

HC-H2 Hydrogen News

Issue 02 | 2024

Dear reader,

Before the summer holidays begin, I'd like to update you on the events of the last few weeks. A lot has happened and I'm happy to be able to share a few highlights with you.

HC-H2 was not only at the **Woche der Umwelt (environment week)** event in Berlin organized by the German Federal Environmental Foundation (DBU), but also took part in many other events together with partners from the Rhenish mining area. These included the **Zukunftstag Jülich (future day)**, the **Aachen Hydrogen Colloquium**, the **Fuel Science International Conference** and a visit to two schools in the region. I'd also like to draw your attention to a number of event announcements for the upcoming weeks, some of which HC-H2 will be attending as well.

Another great highlight at INW I'd like to share with you is a **scientific article** on catalyst materials which has been published recently.

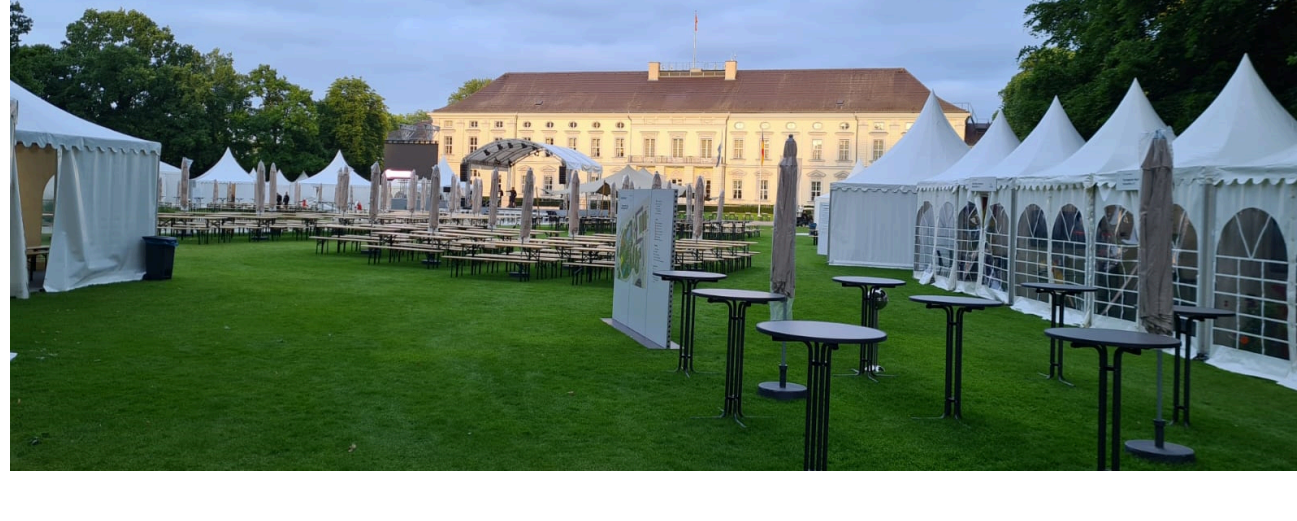
Furthermore, I'd like to advertise several **vacancies at INW** — we are always looking for new faces to join our diverse team. Feel free to send us a speculative application or apply for one of our vacancies.

I hope you enjoy reading this newsletter and have a wonderful summer!

Yours, Vanessa Düster, HC-H2 Network

Good News

Woche der Umwelt in Berlin



At the beginning of June, we accepted an invitation from German Federal President Frank-Walter Steinmeier and the **German Federal Environmental Foundation (DBU)** to exhibit our Lego model at Schloss Bellevue. Under the motto **„Zusammen für Klimaneutralität“** (together for climate neutrality), we were part of an attractive programme with exciting discussions and a large exhibition with around 190 exhibitors from business and technology, research and science, and civil society. Also present at the event were our partners RWTH Aachen University, the future cluster hydrogen, NRW.Energy4Climate, and Forschungszentrum Jülich's Institute of Bio- and Geosciences — Agrosphere. [► Read more](#)

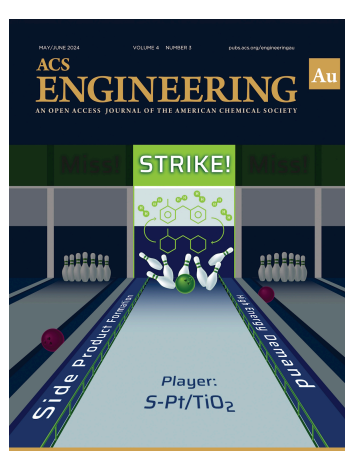
Legal Framework for Faster Expansion of Hydrogen Infrastructure

