

RETROSPECTIVE



Fraunhofer IKTS presented itself at 29 trade fairs in Germany and abroad as well as organized various scientific congresses. Further international networking was also successfully extended.

January 17 | February 12 | April 26 | May 30, 2018
Mini-researchers, junior PhDs and Girls' Day 1

IKTS once again opened its laboratories in 2018 to preschoolers from the "Pffiffikus" kindergarten in Dresden-Striesen and interested 3rd to 5th graders as part of the "Juniordoktor" program. The mini-researchers gained insights into condition monitoring of wind turbines and examined various materials with ultrasound. On Girls' Day, schoolgirls from Holzland High School learned about non-"typically female" apprenticeships at IKTS in Hermsdorf. They made their own ceramic dental prostheses in the lab – from raw material preparation to shaping.

February 15, 2018, Porto, Portugal
Kick-off for new Fraunhofer Center in Portugal

The Portuguese Fundação para a Ciência e a Tecnologia (FCT), the Fraunhofer-Gesellschaft and Fraunhofer Portugal signed a

cooperation agreement to establish a Fraunhofer Center for Smart Agriculture and Water Management AWAM - with the active participation of IKTS.

March 13–15, 2018, Cologne
Filtech | Ceramic filtration and separation technology

Clean air, clean water – at Filtech, IKTS presented safe and sustainable solutions to achieve just that: When it comes to the treatment of produced water from oil and gas production, silicon carbide (SiC) membranes are significantly more efficient than conventional membrane filters. Since the manufacturing costs are below 170 €/m², the robust SiC filters are also an attractive solution for mass applications, such as closing the loop from grey water to drinking water.

April 10–13, 2018, Munich
Ceramitec | Technical ceramics for extreme conditions 2

With the ceramic technologies developed at IKTS, extremely robust components for highly stressed environments can be manufactured cost-efficiently: At the world's leading trade fair



1 RETROSPECTIVE



2

for the ceramic and powder metallurgy sector, IKTS exhibited cast nozzles and bearings made of SiC-bonded diamond materials, which enable maintenance-free operation for more than 30 years. At the special show “Additive Manufacturing”, IKTS presented its service portfolio to ceramic manufacturers and plant developers.

April 24–27, 2018, Stuttgart

Control | Non-destructive testing technology

At the world’s leading trade fair for quality assurance, IKTS presented the devices of the PCUS® pro family. These ultrasonic systems are developed according to customer specifications for automated and, if required, robot-assisted materials testing in metal processing, railway and automotive construction, power plant and wind power technology.

June 5–7, 2018, Stuttgart

Surface Technology | From coating materials to surface testing

For the first time, IKTS presented its portfolio at the leading international trade fair for surface technology. One focus was on particle suspensions for thermal spraying, which can be used to produce extremely thin, smooth coatings on large-area metal and lightweight components without post-processing. The visitors also gained insight into our non-destructive test methods, which ensure a high surface quality during the coating process.

June 11–15, 2018, Frankfurt on the Main

ACHEMA | Green chemistry made by ceramic electrolysis

The German Energiewende, the effort to transition to renewable types of energy, makes it possible to generate electricity with significantly lower CO₂ emissions. With the aid of electrochemical processes, the electricity generated from renewable sources can be synthesized in basic chemicals. At the heart of these processes are high-temperature ceramic solid oxide fuel cells,

developed at IKTS Dresden. Not only do they produce electricity and heat, they are also able to generate hydrogen and synthesis gas for the industry.

June 18–22, 2018, Dresden

International Conference on Inorganic Membranes 1

Innovative developments from the fields of membrane science, technology and application were the center of attention at the 15th International Conference on Inorganic Membranes (ICIM) in Dresden, which for the first time took place in Europe, at the invitation of Fraunhofer IKTS and Forschungszentrum Jülich.

300 international experts from 29 countries informed themselves about research trends and new products in more than 160 lectures and at the accompanying industrial and poster exhibition. At the laboratory workshop at IKTS in Hermsdorf, the participants got insights into the production, testing and application of ceramic membranes.

July 4, 2018

Max Buchner scholarship for young IKTS scientist

IKTS researcher Dr. Adrian Simon was one of 15 young German scientists to receive a Max Buchner fellowship of 10,000 euros. Each year, the DECHEMA Society for Chemical Engineering and Biotechnology awards this prize to research projects in process engineering, biotechnology or chemistry, in which new methods are developed. Simon is developing a process for the production of ultra-thin, highly selective palladium membranes for hydrogen separation. These membranes are also suitable for product preparation in power-to-X processes and for reaction in the production of high-purity fine chemicals.

July 6, 2018, Hermsdorf

Thuringian Minister of Economy Tiefensee visits IKTS 2

On his summer tour through “digital Thuringia” Wolfgang Tiefensee, the Thuringian Minister for Economy, Science and



3



4



5

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RETROSPECTIVE

Digital Society, visited the IKTS in Hermsdorf. During a lab tour, Tiefensee learned about the manufacturing of ceramic tapes. They are the basic material for sensors that supply data on production processes and quality parameters as part of Industry 4.0. In addition to tape casting technology, ceramic battery components, which integrate such sensors, are also being developed at the site. During his visit, the minister also met with representatives of the regional initiative TRIDELTA CAMPUS HERMSDORF e. V.

