

RETROSPECTIVE



Fraunhofer IKTS presented its work at 45 trade fairs in Germany and abroad this year, organized several science conferences and was present at many public events. The international network has also grown, while IKTS researchers received prestigious awards.

January 16 | February 20 | May 15, 2019

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Promoting young researchers at IKTS

Eleven young researchers from the Fröbel Kindergarten center in Dresden's Darwinstrasse visited the IKTS site in Dresden-Klotzsche. The kids learned interesting facts about condition monitoring and heard about some of the ongoing projects. As part of the "Juniordoktor" program, interested third- and fifth-graders conducted experiments as part of workshops. After examining various metals for invisible defects using eddy currents, all participants were able to answer the "Juniordoktor" question. The juniors received their doctoral caps in a festive ceremony on September 14 at TU Dresden. Susanne Hillmann enthralled the young scientists with her presentation about researching at Fraunhofer.

February 12, 2019

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MoU signed for joint venture for energy storage in India

As part of a delegation trip to India organized by the Ministry for Economic Affairs, Science and Digital Society of the Free State of Thuringia, Prof. Alexander Michaelis signed a memorandum of understanding with the Indian technology companies h2e Power Systems, Ltd. and R Cube Energy Storage System, Ltd. The aim of the MoU is to industrialize the current development activities in the field of hybrid energy systems based on ceramic high-temperature batteries and solid-oxide fuel cells and to find suitable production sites in Thuringia and India.

March 12–14, 2019

Energy Storage Europe | Ceramic battery

"Ceramic batteries – powering grid, industry and home" – was the motto under which IKTS organized a joint appearance and symposium with its corporate partners Alumina Systems GmbH, König Metall Group, NGK Insulators, Ltd. and R Cube Energy Storage System, Ltd. Visitors learned about the versatility of sodium-based ceramic batteries as stationary energy storage solutions.



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March 12–14, 2019

JEC World | CFRP testing and CMC

At its booth at the leading international show for composite materials, IKTS presented EddyCus® MPECS mini, a system for non-destructive real-time testing, from individual fibers to complete CFRP assemblies. As another highlight, IKTS showed a new class of materials: fiber-reinforced ceramics are characterized by their high damage tolerance and quasi-ductility, suitable in particular for use in extreme temperature ranges under strong abrasive load, e.g. as heat shields for spacecraft.

March 14–21, 2019

Special Olympics World Games in Abu Dhabi

Conrad Kluge, IKTS employee and competitive cyclist, won silver and bronze medals in the 5 kilometer time trial and road races with outstanding performances. The goal of the Special Olympics is to help mentally handicapped people gain respect, self-confidence and a more prominent role in society through the medium of sport. Germany will be hosting the global inclusive sports event in 2023.

March 21, 2019

New Fraunhofer Portugal Center for Smart Agriculture and Water Management AWAM

Agriculture 4.0 is the motto which the new AWAM Center in Portugal focuses. Researchers at the Vila Real and Évora sites will develop new approaches to agricultural networks and water treatment. The construction of the new center is supported by the universities of Évora and Trás-os-Montes e Alto Douro (UTAD), with IKTS acting as a partner. The opening ceremony and festive presentation of the new center was attended by guests from industry and science, as well as the Portuguese Minister for Science, Prof. Manual Heitor.

March 28, 2019

Girls' Day

For almost 20 years, thousands of companies and institutions have invited female students on Girls' Day to provide them with insight into careers in technology and natural sciences. At the Hermsdorf site, the students from the region familiarized themselves with the work of material researchers and lab technicians. Microscopy work and experiments in the field of oxide ceramics were perfect opportunities to gain hands-on experience with the research conducted at IKTS.

April 6, 2019

Open Day at Fraunhofer IKTS Hermsdorf

"Experience research in high-performance ceramics!" said the invitation to Open Day in Hermsdorf. Hundreds of inquisitive minds heeded the call and familiarized themselves with the work of Fraunhofer researchers in talks and on guided tours through the labs and technical centers. Highly motivated, the staff organized the day, answered questions and explained to the visitors the versatile uses of ceramics, a "hidden champion".

April 8, 2019

Thuringia Research Award

For developing an affordable and environmentally friendly battery, IKTS researchers Prof. Michael Stelter, Dr. Roland Weidl, Dr. Matthias Schulz, Heidi Dohndorf, Lutz Kiesel, Martin Hofacker and Benjamin Schüssler received the Research Award of the Free State of Thuringia in the "Applied research" category. At the awards ceremony in the Imaginata science center in Jena, Thuringia's Minister of Economy, Wolfgang Tiefensee, praised the team's work. The complex development work, from preparing the powders for the solid-state electrolyte to integration in a battery module, is currently provided to the industry in a transfer project. The jurors of the Thuringia Research Award were swayed



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by the battery's importance for the switch to renewable energies in Germany and its symbolic power beyond the Thuringian region.

