

## EXCELLENCE NEWSLETTER

8<sup>th</sup> April 2020

## TUD 2028 – SYNERGY AND BEYOND

- \_ Using 3D printing to produce necessary parts for ventilators
- \_ New TUD Young Investigator
- \_ Team of Project Scouts complete
- \_ Eleonore Trefftz Programme announced
- \_ YOU PROF Meeting at the IOER

## EXCELLENCE &amp; RESEARCH CLUSTER

- \_ Blood stem cells have a memory and keep records
- \_ UniStem Day 2020 at the CRTD
- \_ Molecular vibrations reduce photovoltage of organic solar cells
- \_ 19<sup>th</sup> Dresden Microelectronics Academy at the cfaed

**Dear Readers,**

No other topic has occupied Dresden, Germany and the world in recent weeks and months as much as the novel coronavirus. It has also had and still has an unimaginable influence on our university and life together. For our Rector Prof. Hans Müller-Steinhagen it was the most difficult decision of his life to enact the [emergency operation at TU Dresden](#) on 21<sup>st</sup> March 2020 until today is in effect.

But even in such a crisis, it is extraordinary what can be achieved by cooperating. Read more about the fight of the DRESDEN-concept partners against the coronavirus by using the 3D printing process and about many other significant topics and research results.

The editorial team of the Excellence Newsletter can still be reached by email at [exzellenz@tu-dresden.de](mailto:exzellenz@tu-dresden.de). We look forward to your questions, wishes and comments. You are also welcome to recommend our Excellence Newsletter, which can be [subscribed to with just a few clicks](#).

Current information about the effects of COVID-19 (Coronavirus SARS-CoV-2) on teaching, research and administration at TU Dresden can be found on the following page: <https://tu-dresden.de/corona>.

Stay healthy!

## Using 3D printing to produce necessary parts for ventilators



An additive manufactured valve for ventilators from the 3D printer of the DRESDEN-concept partners.

Due to the worldwide spread of the coronavirus, supply chains are currently partly interrupted, leading to bottlenecks in production. In various European countries, 3D printing companies have set up platforms to produce **missing components** through additive manufacturing processes, **e.g. for ventilators**, in order to support medical technology companies.

Many DRESDEN-concept partners, such as the Fraunhofer Institute for Material and Beam Technology IWS, the Chair of Technical Design at TU Dresden, the Centre for Translational Bone, Joint and Soft Tissue Research at the Carl Gustav Carus Medical Faculty at TU Dresden and the Makerspace at SLUB, have heeded the call of the European Commission and have registered their 3D printers.

Each of the 15 existing 3D printers in the research institutes, which are on stand-by due to home office regulations, can produce about 15 parts per day, including respirators or face masks made of transparent foil, states DRESDEN-concept on its [homepage](#).

## New TUD Young Investigator

On 25<sup>th</sup> February 2020, the University Executive Board appointed Dr. Renhao Dong as TUD Young Investigator. Dr. Dong is associated with the **Faculty of Chemistry and Food Chemistry** as a **Young Research Group Leader**. For his project "Development of Functional Conjugated Two-Dimensional Metal-Organic Frameworks (C2DMOF)" he received the **ERC Starting Grant** of almost 1.5 million Euros over a period of five years.

The status of TUD Young Investigator strengthens the position of excellent, independent young research group leaders in Dresden as a science hub by integrating them more closely into the faculties and offering a range of qualifications specifically tailored to their needs.

## Team of Project Scouts complete

Four TUD Schools have a new contact person at the **Project Scouts**. As a **measure of the Excellence Initiative** of TU Dresden, they support the researchers in all **questions concerning the acquisition of funding**.

"We were able to recruit experienced funding professionals and motivated employees from the scientific community," enthuses Head of Unit Dr. Sacha Hanig.

"The tasks are diverse," reports Dr. Sebastian Schneider (School of Humanities and Social Sciences). "We provide support in all matters relating to third-party funding applications, e.g. with workshops on typical funding formats, advice on structuring ideas, preliminary examination of cooperation agreements or by organising **IDEENSTUDIOS** for better networking of researchers and discussion of current research topics and trends," adds Dr. Nicolle Seifert (School of Engineering Sciences). Dr. Christian Lange (School of Science) and Dr. Wolfgang Trümper (School of Civil and Environmental Engineering) complete the new team of Project Scouts.

