

## We make materials fit for the future!



*PFAS-free, catalyst-coated membranes are set to make electrolyzers and fuel cells significantly more environmentally friendly, cost-effective and powerful in the future.*

Dear reader,

Hydrogen is considered a promising energy carrier of the future and plays a crucial role in the global energy transition. At Fraunhofer IAP, researchers are developing innovative catalysts and PFAS-free membranes that increase the efficiency of hydrogen production and utilization in an environmentally friendly and cost-effective way. Visit us from March 31 to April 4, 2025, at the Hannover Messe to learn about our latest developments in hydrogen technology.

With a fundamentally new concept, Fraunhofer researchers aim to revolutionize heat pump technology: Their goal is to develop solid-state heat pumps based on electrocaloric materials that operate without harmful refrigerants and potentially work more efficiently than compressor-based systems. A team at Fraunhofer IAP came up with thin, electrocaloric polymer films with a high dielectric strength to make up a component with up to ten layers, setting new international standards.

In this newsletter, you will also learn more about our latest technology in foam production: an innovative film that forms into a polyurethane foam through heat – without any health risks. This film enables isocyanate-free foaming and thus improves occupational safety. In addition, it can be transported and stored in a space-saving way.

Would you like to get to know us better, experience the diversity of our research or discuss pioneering technologies? Browse our events and meet our team at various occasions. For example, on May 10, 2025 at the Potsdam Day of Sciences on the campus of the Potsdam Science Park or at trade fairs worldwide. We are looking forward to your visit.

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## NEWS FROM RESEARCH AND DEVELOPMENT

Energy Transition and Mobility

### Hydrogen: catalysts and membranes for a sustainable future

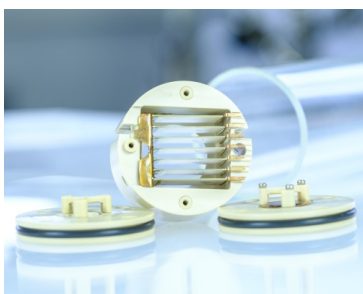


Hydrogen is considered a central energy source of the future. To make the technologies for the production and use of hydrogen more environmentally friendly, cost-effective and durable, scientists at Fraunhofer IAP is developing and processing novel catalysts and PFAS-free membranes.

[MORE INFO](#)

Industry and Technology

### Heat Pumps without Compressors



Highly efficient solid-state heat pumps without compressors – Fraunhofer researchers have come a good deal closer to this vision. They have made significant progress in materials and system design. A team at Fraunhofer IAP has realized thin, impact-resistant electrocaloric polymer films as components with up to ten layers, setting new international standards.

[MORE INFO](#)

Industry and Technology

### Polyurethane with Shape Memory: From Foil to Foam

We have developed a foil that expands into a polyurethane foam through heat – completely without health risks. The foil



enables isocyanate-free foaming, thereby improving occupational safety. Furthermore, it offers logistical advantages for storage and transportation. The material can be adapted for various applications, ranging from the automotive and construction industries to the packaging sector.

[MORE INFO](#)

## YOUR TEAM AT FRAUNHOFER IAP

### Prof. Dr. Böker joins the new Scientific Advisory Board of the MPI Polymer Research



In February 2025, Prof. Dr. Alexander Böker has joined the advisory board of the Max Planck Institute for Polymer Research (MPI-P) in Mainz. He will advise the institute with his scientific expertise and provide impulses for the further development of research.

## ON OUR OWN ACCOUNT

### Clear Skies for Science – Join Us on Bluesky!



From smart materials to sustainable solutions: We are now on Bluesky, sharing exciting insights into our research and latest developments. Are you also part of it? Follow us.

[TO FRAUNHOFER IAP AT BLUESKY](#)

### Lab Services at the Potsdam Science Park

Are you looking for co-operation partners, laboratory equipment for test measurements or do you just need a specific device for a short period? Take advantage of the Lab Services offered by the Potsdam Science Park. The Fraunhofer IAP is a partner of this network.