September 12, 2018, Dresden

Early Morning Science with Fraunhofer | Media talk

For the 5th time, Dresden's Fraunhofer scientists presented a wide range of application-oriented research at the "Early Morning Science with Fraunhofer": from filter systems for aquafarming to lasered and thus low-friction surfaces for the automotive industry, from environmentally friendly aluminum production to intelligent data glasses. Journalists on site – as well as interested persons connected via livestream – used the opportunity for individual interviews. Further press events are planned for 2019.

September 24, 2018, Dresden

Visions for future of NDT | Farewell to Prof. Meyendorf

The potentials of non-destructive testing (NDT) in the age of Industry 4.0 were the central topic of the symposium, which took place at IKTS in Dresden-Klotzsche. It was held as an honorary colloquium for Prof. Norbert Meyendorf, who retired on October 1, 2018. From 2004 to the end of 2013, he headed the Dresden branch of the Fraunhofer IZFP, which has been part of the Fraunhofer IKTS since 2014.

October 4, 2018, London, England

German Unity Day

On the occasion of the German Unity Day, the Saxon Prime Minister Michael Kretschmer and the German Ambassador in

London Dr. Peter Wittig invited numerous guests from politics, culture, business and research to a joint reception in the embassy building. The Free State of Saxony presented itself with a large exhibition to promote Saxon ideas, initiatives and projects. The Saxon Fraunhofer Institutes also presented their latest research activities in London, together with the Saxon universities.

October 8–12, 2018, Berlin

Fraunhofer's tomorrows working worlds

5

In the interactive exhibition "tomorrows working worlds #future-work", the Fraunhofer-Gesellschaft staged working worlds of the future in Berlin. Eight exciting themed areas enabled visitors to experience at first hand visionary work scenarios in the fields of production and health. The leap motion application demonstrating the 3D printing of personalized ceramic bone implants from Fraunhofer IKTS attracted a great deal of attention.

October 14–18, Bilbao, Spain

EuroPM | Harder tools from the 3D printer

Fused filament fabrication is an additive manufacturing process in which complex 3D components are constructed from a melt-processable filament. IKTS develops the filaments individually for each application from ceramic or hardmetal powders and organic binders for use in standard printers. For the first time, IKTS presented at EuroPM, via lectures and the accompanying exhibition, extremely hard components with up to 1700 HV10, which can be printed additively.



1



2



3

RETROSPECTIVE

October 22, 2018, Hermsdorf

Thuringian Prime Minister Bodo Ramelow visits IKTS 1

Thuringia’s Prime Minister Bodo Ramelow, visited the IKTS in Hermsdorf to learn about current projects in the field of battery development and hydrogen production. Prof. Ingolf Voigt and Prof. Michael Stelter presented the broad research portfolio of IKTS during an extensive lab tour, including Europe’s most modern center for tape casting technology. Ramelow was particularly interested in the versatile contribution high-performance ceramics can make to the production of different types of batteries.

October 23–24, 2018, Dresden

Silicon Nitride – a material for top performance

Silicon nitride materials meet the highest reliability requirements even under extreme operating conditions – be it as cutting material, high-temperature component, insulator in micro-electronics, medical device or machine component. At the Industry Day, around 50 researchers and industry representatives gathered information on current developments and application potentials of silicon nitride materials. The focus was on new manufacturing processes, component reliability, high-temperature and corrosion resistance, mechanical and tribological properties, optimization of thermal conductivity and electrically conductive composite materials. Seven companies presented their products in the accompanying exhibition.

October 24–26, 2018, Dresden

10th International Symposium on NDT in Aerospace

As first-time hosts of the established international conference series, IKTS invited more than 140 participants to Dresden to discuss current issues around non-destructive testing for aerospace applications. This year’s program focused on topics, such as simulation, big data, robotics, and additive manufacturing.

In addition to plenary speeches and workshop sessions, the accompanying exhibition was a highlight of the event. As is the tradition, the event ended with a tour of thematically relevant companies in the region, such as Elbe Flugzeugwerke GmbH, IMA Materialforschung und Anwendungstechnik GmbH, as well as Aircraft Maintenance and Engineering Service GmbH (AMTES) in Leipzig. The 11th International Symposium on NDT in Aerospace will take place in France in 2019.

