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**RESEARCH**
**Dresden Physicists are first to demonstrate elusive quantum effect**

In the July issue of the magazine „Nature“, an international team of scientists, including Dr. Tobias Meng from the Institute of Theoretical Physics of the TU Dresden, reports on the observation of a long sought-after quantum effect. Despite having been discussed since the 1970s, the effect of the name of "axial-gravitational quantum anomaly" has now been demonstrated for the first time. Thus far, it was believed that this effect could only be measured in extreme conditions, for instance in neutron stars. This precluded its observation in the past. In an experiment performed at the IBM Research Center Zurich, however, the scientists have now succeeded in establishing evidence for the axial-gravitational quantum anomaly in a metal composed of the chemical elements niobium and phosphor. Tobias Meng, who was recently selected for the prestigious Emmy Noether Programme by the German Research Foundation, played a vital role in interpreting the experimental data. ([Nature 547, 324 \(2017\)](#))

**Chemist Dr. Lars Borchardt amongst Top Ten "Innovators under 35" in Germany**

On 28 June, the German issue of MIT Technology Review awarded the top ten "Innovators under 35" in Berlin. Dr. Lars Borchardt, junior research group leader at the Department of Chemistry and Food Chemistry, is also amongst the award winners. Dr. Borchardt received the award for his development of an environmental friendly synthesis method for porous carbon materials that serve as electrodes in batteries and capacitors. In short – he creates high-tech out of rubbish. Together with his BMBF junior research group, he develops alternative synthesis concepts, which are entirely free of solvents. In so-called "mechanochemical reactions", the mainly solid raw materials (such as fruit seeds, lignin, plant or plastic waste) are used directly and the necessary energy for their chemical reaction is created through grinding, pressing or squeezing. Dr Borchardt uses ball mills for this procedure, in which grinding balls are accelerated and collide, thereby releasing so much energy into the raw materials that chemical reactions are initiated. This innovative synthesis method aims at the environmentally friendly development of efficient and cost-effective electrode materials for super capacitors and lithium-sulphur batteries.

**PROMOTION OF SCHOOL STUDENTS**
**Future chemistry experts: The children's laboratory counts its 2000st participant**

On 26 July, children's laboratory manager Dr. Uwe Schwarzenbolz distinguished Josefine Bohn as the 2000st child of the Department of Chemistry and Food Chemistry children's laboratory. Josefine is of the same age as the children's laboratory itself: ten years. In February 2007, the first round of the children's laboratory took place at the Department of Chemistry and Food Chemistry of TU Dresden. Since then, approximately 180 children per year have participated in the holiday courses. In small groups of 10 – 12 children, the eight to ten-year-olds learn about the fundamentals of chemistry. A few of the participants are now matriculated as "real" students. Just like Alexander Fischer. He was one of the first to participate in the children's laboratory in 2007 and is now studying in his 2<sup>nd</sup> semester to become a chemistry teacher. "In my memory, the children's laboratory is colourful and very illustrative. From today's perspective, the experiments we did were very simple, but they sparked my wish to study chemistry."



*The children's lab manager Dr. Uwe Schwarzenbolz distinguishes the 10-year-old elementary school student Josefine Bohn as the 2.000st participant of the children's lab. Picture: Kim-Astrid Magister*

## EVENTS

### **„Mathematics and Natural Sciences in Horizon 2020 – Current Calls 2018 to 2020“**

On **22 September 2017**, the European Project Center (EPC) invites to the event „Mathematics and Natural Sciences in Horizon 2020 – Current Calls 2018 to 2020“.

The event will focus at the latest calls 2018 to 2020 in the general programme Research and Innovation Horizon-2020.

Following the event, participants will have the opportunity to discuss their first ideas with members of the EPC individually.

The event takes place at Willers-Bau, C 207, from **9 am to 11 am**. The schedule of the programme reaches from the general conditions up to your individual project idea.

