Retrospective

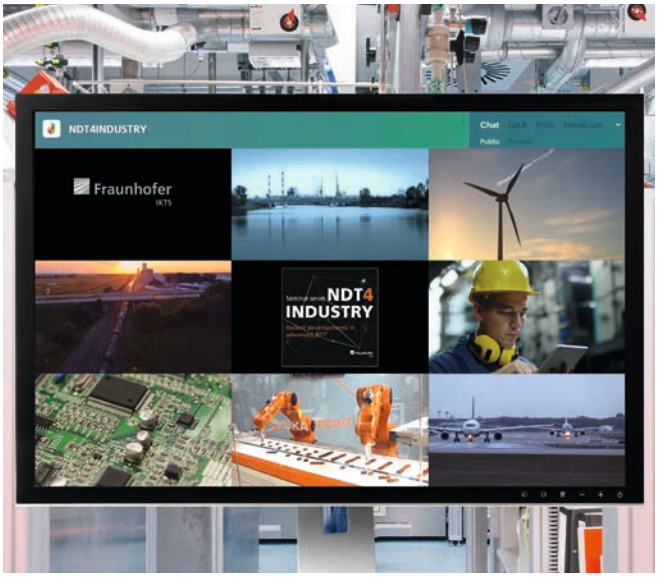
Due to the worldwide Coronavirus pandemic, the Fraunhofer IKTS presented its research and services to the general scientific public in 2021 mainly within the framework of digital trade fairs and event formats.

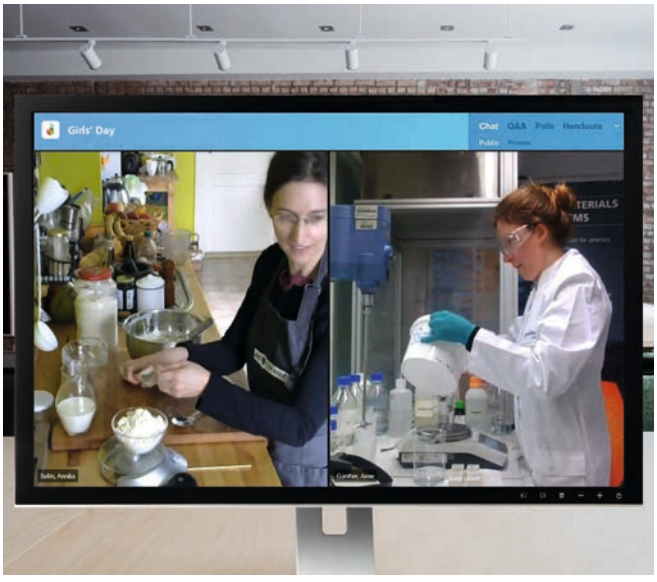
February 3, 2021
NDT4INDUSTRY – Online seminar series
(Image on the left)

In the online seminar series NDT4INDUSTRY, Fraunhofer IKTS again presented new developments in the field of non-destructive testing (NDT) and their benefits for industry in 2021. To start off the year, Christoph Sander presented a 4-point bending system in February, which can be used to effectively characterize the influence of mechanical stresses on microelectronic components. In April, Dr. Frank Schubert dedicated his seminar to EFIT simulations, which are used for optimizing probes and ultrasonic equipment based on simulation. A special installment was in store for the audience in May: Together with the Institute for Lightweight Engineering and Polymer Technology (ILK) of TU Dresden, Dr. Jörg Opitz presented results of the joint project "robust evp 4.0". The focus was on hybrid metal composite structures, their development, production, non-destructive testing and necessary steps to introduce these technologies to industry. In September, Dr. Malgorzata Kopycinska-Müller and Ralf Schallert demonstrated possibilities of optical coherence tomography (OCT); a scanning method that inspects objects and processes in a non-contact, non-destructive and fast way. In November, Dr. Bernd Köhler presented unconventional ultrasonic methods developed for difficult inspection tasks. The successful format will be continued. Please find current topics and dates at www.ndt4industry.com.

