

EXCELLENCE NEWSLETTER

DECEMBER 2, 2020

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Dear Readers,

We are coming to the close of our first year of current funding as a University of Excellence under the Excellence Strategy by the German Federal and State Governments. To befittingly commemorate this, Rector Prof. Ursula M. Staudinger is inviting all members of TU Dresden and the DRESDEN-concept Partners to a digital event centering around the theme of "Excellent. Together." on December 7, 2020. The Extended University Executive Board and the Cluster of Excellence speakers will report on the progress and challenges in implementing the Excellence initiative and will present prospects for future action. [↗ More](#)



TECHNISCHE UNIVERSITÄT DRESDEN **DRESDEN concept**

**GEMEINSAM.
EXZELLENT.**

Das Erweiterte Rektorat
und die Clustersprecher im
Livestream – Stellen Sie
Ihre Fragen!

**7. Dezember 2020
13:00 – 14:30 Uhr**

 youtu.be/n7PD47hUvsU
Fragen vorab an exzellenz@tu-dresden.de oder während des
Livestreams unter tu-dresden.de/exzellenz/chat

Gefördert im Rahmen der Exzellenzstrategie von Bund und Ländern

Yet the year that is coming to an end is also one that surely no one could ever have predicted. The COVID-19 pandemic is still shaping our everyday lives and will not be releasing us from its clutches in the coming year either. Despite this extraordinary situation, we can nevertheless look back on much that has been accomplished, researched, and created at TU Dresden. We look forward to all that awaits us in 2021.

The editorial team wants to take this opportunity to wish all readers a restful New Year's celebration and

most of all a healthy New Year! The next newsletter will come out in February 2021 in a fresh new layout. You'll just have to wait and see!

Do you have any questions, desires, or comments? Send us a message! You can reach the editorial team by email at exzellenz@tu-dresden.de. And please feel free to recommend the newsletter to others. It can be subscribed to in just a few [clicks](#).

TUD 2028 – SYNERGY AND BEYOND

Digital SAN event "Processes of Aging"

DRESDEN-concept (DDc) is extending an invitation to the Scientific Area Networks (SAN) digital event called "Processes of Aging" on December 4, 2020, from 10 a.m. to 12 p.m.

Prof. Shu-Chen Li (TU Dresden) and Dr. Miranka Wirth (German Center for Neurodegenerative Diseases, Dresden) want to examine various research perspectives with scientists on the topic of "Bio-Cultural Technological Co-construction of the Plasticity of Aging Brain and Body" and develop further cooperation in the DDc group.

We also welcome your suggestions for further SAN events on the topic of "Processes of Aging". Those interested should contact [Lena Herlitzius](#).

DRESDEN-concept celebrates 10 years of success

On October 10, 2020, there was a small-scale celebration of the 10-year anniversary of DRESDEN-concept (DDc) at the Deutsches Hygiene Museum in Dresden in the presence of Andrea Franke (State Secretary from the Saxon State Ministry of Science, Culture, and Tourism). Appreciative words spoken by partners in a video retrospective not only reflected the many existing friendships and the close familiarity within DDc but also the amazing achievements for the Dresden science and research center.

One highlight of the event was the solemn passing of the baton from Prof. Hans Müller-Steinhagen to the new Board Chair, Prof. Ursula M. Staudinger, who later stated clearly in her speech that the trust built up with the partner institutions forms an excellent basis for the further development of the alliance into a DDc science campus. She affirmed that DDc offers a unique platform for interdisciplinary research topics and the collaboration of various specialist disciplines.



"Good Doctoral Student Mentoring" workshop

The path to a doctorate is an important career step for doctoral students. Finding the right balance between encouraging and challenging upcoming scientists is one of the more demanding tasks of university professors. After all, good mentoring for doctoral students significantly influences not only the success of an individual doctoral student's plans but also the future scientific potential of universities.

Aiming to support the supervisors in this important task, the Graduate Academy is once again offering professors of all disciplines an exclusive one-day intensive "Good Doctoral Student Mentoring" workshop on January 29, 2021. [↗ More](#)

FLiK modules: An interdisciplinary approach to learning and teaching

FLiK modules have been offered at TU Dresden since 2015 and have become an integral part of the interdisciplinary, research-oriented teaching. In previous years, interdisciplinary topics such as bionics, risk, human-machine interaction in production facilities, and inventivity have been discussed here. FLiK means learning and teaching within an interdisciplinary context (from the German "Forschen und Lernen im interdisziplinären Kontext").