April 15, 2019

Start of construction of new pilot center for powder synthesis and extrusion

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Ceramic batteries and membranes for filtration and gas separation – these are the research topics on which the future “Pilot center for powder synthesis and extrusion” will be focusing. The pilot center, which will be supported by funds of the Free State of Thuringia as well as federal funds, has been tailored to the requirements of complex research topics and constitutes an important link for the future technology transfer. The groundbreaking ceremony was attended by Thuringia’s Prime Minister, Bodo Ramelow, and the state’s Minister of Economy, Wolfgang Tiefensee, as well as local policy makers and representatives of the Fraunhofer-Gesellschaft. The new wing will go into operation by autumn 2020.

April 16, 2019

autartec® | FreiLichtHaus near the F60 overburden conveyor bridge completed

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For five years, a cross-disciplinary team from 15 companies, universities and non-university research institutions out of southern Brandenburg, Saxony and eastern Thuringia worked on constructing a floating, self-sufficient building, which was now officially inaugurated. The autartec® house on the Bergheide lake in Lichterfeld-Schaksdorf can produce electricity, heat and drinking water, all on its own. A waste water treatment system that works without chemical or biological agents was tested by IKTS and is an integral part of the project, which was funded by the German Federal Ministry of Education and Research (BMBF).

May 7, 2019

Prof. Alexander Michaelis voted new DKG president

The general meeting of the German Ceramic Society (DKG) in Leoben (Austria) unanimously voted Prof. Alexander Michaelis president for an initial term of two years. Michaelis succeeds Joachim Heym of Schunk Ingenieurkeramik GmbH, who had exercised the function for four very successful years. For 100 years the DKG has been Europe’s biggest ceramic society by members, in addition to being one of the oldest existing professional associations worldwide.

May 24, 2019

Science speed dating in the tram

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Because of strong demand, Science Tram by DRESDENconcept (DDc) was underway once again – immediately following the global Fridays for Future demonstration in Dresden. On this special trip, four DDc researchers answered questions from students and Dresden residents on current research projects regarding climate change, the switch to renewable energies, and sustainability. Prof. Michael Stelter, deputy director of IKTS, presented new approaches in the areas of energy, water and waste water treatment, among other topics (e.g. how we use our raw material resources, and the issue of microplastics).

May 27, 2019

MICRO-FATE starts expedition in the Pacific Ocean

An international team of scientists from the MICRO-FATE project aims to find out where exactly in the ocean microplastics accumulate, how they affect the environment and how they can be eliminated. For this purpose, the SONNE research vessel embarked on a five-week expedition through the Pacific Ocean. The aim is to take and conserve samples for lab testing later on and to conduct some initial testing. IKTS was on board, examining the changing properties of plastic particles caused by weathering and fragmentation.



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June 14, 2019

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Dresden Science Night

The 17th Dresden Science Night took place under the motto “Science instead of pillow fight”. With a total of 39,000 visitors, Dresden as a research location presented itself extremely varied and diverse with 699 events at 66 venues. At 16 stations in the Fraunhofer IKTS, about 2000 young and adult guests were able to experiment and find out about our projects. Starting with the production of a functioning battery from fruit and vegetables or personalized biocompatible bones from the 3D printer, an adventurous temperature trail and even an electric magic pen – there was a lot to discover.

June 25–29, 2019

GIFA | Ceramic foundry solutions

The foundry industry plays a key role in the development and manufacture of components for automotive construction and machine engineering, as well as many other industrial branches. The protective plates, filters and crucibles made from ceramic high-performance materials presented at GIFA are able to meet the ever more challenging requirements for the manufacture of cast parts regarding quality, pricing, reliability and diversity of shape.

June 26, 2019

German-Korean Technology Center opened

In the presence of the mayors of Dresden, Dirk Hilbert, and the South Korean city of Changwon, Huh Sung-moo, as well as the president of the Korea Institute of Material Science (KIMS), Dr. Junh Hwan Leer, a German-Korean Technology Center (DKTZ) was opened in Dresden. The DKTZ, with the participation of the IKTS, the Institute for Lightweight SEngineering and Polymes Technology of the TU Dresden and KIMS, is intended to facilitate the settlement of Korean companies in Dresden and to realize cross-border, accelerated developments.