April 22, 2021
Girls' Day
(Image on the right)

Our digital Girls' Day program taught the participating girls a lot about advanced ceramics and working in the lab. During a live feed from the lab and kitchen, around 20 female students learned about the similarities between baking and making ceramics. In the subsequent open talk with female lab technicians and IKTS scientists, the girls were able to ask their questions about everyday working life at a Fraunhofer institute.





April 23, 2021

Böttger Badge for Prof. Ingolf Voigt

(Image on the left)

As part of the virtual annual conference of the German Ceramic Society e. V. (DKG), Prof. Ingolf Voigt, deputy institute director and Hermsdorf site manager of Fraunhofer IKTS, was awarded the Böttger Badge. The Böttger Badge has been awarded by the DKG since 1929 for outstanding services to the interaction of industry, science and teaching. In his function as president of the DKG, institute director Prof. Alexander Michaelis congratulated the award winner: "The award is highly deserved. Prof. Voigt is an outstanding scientist who is known worldwide for his work on ceramic membrane technology and for the entire field of structural and functional ceramics."

May 4, 2021

Trade fairs and digital formats

(Image on the right)

Fraunhofer IKTS presented itself at numerous digital trade fairs in 2021: For example, Dr. Hannes Richter as well as Dr. Matthias Jahn and Gregor Herz presented the topics "High-performance separators: carbon membranes for H_2 and CO_2 separation from gas streams" and "High-temperature electrolysis – a key technology for the green chemical industry", respectively, in so-called "live pitches" at *ACHEMA Pulse*. At the digital *Sensor and Test* fair, IKTS showed its know-how in the fields of ultrasonic transducers, printed magnetoresistive sensors as well as ceramic pressure sensors for high-temperature applications.

Fraunhofer IKTS was also represented at on-site trade shows in 2021, including *Productronica*. Here, the focus was on photoimageable thick-film pastes for the 5G network, power electronics, additively manufactured components and ceramic solutions for sensors. Despite the ongoing pandemic, the trade fair industry, and IKTS, remain optimistic about the future. Trade fair organizers are clearly focused on physical events adhering to the highest levels of hygiene standards. For 2022, IKTS is planning to be present at *HMI*, *IFAT, Control, JEC World, FILTECH* and *Sensor and Test*.

May 7, 2021

ThWIC – Thuringian Water Innovation Cluster in the final round for cluster competition

With the Clusters4Future initiative, the German Federal Ministry of Education and Research (BMBF) provides targeted funding for regional clusters that use innovations from cutting-edge research to tackle challenges in important fields of the future. In May, the "Thuringian Water Innovation Cluster" (ThWIC) was among the 15 applications chosen out of 117 that can now enter a conception phase, with funding secured. Together with more than 20 partners, including the coordinating Friedrich Schiller University Jena, Fraunhofer IKTS will scientifically illuminate the topic of water in a multifaceted way within ThWIC, considering both the natural and social sciences perspectives. Up to seven finalists will then be selected in spring 2022, and their project ideas will be funded for up to nine years.

Visit at Fraunhofer THM Freiberg. F.l.t.r.: Prof. Klaus-Dieter Barbknecht (TUBAF), Dr. Jochen Friedrich (Fraunhofer IISB), Prof. Alexander Michaelis (Fraunhofer IKTS), Dr. Mareike Partsch (Fraunhofer IKTS/THM), Science Minister Sebastian Gemkow, Prof. Jens Gutzmer (HZDR), Prof. Johannes Heitmann (TUBAF/Fraunhofer THM) and Prof. Martin Bertau (TUBAF/Fraunhofer IKTS).

May 10, 2021

Honorary certificate of Hermsdorf for Prof. Voigt

On May 10, Prof. Ingolf Voigt was awarded the honorary certificate of the city of Hermsdorf. As site manager of IKTS Hermsdorf and board member of TRIDELTA CAMPUS HERMSDORF Prof. Voigt had served the welfare and reputation of the city of Hermsdorf in a special way, said Mayor Benny Hofmann.

