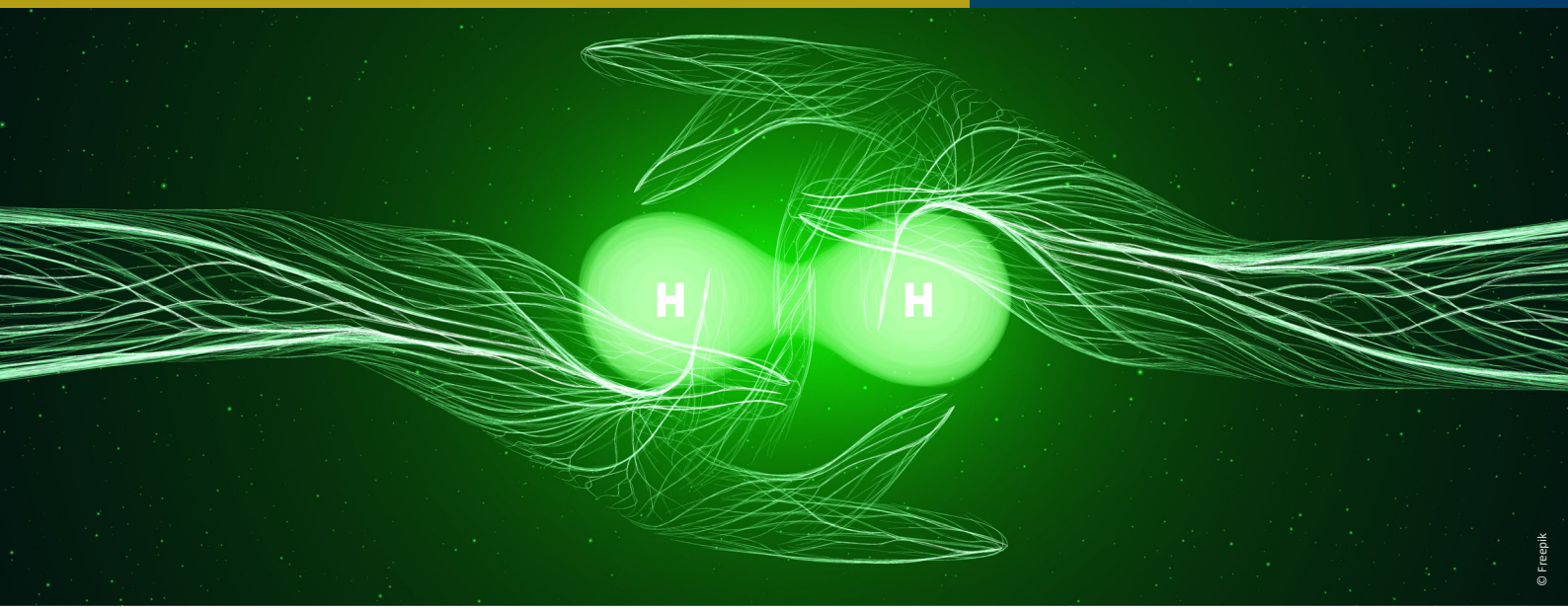
Leopoldina
Nationale Akademie
der Wissenschaften

Hydrogen – more than an energy resource

Symposium

Thursday, 20 February 2025 | 10:30 – 18:05

Jägerberg 1 | 06108 Halle (Saale)



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Hydrogen, the most abundant element in the universe, is known for its volatility, reactivity, and high energy content. Its significance spans across various scientific disciplines, including chemistry, biology, physics, and planetary science. On Earth, hydrogen is the second most energy-rich gas after natural gas (methane), making it a crucial energy carrier and raw material for the energy transition.
The Leopoldina symposium "Hydrogen – more than an energy resource" explores the current status and advancements in hydrogen research. Topics range from deep Earth to deep space, molecular scales and precision tests of fundamental laws of physics to economic applications, and cell biology to the evolution of life. This symposium provides a comprehensive overview of hydrogen's multifaceted roles and its potential to drive future innovations.

Event location
Deutsche Akademie der Naturforscher Leopoldina e. V.
– German National Academy of Sciences –
Jägerberg 1 | 06108 Halle (Saale) | Germany

Please register for the symposium by Saturday, 15 February 2025.
www.leopoldina.org/form/registration-hydrogen-more-than-an-energy-resource/

The complete program and further information can be found on the next page.

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Program

10:30 | Welcome
Johanna Stachel ML

Session 1: Hydrogen on Earth and exoplanets

Chair: Onno Oncken ML

10:35–11:05
Hydrogen in the deep Earth
Martha Pamato, *University of Padua, Italy*

11:05–11:35
Natural hydrogen – formation, exploration, exploitation
Jürgen Grötsch, *Friedrich-Alexander-University Erlangen-Nürnberg*

11:35–12:05
Hydrogen in the atmospheres of exoplanets
Kevin Heng, *Ludwig Maximilian University of Munich*

12:05–12:35
Trapped for eternity: the cosmic anti-matter puzzle
Klaus Blaum ML, *Max Planck Institute for Nuclear Physics, Heidelberg*

12:35–13:30 | Lunch

Session 2: Hydrogen – the biological and chemical multi-talent

Chairs: Roland Lill ML, Peter R. Schreiner ML

13:30–14:00
The use of H_2 in the living world
Joan B. Broderick, *Montana State University, Bozeman, USA*

14:00–14:30
Hydrogen cycling and storage by dark anaerobic fermentation
Mirko Basen, *University of Rostock*

14:30–15:00
Hydrogenases – Biological catalysts for sustainable hydrogen production
Thomas Happe, *Ruhr University Bochum*

15:00–15:30
No future without hydrogen: fundamental aspects of synthesis and application of green hydrogen
Beatriz Roldán Cuenya ML, *Fritz Haber Institute of the Max Planck Society, Berlin*

15:30–16:00 | Coffee Break

Session 3: Hydrogen for the energy transition

Chairs: Peter R. Schreiner ML, Johanna Stachel ML

16:00–16:30
From hydrogen to carbon-based platform molecules: chances and limits for applications
Ingo Krossing, *University of Freiburg*

16:30–17:00
Fusion energy – Why and how to accelerate its industrialization in Europe?
Frédérick Bordry, *CERN and Gauss Fusion, München*

17:00–17:30
Driving the post-fossil age – hydrogen, e-fuels, batteries
Maximilian Fichtner, *Helmholtz Institute Ulm*

17:30–18:00
Hydrogen and the energy transition
Robert Schlögl ML, *Alexander von Humboldt Foundation, Berlin*

18:00–18:05 | Closing remarks
Onno Oncken ML

ML = Mitglied der Leopoldina

Organizing committee

Horst Hahn ML, *Karlsruhe Institute of Technology (KIT)*

Roland Lill ML, *Philipps University of Marburg*

Onno Oncken ML, *GFZ German Research Center for Geosciences, Potsdam*

Peter R. Schreiner ML, *Justus Liebig University Giessen*

Johanna Stachel ML, *Heidelberg University*

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