November 14, 2018, Dresden

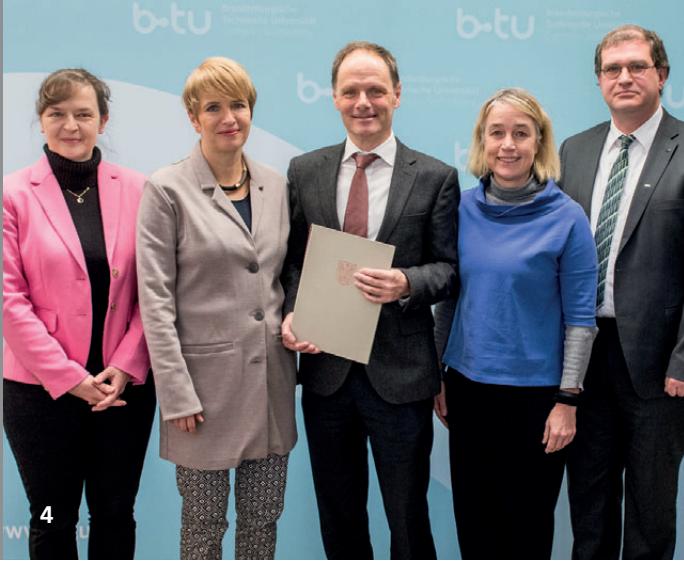
Prof. Michaelis appointed to “Energiebeirat Sachsen” 2

Saxony’s Minister of Economic Affairs Martin Dulig has appointed Prof. Alexander Michaelis to the “Energiebeirat Sachsen” for another three years. This energy advisory board is an informal expert committee, whose honorary activity of the currently 22 members aims to advise the Saxon state government in questions of energy policy and to give recommendations.

November 14, 2018, Dresden

CIO-Campus | Innovative water purification technologies

Clean technologies offer opportunities and enable the establishment of new business fields for water purification and water management. On November 14, the CLEANTECH Initiative East Germany (CIO) invited Central German experts from SMEs and science institutions to the Fraunhofer IKTS in Dresden to discuss sustainable solutions for modern water management at the CIO Campus. The issues discussed included energy efficiency, drinking water treatment, waste water as an energy source, and the fourth purification stage. The newly founded CIO working group on water management began its work during the event. Fraunhofer IKTS is a founding member of this working group.



RETROSPECTIVE

November 29–30, 2018, Dresden

Hybrid materials and additive manufacturing processes

Around 50 experts from all over Europe came to Dresden in November at the invitation of the Fraunhofer Institutes IKTS and IWS to find out about new additive manufacturing processes for the production of metal, ceramic and hybrid components. In hands-on laboratory workshops, various production devices were demonstrated in operation. With the new processes, highly complex geometries can be produced, and different materials and functional properties (conductive/insulating; dense/porous, etc.) can be combined in one component. In addition, serially produced components can be functionalized (sensors, heaters) and individualized (product labeling) quickly and inexpensively.

December 5, 2018, Jena

3

Ingolf Voigt receives honorary professorship of EAH Jena

On December 5, Dr. Ingolf Voigt was appointed honorary professor of the Ernst Abbe University (EAH) Jena by its president, Prof. Steffen Teichert. The honorary professorship recognizes Voigt’s many years of teaching at the university. Since 2010, he has held the lecture “Ceramic Technology” for master students of materials technology in the SciTec department. As site manager of IKTS Hermsdorf, he has supervised numerous students for their qualification work. Voigt is also a member of the EAH Jena University Council. The University of Applied Sciences and IKTS have been cooperating closely for many years – including the education and recruitment of young talents.

December 11, 2018, Munich

IKTS trainee among Fraunhofer’s best

IKTS physics laboratory technician Robin Anton is one of the eight best Fraunhofer trainees in 2018. He completed his training with the grade “very good”. Fraunhofer Human

Resources Director Prof. Alexander Kurz personally honored the laureates at a ceremony on December 11 at the Fraunhofer headquarters in Munich.

January 3, 2019, Cottbus

IKTS research group “Cognitive Material Diagnostics” 4

Right at the beginning of the new year, Brandenburg’s Minister of Science Dr. Martina Münch presented Dr. Christian Wunderlich with the grant decision for the new IKTS project group “Cognitive Material Diagnostics” in Cottbus. This Fraunhofer project group develops novel self-learning and intelligent systems for material diagnostics based on artificial intelligence and machine learning. The IKTS know-how on non-destructive testing and the expertise of the Brandenburg University of Technology Cottbus-Senftenberg on artificial intelligence will be combined for this purpose. The Federal State of Brandenburg is supporting the project with 2.6 million euros over a period of five years. The Fraunhofer-Gesellschaft is contributing 1 million euros to the project.

February 7, 2019, Braunschweig

Fraunhofer Project Center ZESS opened in Braunschweig 5

In the presence of Stephan Weil, Prime Minister of Lower Saxony, and Ulrich Markurth, Lord Mayor of the City of Braunschweig, the Fraunhofer Project Center for Energy Storage and Systems ZESS was launched at the Automotive Research Centre Niedersachsen on February 7. The event was followed by a press conference, streamed live to introduce journalists to the ZESS project and selected demonstrators. The Fraunhofer Institutes IKTS, IFAM and IST, in close cooperation with the Technische Universität Braunschweig, are the participating partners. The aim of the project center is to bring mobile and stationary energy storage systems to industrial maturity and demonstrate sustainable solutions with a focus on technology maturity levels four to six.