The goal is to familiarize students with the perspectives of other disciplines and lead to research initiatives. Yet even the participating professors benefit enormously from cooperating with other disciplines, using innovative teaching methods, and developing ideas for new collaborative research efforts.

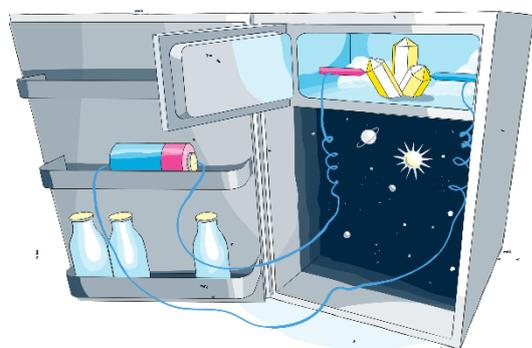
Each FLiK module starts in the 1st semester with a "relay" lecture where, unlike in a customary lecture series, there is a "passing of the baton" between the professors, and the previous and upcoming lecture content is referenced. Things become more interesting during the 2nd semester in the project seminar and the FLiK workshop, where students design and present their own research projects.

The FLiK modules are supervised and supported (including financially) by the [Center for Interdisciplinary Learning and Teaching \(ZiLL\)](#). If you are interested in initiating a FLiK module, please contact the [team at ZiLL](#). ↗ [More](#)

EXCELLENCE & RESEARCH CLUSTERS

Freeze like a star! Web exhibit explores mysteries of the Quantum World

Colder than in outer space, more pressure than 30 sperm whales on a stamp, and super magnets able to hold two Eiffel Towers at the same time: Today's search for new quantum materials – the materials of the day after tomorrow – is conducted under extreme conditions. However, it is often hard to understand what researchers actually do in their high-performance laboratories.



The Würzburg-Dresden Cluster of Excellence [Complexity and Topology in Quantum Matter \(ct.qmat\)](#) has now taken a big step towards popular science communication. The [web exhibit "Showcase – Insight into Our Research"](#) provides information on the goals, current activities, and research achievements of the more than 250 international cluster scientists – with easy-to-understand texts, catchy illustrations, and entertaining videos in English and German.

"Three exhibits explaining our research themes have been launched in this year alone. The positive response has prompted us to prepare multimedia presentations of these topics and make them available on our website. You can now navigate through our mysterious quantum world from the comfort of your couch anywhere in the world. This is enormously advantageous, especially during the coronavirus pandemic. Naturally, however, it is possible to comb our plush doughnut only if you are actually in the museum," stresses Prof. Matthias Vojta, spokesperson of the Dresden branch of the Cluster of Excellence. ↗ [More](#)

Humboldt Foundation Henriette Herz Award for excellence scouting project

With an innovative concept for international, strategically-oriented excellence scouting, TU Dresden has now been accepted in the Alexander von Humboldt Foundation's new Henriette Herz Scouting Program.

The "SCAFFOLDING" pilot project supports the "Friedrich List" Faculty of Transport and Traffic Sciences in attracting and recruiting highly qualified, international, early-career researchers. It is carried out in cooperation with the Chair of Network Dynamics at the [Center for Advancing Electronics Dresden \(cfaed\)](#) and is endowed with a total of €125,000. The two-year project will start in January 2021 and will be jointly led by Prof. Regine Gerike from the Faculty of Transport and Traffic Sciences and Prof. Marc Timme (cfaed and Institute for Theoretical Physics). ↗ [More](#)

Scientists determine the structure of glass-shaping protein in sponges

Sponges are some of the oldest animals on Earth. They live in a wide range of waters, from lakes to deep oceans. Remarkably, the skeleton of some sponges is built out of a network of highly symmetrical glass structures. These glass scaffolds have intrigued researchers for a long time. How do sponges manipulate disordered glass into the skeletal elements which are so regular?

Researchers from [Center for Molecular Bioengineering \(B CUBE\)](#) together with the teams from the [Center for Advancing Electronics Dresden \(cfaed\)](#) and the Swiss Light Source at the [Paul Scherrer Institute](#) in Switzerland are the first to determine the three dimensional (3D) structure of a protein responsible for glass formation in sponges. They explain how the earliest and, in fact, the only known natural protein-mineral crystal is formed. The results were published in the [journal "PNAS"](#). ↗ [More](#)

JEDI GrandChallenge: Dresden team advances to the testing phase

The Dresden team of researchers from the [Biotechnology Center \(BIOTEC\)](#) of TU Dresden and [PharmAI](#) is one of the final teams selected for the next stage of the [JEDI Billion Molecules against Covid19 GrandChallenge](#).

