PRESS RELEASE

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Nano Innovation Award 2018

Cell monitoring for cancer research & DNA construction kit in maxi format

The LMU Center for NanoScience (CeNS) and four spin-off companies jointly honor innovative theses from nanotechnology. Two Munich junior researchers receive the attractive Nano Innovation Award 2018.

On July 13, the Nano Innovation Award 2018 was presented at the Center for NanoScience (CeNS) of the Ludwig-Maximilians-Universität (LMU) Munich. Two young researchers from Munich received the award for promising results as part of their master's or doctoral thesis in application-oriented nanosciences. The Bavarian-wide prize is endowed with €9,000 and is awarded annually by a jury of experts from science and business.

The focus of nanosciences is still on basic research. But in many areas, nanoscientific research has been transferred to technical applications - with great economic potential. The Nano Innovation Award focuses specifically on innovative work by junior researchers with promising application potential in technology or medicine.

Cell monitoring for cancer research

An innovative and easy-to-use microscopy technique is the basis for the work of Konstantin Ditzel, who received the award for the best master's thesis with prize money of €3,000. The physicist from the team of Dr. Philipp Paulitschke at the LMU Chair of Soft Matter and Biophysics used lens-less microscopy technology to test the efficacy of anticancer drugs. Konstantin Ditzel has developed the experimental set-up and the evaluation of data in such a way that the influence of a drug on several cell vitality parameters can be determined simultaneously in a high-throughput, label-free manner. This allows continuous monitoring of the behavior of cells treated with drugs, and quick and reliable determination of the efficacy - for example in cancer or stem cell research.

DNA construction kit in the maxi format

The award for the best doctoral thesis endowed with €6,000 went to Dr. Klaus Wagenbauer from the group of Prof. Hendrik Dietz, Experimental Biophysics at the Faculty of Physics of the Technical University of Munich. Klaus Wagenbauer has developed a new approach to tailor-made, controlled and self-directed assembly of large, three-dimensional objects from the genetic material DNA. He used building principles from nature to realize artificial nanostructures, inserting nanometer small DNA objects into each other like Lego bricks. The shape of the building blocks themselves is stored in the sequences of fewer DNA molecules, whereby the shape of the individual building blocks in turn encodes the shape and size of the final object. For the first time, Klaus Wagenbauer succeeded in

forming defined objects the size of viruses or small cell organelles out of such tiny building blocks. This method might create the basis for promising new types of therapy and diagnosis of diseases.

An institution boosting careers

"The CeNS Nano Innovation Award has become an institution. Young researchers now regard it as visible proof of the quality of their work and an important award for their careers," says jury member Prof. Achim Wixforth from the University of Augsburg. "The number and quality of applications impressed me especially this year - which made the selection of the winners a difficult task." A total of 26 doctoral theses and 12 master theses were submitted from research institutions throughout Bavaria. From these, the jurors nominated five candidates for the final selection.

Both award winners are already actively involved in the transfer of their findings to business. Konstantin Ditzel will contribute his idea and his expertise to a start-up company that plans to develop and sell devices for cell culture monitoring with RFLM technology. Klaus Wagenbauer is co-founder of a start-up company from the Technical University of Munich, which offers services and materials for the construction of nano objects using DNA building blocks.

The LMU Center for NanoScience awarded the Nano Innovation Award together with four companies that are spin-offs from CeNS: attocube systems, ibidi, Nanion Technologies and NanoTemper Technologies. "CeNS with its outstanding scientists fosters nanoscience at the highest level - honoring them is our motivation to support the award," says Dr. Niels Fertig, CEO and founder of Nanion Technologies and member of the jury.

The Center for NanoScience (CeNS) is a scientific institution of LMU Munich, which promotes and coordinates interdisciplinary research in the field of nanosciences. CeNS spans various disciplines such as physics, chemistry, medicine and pharmacy. In addition to working groups from LMU, CeNS also cooperates with groups from the Technical University of Munich, the University of Augsburg, the Max Planck Institute for Biochemistry and other institutions in the Munich area.

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