July 5, 2019

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ECerS | Dr. Mathias Herrmann receiving multiple honors

At the 16th Conference of the European Ceramic Society (ECerS) in Turin, Dr. Mathias Herrmann was honored on two occasions, receiving the JECs Trust Award for his scientific publications in addition to being named ECerS Fellow. The prize has been awarded every two years since 2013 to researchers for outstanding services in the field of ceramic research and teaching. The nomination as Fellow is for special commitment and achievements in ceramic science and technology.

September 14, 2019

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Charity boat race | Rowing against cancer

For the third year running, IKTS employees teamed up with staff from the Dresden Red Cross blood donor service to row on the river Elbe for charity. The money raised goes to the Living with Cancer Foundation and will be used to support regional services supporting cancer therapy.

September 17, 2019

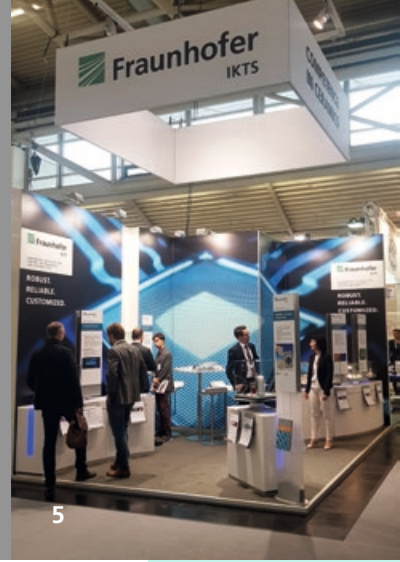
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Media talk | Fraunhofer Early Morning Science – Women’s power for Fraunhofer

For 70 years, Fraunhofer’s motto has been “Research for the future”. In the anniversary year 2019, four female Fraunhofer researchers reported, for the 6th time, on current application-oriented projects. High-performance heat shields for fuel-efficient engines in aerospace, infinite OLED light strips or the monitoring of foundation structures, and a 3D-printed turbine: The breadth of current research highlights inspired viewers of the live stream, as well as the journalists who had come to the event. The event series is set to continue in 2020.



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September 23–25, 2019

Dresden Battery Days | Batteries for the future

Stationary energy storage systems are considered a key element of a modern and sustainable energy supply. At the 3rd Dresden Battery Days, almost 90 international experts discussed the current research and development trends for solid-state batteries, issues relating to production and their future prospects. In addition, manufacturers presented their latest developments in batteries and systems at an industrial exhibition. 2020 the experts will meet in Graz.

October 9–11, 2019

ISPA | International Symposium on Piezocomposite Applications

Piezoceramics combined with electronic, functional and structural materials are increasingly used in medical technology, mechanical and automotive engineering. 50 engineers, designers and experts from eight nations discussed current research results and market requirements for the optimal technology transfer of piezoceramic innovations. This year's symposium was opened with a thematic workshop by Meggitt A/S on the subject of "Piezoelectric materials and applications". The next ISPA will take place in 2021.

November 12–15, 2019

Productronica | Conductor lines with ultra-fine pattern definition

Miniaturization is the main development driver in electronics. For the first time, a new generation of thick-film pastes was presented at the trade fair. These pastes can be structured through photo-lithography via an extended screen printing route. This makes it possible to generate very fine structures of 20 micrometers or even finer, which are required for the next mobile network standard 5G.

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November 13, 2019

First Fraunhofer Career Night Dresden

About 40 students took the chance to explore the Fraunhofer Institutes IKTS and IPMS at the 1st Fraunhofer Career Night Dresden. At the Campus Dresden-North the guests got to know different research areas and made first contacts with Fraunhofer researchers in many conversations. Besides a lecture program, there were guided tours through both institutes and as a highlight an escape game.

November 13, 2019

Franz Müller is Thuringia's best physics lab technician

The chamber of industry and commerce of eastern Thuringia declared Franz Müller to be one of 2019's best trainees. The physics lab technician started his apprenticeship at Fraunhofer IKTS in 2016 and was able to complete it with much success and ahead of schedule in 2019. He now works at IKTS as a technical assistant in the field of carbon membranes.

January 1, 2020

Prof. Alexander Michaelis appointed as member of the Energy Research Advisory Board

Prof. Alexander Michaelis, Institute Director of Fraunhofer IKTS, was appointed as member of the Energy Research Advisory Board Germany. The board advises the German Federal Ministry of Education and Research (BMBF) on questions of strategic research planning for electrochemical energy storage systems. More than 30 high-ranking representatives from industrial companies and research institutions are involved in the board.