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Fraunhofer IPM turns 50

50 years of cutting-edge research for greater efficiency and safety

Measurement systems ensure the quality of industrial products, optimize processes and provide safety. Over the past five decades, the Fraunhofer Institute for Physical Measurement Techniques IPM in Freiburg has impressively demonstrated the enormous contribution to efficiency, sustainability and safety that measurement technology can make. This was recognized by representatives from politics and research at an anniversary event. In a panel discussion, the participants discussed how measurement technology can contribute to sustainable and affordable building and housing in the future.

Starting with space research, the institute, which was founded in 1973 as the Fraunhofer Institute for Physical Space Research IPW, strategically realigned itself in the 1980s. The research focus of today's Fraunhofer Institute for Physical Measurement Techniques IPM is measurement technology for industry: Scientists at the Institute develop customized measuring techniques and systems for industry. The systems are used worldwide for quality control in production, for 3D measurement of infrastructure or for gas and liquid analysis, among other things. The spectrum ranges from complex measuring systems integrated in production plants to mobile laser scanners and compact sensors for smartphone applications. "Our measurement systems often set world records for speed, accuracy and robustness," says Institute director Prof. Karsten Buse. "The reliability of medical technology products, computer chips with a longer service life, faster expansion of fiber optic networks, the detection of rutting risks on highways, the explosion-proof operation of gas infrastructure and much more is achieved through our measurement technology solutions."

Cooperation for a successful future

On behalf of the German Federal Ministry of Education and Research (BMBF), Dr. Fabian Lausen looked back on the cooperation between the BMBF and Fraunhofer IPM, which began back in the 1970s. He stated that currently, the Fraunhofer IPM is advancing topics such as optical measuring techniques, photonics and quantum technology. In the future, the BMBF will continue to stand by Fraunhofer IPM, Lausen explained.

Dr. Sandra Krey, Executive Vice President for Finances and Controlling and managing director of the Fraunhofer-Gesellschaft (interim), emphasized, "Especially in

Editor

Holger Kock | Communications and Media | Fraunhofer Institute for Physical Measurement Techniques IPM
Georges-Köhler-Allee 301 | 79110 Freiburg | Phone +49 761 8857-129 | holger.kock@ipm.fraunhofer.de | www.ipm.fraunhofer.de/en

economically and geopolitically challenging times, innovations and technological breakthroughs are of central importance – not only for the competitiveness of the economy and society, but for the future of all of us. In this spirit, Fraunhofer IPM has been proving for 50 years what an enormous contribution measurement technology can make to efficiency, sustainability and safety with its innovative solutions. It also exemplifies that excellent applied research and economic success go hand in hand.”

Professor Stefan Rensing, Vice-President for Research and Innovation at the University of Freiburg, referred to the close ties between the university and Fraunhofer IPM. The new location of Fraunhofer IPM on the campus “Am Flugplatz” and the fact that professors from the University of Freiburg are working at Fraunhofer IPM impressively demonstrate the cooperation, said Rensing. “This cooperation enables us to work closely together in the development of energy-efficient, intelligent and resilient systems,” Rensing stated. Ulrich von Kirchbach, first mayor of the city of Freiburg, also emphasized the location of Fraunhofer IPM. He further pointed out the strong partnership between the Fraunhofer-Gesellschaft and Freiburg as one of the most important Fraunhofer locations in Germany. In addition to Fraunhofer IPM, Freiburg is home to four other Fraunhofer institutes.

Discussion: Digitalization and industrialization of the construction industry through measurement technology

The potential of measurement technology for the construction industry was the topic of the subsequent panel discussion entitled “Sustainable and affordable construction and housing – measurement technology helps”. In addition to Professor Rensing and Managing Director of the Fraunhofer-Gesellschaft Krey, panelists included Hanna Böhme, Managing Director of FWTM Freiburg Wirtschaft Touristik und Messe GmbH & Co. KG, Nadyne Saint-Cast, member of the state parliament for Bündnis 90/Die Grünen, and Dr. Steffen Auer, Managing Director of SchwarzwaldEisen und SchwarzwaldElemente.

Buse, who moderated the panel discussion, began by noting that “digitalization and industrialization have so far arrived in the construction industry at best in the form of isolated solutions. Our optical systems can make a significant contribution to digitalization here by capturing digital 3D data of structural infrastructure.” For Auer, founding partner of bimeto GmbH (a company founded by two Fraunhofer IPM employees), 3D scans of buildings also play an important role in the construction industry. He pointed out that the BIM (Building Information Modeling)-technology simplifies the planning and implementation of sustainable construction projects.

The difficulties of finding affordable housing – especially in Freiburg – were also addressed. Saint-Cast emphasized that the topic of building and housing is an emotional one: “Housing is also home.” Böhme added: “When it comes to housing, we’re looking for an all-in-one-solution. We can’t do that without research and technology and commercial companies.”

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FRAUNHOFER INSTITUTE FOR PHYSICAL MEASUREMENT TECHNIQUES IPM

At the end of the anniversary celebration, Fraunhofer IPM showed a few measurement technology applications from the departments in a small exhibition – a measurement vehicle for 3D data acquisition of roads and buildings, an oil film measurement system for sheet metal in pressing plants, a sensor for remote gas detection from the air and components of an electrocaloric cooling circuit.

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Representatives from science, industry and politics came to Fraunhofer IPM to join employees in honoring the institute's research achievements over the past 50 years. © Fraunhofer IPM



(from left): Prof. Dr. Stefan Rensing (Vice-President of Research and Innovation, University of Freiburg), Hanna Böhme (Managing Director FWTM Freiburg Wirtschaft Touristik und Messe GmbH & Co. KG.), Prof. Dr. Karsten Buse (Institute Director Fraunhofer IPM), Nadyne Saint-Cast (Member of the State Parliament Bündnis 90/Die Grünen), Dr. Steffen Auer (Managing Director SchwarzwaldEisen und SchwarzwaldElemente), Dr. Sandra Krey (Executive Vice President for Finances and Controlling and managing director of the Fraunhofer-Gesellschaft (interim)) and Dr. Fabian Lausen (Federal Ministry of Education and Research). © Fraunhofer IPM



Fraunhofer IPM employees demonstrated measurement technology applications to interested guests. © Fraunhofer IPM

The **Fraunhofer-Gesellschaft**, based in Germany, is the world's leading applied research organization. By prioritizing key technologies for the future and commercializing its findings in business and industry, it plays a major role in the innovation process. A trailblazer and trendsetter in innovative developments and research excellence, it is helping shape our society and our future. Founded in 1949, the Fraunhofer-Gesellschaft currently operates 76 institutes and research units throughout Germany. Around 30,800 employees, predominantly scientists and engineers, work with an annual research budget of roughly €3.0 billion, €2.6 billion of which is designated as contract research.

Other contacts

Prof. Dr. Karsten Buse | Director | Phone +49 761 8857-111 | karsten.buse@ipm.fraunhofer.de
Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg | www.ipm.fraunhofer.de/en