The **Hydrogen Acceleration Act (WasserstoffBG)**, which was passed at the end of May, in accordance with the **National Hydrogen Strategy** establishes a legal framework for the rapid development and expansion of infrastructure for the production, storage, and import of hydrogen. It applies to green hydrogen production facilities and infrastructure such as H₂ pipelines, import terminals for hydrogen and ammonia, ammonia crackers, and power lines for electrolyzers. The act includes amendments to environmental and procurement law and is intended to promote the development of a national hydrogen infrastructure with faster, simpler, and digitalized procedures. [► Read more](#)

HC-H2 close up

Optimized Hydrogen Storage

In a recently published article, researchers at INW describe the effect of optimizing a catalyst for storing and releasing hydrogen. By changing the carrier material, the **formation of an undesirable side product** during the chemical reaction can be avoided. This chemical reaction occurs during the loading and unloading of liquid organic hydrogen carriers (LOHCs), an oily liquid that is commercially used as a hydrogen storage medium. Analysing the total pressure in the reaction system also shows a possibility for improving energy efficiency and thus increases the potential for applications. [► Read more](#)



Working on Sustainable Hydrogen Technologies

The Institute for a Sustainable Hydrogen Economy (INW) forms the innovative core of the Helmholtz hydrogen cluster (HC-H2) and is situated at Forschungszentrum Jülich (FZJ). It develops innovative technologies for chemical hydrogen storage, which are then put into industrial application, and tested directly on site with partners from the Rhenish mining area. However, research collaborations extend far beyond this region. International exchange is important to us. If you would like to join our team, please take a look at **our current job vacancies**, which are listed according to topic under the different INW subinstitutes. We look forward to welcoming new faces to our constantly growing team! [► Read more](#)

Good Cooperation at Brainery Park

The HC-H2 Brainery Park Connect event series successfully brings together the neighbours at Brainery Park. The neighbours met for their 11th working lunch in June — and the group is growing constantly. Since April, we have had three exciting presentations and discussions on the **possibilities of the microproduction technology and nanoanalytics of Klocke Nanotechnik GmbH**, the work of **Zukunftsagentur Rheinisches Revier** on project development, companies in the Rhenish mining area, and public participation, as well as the significant **contribution of NRW.Global Business GmbH — Trade & Invest Agency to transforming the Rhenish mining area, an innovative economic region into a climate-neutral model region for Europe.**

Focus on the Rhenish Mining Area

A Lake on a Former Open-Cast Mine



A framework plan to turn the **Inden open-cast mine into a large lake** ("Indesee 2.0") has finally been approved and will be officially launched in 2030. The development plan, known as the Indesee framework plan, was drawn up in workshops with the involvement of local citizens. It is an informal plan, encompassing current ideas for the development and design of the lake shore areas. The exact progress, plans, and future scenarios can be viewed on the indeland GmbH website. [► Read more](#)

International Visit to Rhenish Mining Area

In May, two delegation groups — one from Brazil and one from Bulgaria — visited Brainery Park Jülich. They were welcomed at **Zukunftsagentur Rheinisches Revier**. Presentations were given by **Brainery Park GmbH** and the **Helmholtz Cluster for a Sustainable and Infrastructure-Compatible Hydrogen Economy (HC-H2)**. International exchanges present a **good opportunity** to get to know and understand the prospects, opportunities, and obstacles related to structural change and the energy transition of the other party, and to also establish collaborations.

A Boost for the Future of the Climate

The latest publication from the **Wuppertal Institute's** "Zukunftsimpulse" series focuses on the topic of climate impact adaptation — securing a good life in a rapidly changing world. In six chapters, researchers look at the challenges we face and how we can **effectively and sustainably adapt to the impacts of climate change**. There is also a focus on the approaches to climate impact adaptation that are effective and the measures that could be implemented in practice. The **paper will also be presented in Berlin at the beginning of July** effective, and socially just manner. [► Read more](#)

A Place for Young Entrepreneurs



The **Startup Village Jülich** at Brainery Park will serve as a starting point for many young companies to develop new ideas. A first rental agreement has already been signed. The keys were handed over in person by **Mona Neubaur**, Minister for Economic Affairs, Industry, Climate Action and Energy of North Rhine-Westphalia. She was guest at the official opening ceremony, where a large number of start-ups introduced themselves. [► Read more](#)

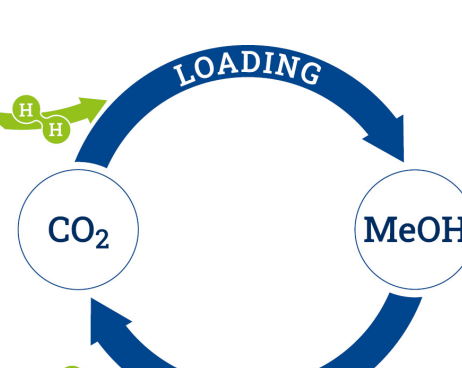
"Tu was, mach mit!" at Temporary University Hambach