June 7 | September 7, 2021

Visits at Fraunhofer THM

(Top image)

On June 7, Saxony's Science Minister Sebastian Gemkow visited the Fraunhofer Technology Center High-Performance Materials THM in Freiberg. In the course of a working session, the state minister learned about current research on battery recycling and innovative semiconductor materials for improved power electronics. In September, a delegation of European parliamentarians visited Fraunhofer THM and sought an exchange on the topic of batteries in the context of the new EU battery regulation as part of the European Green Deal. This visit was accompanied by local media highlighting the innovative work being done in Saxony.

July 6, 2021

abonocare® online conference

How to establish a sustainable and efficient nutrient recycling system based on organic residues, such as liquid manure, sewage sludge or organic waste? About 100 participants at the abonocare® online conference, from industry, science and politics, learned about novel recycling and closed-loop technologies from the abonocare® growth core. In addition to technologies for phosphorus and nitrogen recycling, legal framework conditions, operator models and application potentials of novel fertilizer products were also highlighted. In the abonocare® growth core, companies and research institutions are jointly developing technologies for the intelligent and sustainable nutrient recycling of organic residues. Their goal is an efficient circular economy in which waste is turned back into resources.

July 12, 2021

Kickoff for WaTTh in Arnstadt

(Bottom image)

The Battery Innovation and Technology Center BITC as part of Fraunhofer IKTS at Erfurter Kreuz will be expanded by a

"Hydrogen Application Center for Industrial Hydrogen Technologies Thuringia" (WaTTh). The State of Thuringia is supporting the project with € 6.9 million over three years. Thuringia is providing an additional € 3.4 million for the purchase of a building in which IKTS researchers can develop and test hydrogen technologies. Synergistic effects with the energy storage production technology 4.0 already being developed at BITC are to be exploited here. The main focus is on hydrogen production using large-scale stack technology and the industrial use of hydrogen.

August 2–6, 2021
Sensor Space Summer School

As the first event of the Tridelta Campus Sensor Space, the Sensor Space Summer School of Fraunhofer IKTS welcomed participants at the Hermsdorf Vocational School. The goal of the Summer School was to teach basic concepts of Industry 4.0 and to spark interest in STEM subjects (mathematics, computer science, natural sciences, technology). Students from grades 7 to 11 gained insights into programming, plant engineering and automation during the one-week vacation course. Microcontrollers, sensors and a programming interface for beginners were used.

August 18, 2021
2nd place at the SET4FUTURE Innovation Award

The "Sonic Rail Explorer (SRE)" is a mobile ultrasonic testing device for railroad tracks which was awarded 2nd place at the SET4FUTURE Innovation Award 2021 of the Saxon rail technology cluster Rail.S. The joint development of Vossloh Rail Services GmbH, Fraunhofer IKTS and WOLFRAM Designer und Ingenieure is used in the inspection of railroad rails and switches to detect defects and enables networked inspection data management.

August 27, 2021
Senodis is transfer project of the month of IHK Dresden

In the July/August issue of its business magazine ihk.wirtschaft, IHK Dresden presents Senodis Technologies GmbH as its transfer project of the month. Since 2014, research has been conducted at Fraunhofer IKTS on how metal components can be marked in such a way that the marking survives even intensive processing steps and the components can thus be recorded seamlessly along the process chain. The result of these efforts is Ceracode® marking, which has been marketed by the specially incorporated Senodis Technologies GmbH since 2019.

September 10, 2021
1st prize for CoMo shirt measuring vital functions

Under the motto "Design & Research vs. Pandemics", design students and Fraunhofer researchers worked together for a week at the Summer Camp of the Fraunhofer network "Science, Art and Design" in September 2021 to find innovative concepts for detecting pandemics at an early stage and overcoming them. On September 10, they presented their concepts to a jury of experts. The first prize of € 5000 was won by a team of four students, IKTS researcher Sascha Balakin and Fraunhofer ENAS researcher Julia Wecker. They designed and tailored a wrap-around shirt that contains sensors to measure ECG, lung function and temperature, as well as a camera to observe the surface of the skin. Energy-harvesting technologies, among others, generate the power for these functions. The Fraunhofer Summer Camp is held every year, centered around a different topic each time.

