

We make materials fit for the future!



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Dear reader,

Every year, the holiday season and the turn of the year remind us of change, renewal, and the cycles of life. At Fraunhofer IAP, we show how innovative materials, processes, and technologies help to close these cycles. The goal is clear: concrete steps toward a sustainable circular economy.

How textile waste can serve as a valuable raw material source for sustainable plastics in the future was examined by the TexPHB feasibility study. Fraunhofer IAP researchers, together with partners, demonstrated that polyester-containing textile waste can be converted into a biodegradable polymer that can replace oil-based plastics in the long term.

Biogas offers a range of uses. However, purifying biogas to bio-methane is technically demanding and not economical for smaller plants. Newly developed flat membranes enable energy-efficient drying of CO₂ and methane—even at small, decentralized rural plants.

In a circular context, a newly developed lightweight small wind turbine is designed for operation in regions with weak wind. The secret: a well-thought-out choice of materials and the precise coordination of aerodynamics and manufacturing.

You can read more approaches to the [circular economy](#), in the current Fraunhofer magazine. We look forward to seeing you again next year—right in the spirit of the cycle—or perhaps for the first time: for example at trade fairs or conferences. Find the first dates in our event calendar. We wish you a merry and reflective holiday season and a good start to 2026.

Your team at Fraunhofer IAP

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NEWS FROM RESEARCH AND DEVELOPMENT

Industry and Technology

Bio-Methane and CO₂ Directly From Moist Biogas



Biogas is a versatile energy source. However, processing it into pure bio-methane has been technically complex and energy-intensive up to now. Newly developed flat membranes from Fraunhofer IAP separate methane and CO₂ directly from the moist biogas stream—without any upstream drying. This makes processing possible even for smaller plants and significantly more energy-efficient.

[MORE INFO](#)

Energy Transition and Mobility

Lightweight Construction for Efficient Small Wind Turbines

At Fraunhofer IAP, a lightweight rotor was developed in collaboration with partners, which is specially designed for low wind speeds. Fiber composite shells reduce weight, while a special laminate structure provides protection in strong winds. It starts moving at just 2.7 m/s and reaches speeds up to 450

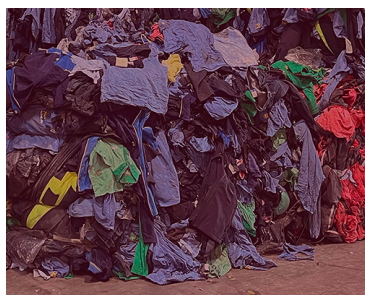


rpm. This ensures efficient energy generation—even in a light breeze.

[MORE INFO](#)

Bioeconomy and Sustainability

Closing the Loop in the Textile Industry



Old textiles contain valuable raw materials, for example for sustainable plastics. With the TexPHB feasibility study, we and our partners are demonstrating what a circular textile economy can look like in practice—from PET waste to the biopolymer polyhydroxybutyrate (PHB). This is a biocompatible plastic with great potential, for example for medical products, geotextiles, or agricultural applications.

[MORE INFO](#)

International Partnership

Research and Development for a Sustainable Carbon Industry

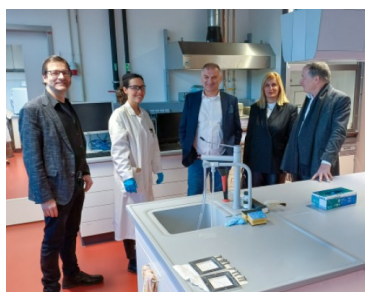


In November 2025, Fraunhofer IAP, Chemnitz University of Technology, and K-Carbon in South Korea laid the foundation for joint research and development in the field of sustainable carbon fiber and composite technologies. A key component is the Carbon Lab Factory Lausitz research platform, which develops new approaches for resource-efficient, circular, and marketable carbon fiber solutions.

[TO LINKEDIN](#)

International Partnership

Polymer-Based Lightweight Construction: New Impetus for Collaborations



The Polymer Materials and Composites Research Division (PYCO) welcomed a delegation from Caucasus University Tbilisi to the Wildau site. Tours of the laboratories and discussions about research, infrastructure, and cooperation provided new impetus for joint projects and international collaboration.

[TO LINKEDIN](#)

MEDIA TIP

Circular Economy in Fraunhofer magazine

Back to the Beginning

In the latest issue of Fraunhofer magazine, two projects from Fraunhofer IAP demonstrate how innovations in the circular economy can be realized in practice. In the RUBIO project, Dr. Antje Lieske shows that agricultural by-products such as straw or other plant residues can be used to produce high-performance bioplastics. Dr.-Ing. Marcus Vater is developing processes to break down plastic waste into its monomers and use them to produce high-quality plastics again.

Bioplastic Made From Waste Materials
Dr. Antje Lieske



"We start with straw and end up with everyday products—it's like turning straw into gold."

[READ ARTICLE IN EPAPER](#)

Chemical Recycling
Dr.-Ing. Marcus Vater



"In an ideal future, plastic is not waste but rather a building block, and it will be recycled in an almost completely closed loop by 2050."

EVENTS

Recaps

K 2025

Focus on New Types of Bioplastics



K 2025 was a meeting place for exciting discussions and lively exchanges about innovative material solutions for a sustainable plastics industry. Highlights of our research and development: PBS materials made from plant-based residues, permanently flexible film material made from PLA, and bio-based carbon fibers for high-performance applications.

TechBlick Company Tour

Shaping the Electronics of Tomorrow

Participants in an exclusive guided visit during the TechBlick Company Tour learned how we make materials fit for the future. They gained insights into our flexible, high-performance, and energy-efficient solutions for displays, batteries, sensors, and perovskite photovoltaics.

[TO LINKEDIN](#)

PSP Conference 2025 – SUSTAINABILITY

Where Ideas Meet Opportunity and Research Grows Into Real Solutions



Sustainability can only succeed if science, business, and politics work together—that was the key takeaway from the PSP Conference. Read the Potsdam Science Park review about bold ideas, interdisciplinary teams, and sustainable materials from Fraunhofer IAP that are driving forward a circular, low-carbon future.

[TO THE POTSDAM SCIENCE PARK WEBSITE](#)

SAVE THE DATES 2026

Meet the Fraunhofer IAP team here

Nuremberg, Germany | January 27–31, 2026

International Toy Fair Nürnberg

Munich, Germany | February 25–26, 2026

LOPEC

Paris, France | March 10–12, 2026

JEC World

Seoul, Korea | March 11–13, 2026

InterBattery

Hanover, Germany | April 20–24, 2026

Hannover Messe

Munich, Germany | May 4–7, 2026

Los Angeles, United States | May 5–7, 2026

Display Week

Potsdam, Germany | May 9, 2026

Potsdam Science Day

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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VAT Identification Number in accordance with
§27 a VAT Tax Act: DE 129515865

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