## Eleonore Trefftz Programme announced

Thanks to the [Eleonore Trefftz Programme](#), Faculties and Central Academic Units will be able to recruit guest professors for TU Dresden again. The programme supports the **strategic recruitment of excellent international female researchers** in the faculties where appointments are planned in the medium term.

Female researchers with a sound international profile have the opportunity to be invited to TU Dresden for three to twelve months. Please send your [enquiries and applications](#) to [Kathrin Tittel](#) from the [Staff Unit Internationalisation](#) by 4<sup>th</sup> May 2020.

## YOU PROF Meeting at the IOER

On 5<sup>th</sup> March 2020, six newly appointed TU Dresden professors were guests at the [Leibniz Institute of Ecological Urban and Regional Development \(IOER\)](#). The meeting is part of the [YOU PROF - Young Professors Programme](#).



Prof. Dr. Marc Wolfram, Director of the IOER, informed the participants about the interdisciplinary work of the Institute. After that, Dr. Sacha Hanig, Head of the Unit Research Promotion of TUD, informed about possibilities to support in the application and initiation of third-party funded projects. The principal aim of the meeting was to network, exchange experiences and discuss relevant issues.

YOU PROF is aimed at **junior professors and holders of tenure track professorships** at TUD. It offers a comprehensive, target-oriented and individual guidance and support on the way to a lifetime professorship.

## Blood stem cells have a memory and keep records

A team of German and French researchers led by Prof. Michael Sieweke, from the [Center for Regenerative Therapies TU Dresden \(CRTD\)](#) and the [Center of Immunology of Marseille Luminy \(CNRS, INSERM, Aix-Marseille University\)](#), has uncovered a **surprising property of blood stem cells**: not only do they ensure the continuous renewal of blood cells and are part of our immune system, but they can also remember previous infectious encounters.

This "memory" enables the blood stem cells to provide a **fast and efficient immune response** to new infections. [These findings](#) are likely to provide new approaches to strengthen a weak immune system or slow down an overreacting one. They could have a significant impact on future vaccination strategies.

The study, which was conducted under the leadership of the [Center for Regenerative Therapies of TU Dresden \(CRTD\)](#) and the [Center of Immunology of the University of Marseille Luminy \(CNRS, INSERM, Aix-Marseille University\)](#), was published by the renowned scientific journal [Cell Stem Cell](#).

## UniStem Day 2020 at the CRTD

This year's "UniStem Day" took place on 6<sup>th</sup> March. About 70 students visited the [Center for Regenerative Therapies Dresden \(CRTD\)](#) of TU Dresden and enjoyed a deep dive into **various aspects of stem cell research**.

[A broadly diversified programme](#) was offered to the upcoming generation of researchers.



The UniStem Day combines top-level research at 101 universities and research institutes all over the world. Through lectures, debates, laboratory visits and games, students gain an insight into the methods of stem cell research and the scientific working methods.

### Molecular vibrations reduce photo-voltage of organic solar cells

Scientists at TU Dresden and Hasselt University in Belgium have been investigating the physical causes that limit the efficiency of novel solar cells based on organic molecular materials. Currently, the voltage of such cells is still too low - one reason for their still relatively low efficiencies.

In *their study*, in which they investigated the vibrations of the molecules in the thin films, the researchers were able to show that very fundamental quantum effects, so-called **zero point vibrations**, can **make a significant contribution to voltage losses**.

The study led by Dr. Frank Ortmann (Computational Nanoelectronics Group at the [Center for Advancing Electronics Dresden \(cfaed\)](#)) was published in the journal Nature Communications.

### 19<sup>th</sup> Dresden Microelectronics Academy at the cfaed

It is already a classic at the [Center for Advancing Electronics Dresden \(cfaed\)](#): The microelectronics summer school "Dresden Microelectronics Academy (DMA)" will - hopefully - also take place in 2020. Even though a reliable forecast for the future is not yet possible in view of the current crisis, the organisers at cfaed and the semiconductor industry are taking an optimistic approach and are pushing ahead with the planning for **14<sup>th</sup> to 18<sup>th</sup> September 2020**.

As always, places are limited, as the **exclusive insights** into production and processes at the industry giants Globalfoundries, X-FAB, Infineon or Bosch can only be gained with small groups. The aim of the cfaed Summer School is to introduce the participants with the **business of the local microelectronics industry (production) and the cfaed cluster (research)**, and thus also to establish contacts with potential PhD students or postdocs.

More information and registration at: <https://cfaed.tu-dresden.de/dma>

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