

EXCELLENCE NEWSLETTER

NOVEMBER 5, 2020

TUD 2028 – SYNERGY AND BEYOND

- Proofreading service for doctoral students
- TU Dresden and HZDR establish joint Postdoc Center
- transCampus promotes 14 binational research projects
- FOSTER: New funding opportunity for student research

EXCELLENCE & RESEARCH CLUSTERS

- 2:32 minutes ct.qmat: Atom for atom to new materials
- Over €4.5 million for the Master's Degree program in EMM Nano
- It's all about the right balance
- Come in and see for yourself! New photo decorates the CRTD main entrance
- Organic and Molecular Electronics: Welcome event for new students
- cfaed wall calendar 2021 with science themes

Dear Readers,

One year ago, on November 1, 2019, funding began for our University of Excellence as part of the Excellence Strategy of the Federal Government and the Länder.

Even though this year turned out to be different from what had been planned due to the COVID-19 pandemic, some measures from the [Excellence Proposal TUD 2028 - Synergy and beyond](#) could be initiated, and in many areas a great deal of progress was made. For example, the FOSTER program - Funds for Student Research - was launched. As part of the TALENT field of action, this measure in research-oriented teaching specifically promotes the next generation of researchers via student projects. It is a suitable funding instrument to make student research initiatives and findings visible while at the same time raising the profile of TU Dresden.

We are pleased to inform you once again about FOSTER and many other news stories from our university. Enjoy! And stay healthy!

Do you have questions, requests or suggestions? Do not hesitate to contact us. You can reach the editorial team of the Excellence Newsletter by email at exzellenz@tu-dresden.de. You are also welcome to recommend the Newsletter to others. It can be [subscribed to in just a few clicks](#).

TUD 2028 – SYNERGY AND BEYOND

Proofreading service for doctoral students

The Graduate Academy (GA) offers its members a wide range of [financing and funding opportunities](#) for doctoral and postdoctoral phases within and outside the university. These also include the possibility to apply for grants for proofreading services for scientific publications related to their dissertation. This is also valid up to December 31, 2020 for chapters from the thesis. ↗ [More](#)

TU Dresden and HZDR establish joint Postdoc Center

In the postdoc phase, researchers are faced with the challenge of developing their scientific profile and identifying a suitable career path for themselves either within or outside of academia. To be able to offer postdocs tailor-made support in this crucial career phase, the Graduate Academy (GA) and the Helmholtz Center Dresden-Rossendorf (HZDR) use the synergy effects and have set up a joint Postdoc Center.

This center aims to provide even better support for postdocs in their decision-making and the subsequent planning and implementation of further steps in their career. For this purpose, new programs were designed and matched to the target group along with the different career paths – academia, business, and science management. The team of the GA has been expanded with two new colleagues from the HZDR. [↗ More](#)

transCampus promotes 14 binational research projects

At the [transCampus](#), existing research partnerships will be further developed and new connections will be made. That is why TU Dresden and King's College London have set up two funding programs to achieve what are now 14 binational projects through the end of 2021.

The selected projects reflect the diversity and strengths that have developed at the [transCampus](#) in recent years: the firm anchoring in the life sciences, on the one hand, and a wide range of research topics extending to all areas of TU Dresden, on the other. The number of interdisciplinary partnership projects is increasing: In one project, for example, industrial psychologists at TU Dresden are working with the Business School of King's College London to examine the consequences of the COVID-19 pandemic and the lockdown for the self-employed and entrepreneurs. In another project, psychologists and neuroscientists at King's College London are collaborating with the faculties of economics at TU Dresden on a study concerning resilience and well-being.

The research award conferred by King's College London funds four research projects with £25,000 each. The goal is to improve therapeutic measures for stem cell transplants, imaging techniques for longer MRI studies, the deciphering of design principles for future CISS-based spintronic components, and the reprogramming of cells for improved healing in the brain.