[MORE INFO](#)

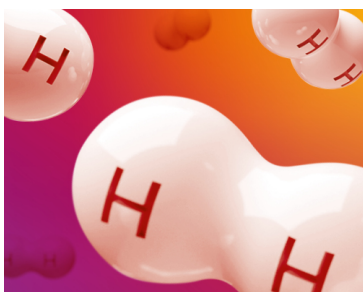


## EVENTS

### Meet the Fraunhofer IAP team here

Hannover, Germany | March 31, 2025 - April 4, 2025

#### Hannover Messe

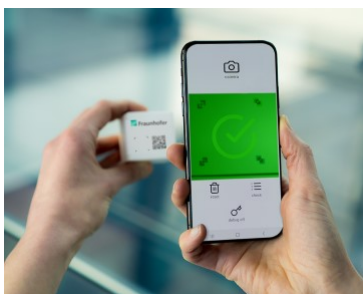


At Hannover Messe 2025, we will present materials for the future of the hydrogen economy. Get to know our nanoparticle catalysts and PFAS-free membranes, among other innovations. Meet our scientists in Hall 13 at Booth C41/2.

[MORE INFO](#)

Dortmund / Hamburg, Germany | May 07, 2025 - May 08, 2025 / June 03, 2025 - June 04, 2025

#### EMPACK 2025 Dortmund / Hamburg



At EMPACK 2025, we will be presenting SmartID: a counterfeit-proof barcode system that can be used to authenticate products simply by scanning the barcode with a smartphone, without accessing a database. Visit us in May in Dortmund or in June in Hamburg.

[MORE INFO](#)

Potsdam, Germany | May 10, 2025

#### Potsdam Science Day



On May 10, 2025, the Potsdam Day of Sciences will take place at Potsdam Science Park. At our institute, we will present the world of polymer sciences from 1 PM to 7 PM. There will be exciting hands-on experiments for children. Admission is free.

[MORE INFO \[GERMAN LANGUAGE\]](#)

Düsseldorf, Germany / October 08, 2025 - October 15, 2025

## K 2025



Visit us at K 2025. At the joint Fraunhofer booth, we will be informing you about our materials and technology developments. The focus will be on innovative bioplastics.

[MORE INFO](#)

## We make materials fit for the future!

Creative solutions are the key to overcoming the challenges of the present and the future - whether they be climate change, pandemics, the energy transition, structural change or new mobility concepts.

Fraunhofer IAP tackles these challenges through innovative materials, processes and technologies, targeting the entire value chain - from the idea to the customized prototype.

### Our subject areas:

- BIOECONOMY and SUSTAINABILITY
- ENERGY TRANSITION and MOBILITY
- HEALTH and QUALITY of LIFE
- INDUSTRY and TECHNOLOGY

[TO THE HOMEPAGE](#)



## Potsdam Science Park

Fraunhofer IAP is part of the largest science location in the state of Brandenburg: the Potsdam Science Park. Just 30 minutes from the center of Berlin, more than 12,500 people research, work and study in the fields of biotechnology, medical technology, optics, geosciences, astrophysics and gravitational physics. On an area of more than 50 hectares, the innovation- and founder-friendly park continues to offer office and laboratory space for startups and ready-to-build plots for small and medium-sized companies. We live science!

[TO THE HOMEPAGE OF THE POTSDAM SCIENCE PARK](#)

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Fraunhofer is Europe's largest application-oriented research organization. Our research efforts are geared entirely to people's needs: health, security, communication, energy and the environment. As a result, the work undertaken by our researchers and developers has a significant impact on people's lives. We are creative. We shape technology. We design products. We improve methods and techniques. We open up new vistas. In short, we forge the future.

Fraunhofer Institute for Applied Polymer  
Research IAP

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