Two exciting events were organized by **Zukunftsagentur Rheinisches Revier** in mid-June at **tut Hambach**. A school project day entitled "Zukunftsvisionen" (visions for the future) invited schoolchildren on a guided photo safari looking at places of change around the Morschenich-Alb/Bürgewald area. A separate event focused on the Rhenish mining area's aim to become a pioneering region not only for the energy transition but also for the resource transition within the context of structural change. [► Read more](#)

HC-H2 Documentary series: Who am I?

Part 2

"I am the all-rounder among chemical hydrogen storage systems and am closely related to potable alcohol. I am typically a colourless, clear liquid like water and burn with a blue flame. Even the ancient Egyptians were able to produce me by burning wood without air. I am therefore found in nature. Also referred to as **wood spirit** or **wood alcohol**, I can store hydrogen for long periods of time and transport it over long distances. I am methanol!" [► Read more](#)



Events

Plans for the Future in Jülich

There was a lot going on in Jülich's Schlossplatz in May. The town hosted the **Zukunftstag Jülich (Jülich future day)** for the second time, an event designed for the whole family. Representatives from urban development and open-cast mining as well as stakeholders from the fields of education, youth work, science, and research presented **plans for the future development of the town and region**. Alongside the many different exhibitors, a highlight of the event was a flight in a hot air balloon, which was pulled up into the air by a crane and provided a view over the whole of Jülich. HC-H2 was also represented at the event with a pavilion and a Lego model. [► Read more](#)



Pooling of Hydrogen Expertise in Aachen

The annual **Hydrogen Colloquium in Aachen** took place in May. Organized by the **Zukunftscluster Wasserstoff**, the event involved two days of presentations and discussions with high-profile international guests on current hydrogen topics. The **Institute for a Sustainable Hydrogen Economy (INW)** was also present, with Prof. Andreas Peschel giving a presentation on "Evaluation of different hydrogen carriers for intercontinental H₂ transport", and Julian Henseler with a poster presentation entitled "Side product formation during hydrogen storage using the liquid organic hydrogen carrier (LOHC) system benzyltoluene/perhydrobenzyltoluene". As an energy carrier, hydrogen represents an opportunity for a global and local carbon-neutral energy economy. The **Hydrogen Clusters4Future** initiative brings together existing expertise in the field of hydrogen technologies and around Aachen with stakeholders from industry, research, and society. The next Aachen Hydrogen Colloquium will take place from 6 to 7 May 2025. [► Read more](#)

Hydrogen Network Meeting in June

At the last Hydrogen meet&connect network meeting organized by **Hydrogen Hub Aachen, FEF Forschungs- und Entwicklungsgesellschaft Fügetechnik GmbH** introduced itself. As a research and development service provider, the company's technological focus is on welded, soldered, and adhesive joints along with the associated domains of materials science and data-based modeling. Rahul Sharma gave a presentation on the role that hydrogen can play in this context and the challenges that the molecule poses for joining technology. These issues were then discussed in a subsequent tour. [► Read more](#)

Hydrogen for School Students

In May, the Helmholtz hydrogen cluster visited secondary school students of different age groups for the second time. The first visit was to the Gymnasium Norf school in Neuss at the end of April. This time we visited the Goethe Gymnasium school in Stolberg, and took the Lego model along with us. HC-H2 colleagues gave interactive presentations, introducing the **students to the topic of hydrogen and its role in structural change**.



Presentation on the Production and Use of Hydrogen Carriers

The 12th International Conference "Fuel Science — From Production to Propulsion" gave representatives from science and industry the opportunity to discuss the challenges of developing alternative technologies, particularly from renewable energy and carbon sources. The participation of experts with different specialist knowledge provided an **interdisciplinary exchange on the topic of the energy landscape and technology development**. Philipp Morsch and Dr. Sarah Deutz from INW presented their research in a presentation entitled "Chemical Hydrogen Carriers — From Production to Application". [► Read more](#)

Event Announcements

HC-H2 Science Spotlight

17. July 2024, hybrid

LEE-Sommerempfang

29. August 2024, Düsseldorf

Wasserstoffmesse Düren

12. — 13. September 2024, Kulturmuschel Brückenkopfpark Jülich

Night of Science

13. September 2024, Düsseldorf

Kommunikalkongress NRW 2024

26. September 2024, Wuppertal

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