The ten projects in the TUD funding program are supported by the University of Excellence with a total of around €124,000. A pleasing aspect is that six of these projects are led by the next generation of female scientists and that the [transCampus](#) is therefore making a valuable contribution to the promotion of women's scientific careers at TU Dresden.

[↗ More](#)

FOSTER: New funding opportunity for student research

The Funds for Student Research (FOSTER) has existed since August 2020. It is financed with funds from the Excellence Strategy and is coordinated at the Center for Interdisciplinary Learning and Teaching (ZiLL). Students and faculty can apply for funding to support research-oriented learning and teaching.



The following initiatives, for example, can be funded:

- Student participation in research competitions or international conferences
- Orientation of student research activities
- Exhibition of student research
- Publication of student research results
- Development and execution of research-based teaching-learning formats (modules, summer schools, tutorials, teaching-learning projects, etc.)

FOSTER aims to create incentives for student research, to strengthen interdisciplinarity, and to help the next generation of academics become familiar with research culture.

It is possible to apply for funding of up to €5,000 right now at the ZiLL; targeted calls for projects and extensive project tenders will follow shortly. The contact person is [Dr. Franziska Schulze-Stocker](#). [↗ More](#)

EXCELLENCE & RESEARCH CLUSTERS

2:32 minutes ct.qmat: Atom for atom to new materials

Researchers from the Dresden-Würzburg Cluster of Excellence **Complexity and Topology in Quantum Matter (ct.qmat)** are penetrating into the properties of new quantum materials that exhibit surprising phenomena under extreme conditions such as ultra-low temperatures, high pressure, or strong magnetic fields. If it is possible to make these properties usable under everyday conditions, quantum materials could facilitate electronic components that drastically reduce energy consumption, significantly increase storage capacity, and permit functions never conceived of before.



In 2019, Junior Professor **Anna Isaeva** and her team succeeded in producing a revolutionary quantum material. In a new **YouTube video**, she reports on the detective approach that she and Dr. Alexander Zeugner took in searching for the synthesis conditions of manganese-bismuth telluride – and on the exciting possibilities it holds for the future. The crystal designed atom by atom is a magnetic topological insulator: Without losses, this material conducts electricity on its surface while it insulates inside. No strong external magnetic field is required. MnBi_2Te_4 brings its own magnetic field.

Over €4.5 million for the Master's Degree program in EMM Nano

The Erasmus Mundus Master's Program in Nanoscience and Nanotechnology (EMM Nano) finances scholarships for non-EU students so they can study for a Master's Degree in Nanoscience and Nanotechnology in Europe. The students spend their first year at KU Leuven (Belgium) and learn the fundamentals of Nanoscience and Nanotechnology. In the second year, the students transfer to one of the four partner universities, for example, to TU Dresden, in order to narrow down their specialization and complete the research project for their Master's Thesis. The new round of funding allows universities to accept students through 2026. [More](#)

The Biotechnology Center (BIOTEC), with its Master's Degree program in **Molecular Bioengineering**, was the first institute at TU Dresden to participate in EMM Nano. Since 2007 it has offered a specialization in Biophysics within the newly created Master's Degree program in **Nanobiophysics**. The Nanobiophysics degree program is now being offered by a central scientific institution, the **Center for Molecular and Cellular Bioengineering (CMCB)**, which consists of the scientifically independent institutes **B CUBE**, **BIOTEC**, and **CRTD**.

In 2016, the Faculty of Electrical and Computer Engineering started to offer Nanoelectronics as part of the Master's Degree program in **Nanoelectronic Systems**; in 2018, the Faculty of Physics began a specialization in Organic and Molecular Electronics as part of the Master's Degree program in **Organic and Molecular Electronics**. [More](#)

It's all about the right balance

Vital functions of the multicellular organisms, such as growth, development, and tissue regeneration, depend on the precisely controlled division of cells. A failure in the underlying control mechanisms can lead to cancer. A team of researchers led by **Dr. Sonja Lorenz** from the Rudolf Virchow Center for Integrative and Translational Bioimaging at the University of Würzburg and by **Dr. Jörg Mansfeld** from the **Biotechnology Center (BIOTEC)** discovered a new mechanism that modulates cell division. These results have been published in the latest issue of *Science Signaling*. [More](#)

Come in and see for yourself! New photo decorates the CRTD main entrance

The picture is one of many submitted for the 2020 photo contest by the **Center for Regenerative Therapies TU Dresden (CRTD)**. The prize? Having your picture featured as the new decoration of the main entrance of the building. Not surprisingly, the CRTD employees submitted a lot of outstanding pictures, making the competition fierce, and complicating the decision for the contest committee.