September 16, 2021
Inauguration of the PIZ at the Hermsdorf site
(Top image)

The "Pilot Center for Powder Synthesis and Extrusion PIZ" was ceremonially inaugurated after a two-year construction period and adds approx. 600 m² floor space to the Fraunhofer IKTS properties in Hermsdorf. The new building is home to the research topics of stationary energy storage and ceramic membranes for material separation. The construction was funded by the federal government and the Free State of Thuringia with € 6.4 million. Minister President Bodo Ramelow, economics minister Wolfgang Tiefensee and Fraunhofer board member Andreas Meuer came to Hermsdorf for the opening ceremony.

September 16, 2021

Honorary colloquium for Dr. Bärbel Voigtsberger

(Top image)

On the occasion of her 70th birthday, an honorary colloquium for former institute director Dr. Bärbel Voigtsberger took place on September 16, 2021 in the Hermsdorf town hall. The organizers secured Daniel Störzner (LCP Laser Cut Processing), Dr. Meinhard Schwefer (thyssenkrupp) and Michael Philipps (Endress+Hauser) as speakers. The subsequent get-together provided an opportunity for many conversations with former employees and companions.

September 23, 2021

NDT on Tour

(Right column image)

In order to make current developments in the field of non-destructive testing and condition monitoring accessible and tangible despite trade show cancellations, the concept of the NDT tour bus was developed at the Fraunhofer IKTS site in Dresden-Klotzsche. For this purpose, a van was equipped with measuring instruments and demonstrators and these were presented at the DGZfP training center in Berlin on September 23, 2021. The offer received much attention and shall be repeated at regular intervals. If you are interested in visiting our tour bus, please do not hesitate to contact us.

October 12, 2021

Early Morning Science with Fraunhofer: focus on water technologies

Water technologies are the key to a future-proof energy and food industry – that is the firm belief of Dr. Burkhardt Faßauer, department head of Circular Technologies and Water at Fraunhofer IKTS. At the seventh media breakfast "Early Morning Science with Fraunhofer" of the Fraunhofer Institute Center Dresden, Dr. Faßauer presented new water technologies and closed-loop concepts of IKTS, with which wastewater from municipalities, energy plants or mining can be treated more efficiently to obtain clean drinking water. At the same time, considerable value-added potential can be tapped by producing targeted fertilizers from residual materials, recovering metals and other raw materials, and producing hydrogen for electricity and heat.

December 8, 2021

Silicon Science Award 2021 for Nadja Steinke

(Image on the right)

For her dissertation, "Plasmonic sensor for the on-site detection of diclofenac molecules", Dr. Nadja Steinke was awarded the Silicon Science Award 2021 at the 15th Dresden Sensor Symposium. Her work centers on the development of a plasmonic sensor system for the detection of drug residues, such as diclofenac, in wastewater. The goal is that in the future on-site analytics can monitor compliance with limit values directly in wastewater treatment plants and thus help to make wastewater treatment more efficient.

January 19, 2022

Honorary colloquium for Dr. Hagen Klemm

(Bottom image)

Since the founding of Fraunhofer IKTS in 1992, Dr. Hagen Klemm has worked at the institute as a scientist, group leader, department head and valued colleague. His topics at IKTS included ceramic matrix composites (CMC), environmental barrier coatings (EBC), silicon nitride/silicon carbide as well as high-temperature characterization. His retirement from active service was marked with an honorary colloquium. The IKTS team and companions from outside the institute paid tribute to the milestones of his research at Fraunhofer IKTS and reviewed the long-standing and unifying collaboration in projects.

F.l.t.r.: Prof. Alexander Michaelis, Dr. Tassilo Moritz, Dr. Hagen Klemm and Dr. Michael Zins.