107 compounds submitted by the Dresden team are in the pool of 1200 compounds that will be tested for their potential to block SARS-CoV-2 virus. The compounds will be produced in the next weeks and the tests will begin in 2021. ↗ [More](#)

Two CMCB graduates awarded with 2020 Georg Helm Prize

TU Dresden has recently announced four winners of the 2020 Georg-Helm award. Two of them are Dr. Lara Marrone and Sarah Naomi Bolz - graduates from the [Center for Molecular and Cellular Bioengineering \(CMCB\)](#).

"Congratulations to the winners! We are very proud of them and wish them continued success and a successful continuation of their scientific careers", says Prof. Stefan Diez, Managing Director of the CMCB.

[↗ More](#)

BIOTEC welcomes Prof. Henrik Bringmann and his research group

Prof. Bringmann and his research group "Cellular Circuits and Systems" focus on the molecular mechanisms behind sleep. They want to understand the sleep mechanisms and sleep functions that promote health and well-being. Their research focuses on the sleep of mice and the nematode *C. elegans*.

"*C. elegans* is the simplest animal model that sleeps. Therefore it is the easiest and most accessible for research. However, human sleep is more complex than sleep in *C. elegans*. Mice sleep in ways more similar to us and therefore we also investigate sleep mechanisms in mice. This way we can better translate our findings going from *C. elegans* to mice and then, potentially, to humans," explains Prof. Bringmann.

[↗ More](#)

María Teresa Pisabarro appointed as "Außerplanmäßige Professorin"

Research group leader [María Teresa Pisabarro](#) was appointed as an "außerplanmäßige Professorin" (APL) of [Center for Molecular and Cellular Bioengineering \(CMCB\)/Biotechnology Center \(BIOTEC\)](#).

Prof. Pisabarro is an expert in structural computational biology. Her research group develops and uses state-of-the-art computational approaches to investigate structure and function of macromolecules for rational engineering and de novo design. The title comes as a recognition for many years of outstanding research and teaching performance.

[↗ More](#)

Triggering high school students' interest in organic semiconductors and studies at TUD

How can study orientation actually be successful in the age of the coronavirus? Virtually, interactively, and full of prospects! That is shown by a four-part event series on organic electronics, which has been providing interested students of MINT-EC schools

throughout Germany with insights into current research and the personal motivation and career paths of scientists and university students since November 12. MINT-EC is a network of high schools in Germany that are noted for their superior STEM (Science, Technology, Engineering, Mathematics) offerings and achievements. TU Dresden is a member of this network.

Using an online conference tool, up to 50 participants can link directly with the laboratories to experience the research atmosphere virtually live and ask their questions. Organized by the TU Dresden school contact office, the content is recorded by scientists from the [Center for Advancing Electronics Dresden \(cfaed\)](#), whose contributions focus on the visions, phenomena, and challenges of organic electronics and impressively showcase the fruitful and diverse environment that Dresden offers high school students.

Ground-breaking ceremony for new office and laboratory building at TUD

The TU Dresden has started construction work for a new office and laboratory building on Stadgutstraße, close to the campus. For the first time, the university is also taking over the construction management under its own direction. By August next year, 1,200 square meters of office and lab space will be built. The [Chair for Molecular Functional Materials](#), which is integrated in the [Center for Advancing Electronics Dresden \(cfaed\)](#), as well as the Cluster of Excellence Complexity and Topology in Quantum Matter ([ct.qmat](#)) will move in.

"The project is an important step for the further development of our university. Prof. Feng's research group on Molecular Functional Materials and Prof. Ruck's group from the Cluster of Excellence [ct.qmat](#) will find optimal conditions for their excellent work here," explains the Rector of TUD, Prof. Ursula M. Staudinger. "The fact that they are moving into a new home together also offers opportunities for even stronger interdisciplinary cooperation in the future," she adds. [↗ More](#)

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Fig. 2: DRESDEN-concept passing of the baton from Prof. Hans Müller-Steinhagen to Prof. Ursula M. Staudinger

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Fig. 3: Ultra-low temperatures © pixelwg, Jörg Bandmann

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