Felix Wagner, doctoral student in the MOKALAB, submitted the winning picture with a catchy caption: Come in and see for yourself! The picture shows human photoreceptor neurons. These cells are part of our eyes and enable us to see. There are two photoreceptor types. Rods help us to see in dim light, while cones enable us to see in colour and at high resolution. Felix Wagner used a technique called immunostaining to label the photoreceptors with colours. All photoreceptor cells are blue and on top of that, the cones are specifically shown in green.



Although being human photoreceptors, the ones in the picture have actually never been inside a human eye. They are a part of a 350 day old retinal organoid that Felix Wagner has grown from human induced pluripotent stem cells in the laboratory of Prof. Mike O. Karl (MOKALAB) at CRTD. Such organoids closely resemble the actual structures in the human retina. Felix Wagner and other researchers at the CRTD use them as a model system to study neuronal degeneration and regeneration of the human retina. [↗ More](#)

Organic and Molecular Electronics: Welcome event for new students

Every year, the Dean of Studies Prof. Karl Leo, the scientific advisor Dr. Fabian Paulus, and the student coordinator Debducta Chakraborty welcome new students of the Master's Degree program **Organic and Molecular Electronics (OME)**. This event marks the start of the new season and normally is the first date for the freshman to get in contact with the fellow students. Although this year is not quite a normal year, this event will take place, but of course only online on November 6. The objective here is to briefly introduce the course of studies and important points of contact. "Older" OME students are also invited to get to know the new students.

The interdisciplinary study program OME is designed to provide students with professional skills needed to advance a successful international career in the cutting-edge field of organic electronics. The Master's Degree program in OME offers state-of-the-art study conditions and excellent mentoring. The program is organized by **Dresden Integrated Center for Applied Physics and Photonic Materials (IAPP)** and **Center for Advancing Electronics Dresden (cfaed)**.

[↗ More](#)

cfaed wall calendar 2021 with science themes

The last issue of this newsletter reported about the winners in the latest round of the Scientific Image Contest by the **Center for Advancing Electronics Dresden (cfaed)**. Now, an attractive wall calendar in

A2 format has been created from the award-winning science themes and many other current ones. The icing on the cake: On the front is the calendar for 2021 – but once the year has come to an end, the calendar does not have to land in the wastepaper basket. The back also acts as a poster and shows a visual cross-section of the diverse research work at cfaed.

The subscribers to this newsletter can receive the calendar exclusively free of charge (while stocks last).

[↗ More](#)

Publishing details

Responsible for Publishing: Konrad Kästner

Editor: Madeleine Kalisch

Team Communication Excellence Strategy TU Dresden

Postal address: TU Dresden / 01062 Dresden

Phone: +49 351 463-35327, exzellenz@tu-dresden.de

<https://tu-dresden.de/exzellenz>

[↗ Subscribe to/unsubscribe from Excellence Newsletter](#)

[↗ Excellence Newsletter Archive](#)

[↗ Data Protection Declaration](#)

Picture Credits

Fig. 1: Research in focus © TU Dresden

Fig. 2: Junior Professor Anna Isaeva © Tobias Ritz

Fig. 3: Felix Wagner in front of his photo at the CRTD main entrance © Magdalena Gonciarz

Sponsors

Funded by the Federal Ministry of Education and Research (BMBF) and the Free State of Saxony under the Excellence Strategy of the Federal Government and the Länder

SPONSORED BY THE