Please, send your binding **registration** including your name, institution and research interest via mail until **15 September** to [epc@tu-dresden.de](mailto:epc@tu-dresden.de). For more information, please contact Beate Brenner (Tel.: 0351 463 36092, E-Mail: [Beate.Brenner@tu-dresden.de](mailto:Beate.Brenner@tu-dresden.de)

## FUNDED PROJECTS

### **Second funding period for Chair of Behavioural Epidemiology**

In 2014, the Chair of Behavioural Epidemiology was established at TU Dresden to strengthen the health-related and epidemiologic research and teaching in universities. Initially the chair has been fully funded by the Federal Ministry of Education and research (BMBF) for 3 years. Following a positive interim evaluation, a second funding period for the project „The epidemiology of functional and dysfunctional behavioral and psychological factors in mental health and disease“ has been approved. It is therefore possible to continue and develop the epidemiological longitudinal study BeMIND (Behavior and Mind Health Study) which started in 2015. The study researches the development factors of psychological disorders in a representative sample of adolescents and young adults in Dresden. The chair belongs to the Institute of Clinical Psychology and Psychotherapy, Department of Psychology and is the only one of its kind in Germany.

### **Special allocation by SMWK for „Psychnet TUD“**

PD Dr. Susanne Knappe (Institute of Clinical Psychology and Psychotherapy) will receive 50.000 Euro research funding for personnel and material costs for the project: *“Psychnet TUD: Studierende und Beschäftigte informieren sich online über psychische Gesundheit und Prävention“* out of the specific allocation of the Saxon State Ministry for Science and the Arts (SMWK) for inclusion at universities. The project duration is 12 months. In accordance with the to date unique model [www.psychenet.de](http://www.psychenet.de) in the Hamburg region, an internet platform with evidence-based health information concerning psychological disorders, behavioural disorders as well as physical chronic diseases will be implemented. The aim is to link existing offers within the TUD healthcare management as well as external providers, to systematically process this information and to make it available to students and staff along with self-help-materials. Target-group specific recommendations will thus be made accessible. The programme aims at all students, academic and non-academic staff of Technische Universität Dresden and follows the motto: *“Together: fit-healthy-productive“* of the university’s healthcare management (UGM).

## TEACHING METHOD OF THE MONTH

### **Structure and visualization with the “course mind map”**

The contents of lectures are often highly complex, build on previous knowledge and are linked to subject-related courses. The so-called “course mind map” is similar to a table of contents or an outline: it contains text elements representing the contents of the respective course. Moreover, it structures these contents

spatially and links them to related contents from outside the course. By using the course mind map for your course, you can give students an overview of the subject. Later you can refer back to the map in order to relate the specific topics to the overall context and to enhance the structure more and more by additional knowledge. If you would like to learn more about this method, please check [here](#) for a detailed description. The Centre for Continuing Education is happy to assist you in your planning and implementation. Please feel free to contact us! ([Team Hochschuldidaktik](#))

## STUDENT OFFICE

### **New rooms for Student Office School of Science handed over**

On 1 September, Directorate 4 handed over the freshly renovated rooms in the A-wing (3rd floor) of Willers-Bau to the Head of the Student Office Peer Kittel. The moving in of the examination offices of the five departments is set gradually until mid-October. In addition, the International Office and the Public Relations of the School of Science will move into a new office in the A-wing as well. Until the planned relocation, the rooms will be furnished, a new guidance system will be installed and a big waiting room will be created in the foyer. Here, the future customers of the examination offices will be called in by a ticket system. All students will be informed via mail about the new situation of the service points before the beginning of the new semester.

**Publisher:** Prof. Clemens Kirschbaum, Dean of the Faculty of Mathematics and Natural Sciences, Chairman School of Science. Office hours: Wednesday, 9.30 a.m. - 10.30 a.m. For appointment: Tel. 0351 463 3 7512.  
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