

Tapping the Full Innovation Potential of Research

Four Projects of KIT Are Granted Funding by the ERC for the Commercialization of Basic Research Results

As many as four fundamental research ideas of KIT convinced the European Research Council (ERC). The leading researchers will now be granted nearly EUR 150,000 in addition to tap the full innovative potential of their results. The so-called “Proof of Concept Grants” serve to further develop application-relevant research results for the market. The four projects focus on the analysis of biological samples, data transmission, and the microstructuring of materials.

HYPHEN – Hybrid Photonic Engines for Massive Cloud Connectivity

Digital data traffic increases constantly, which causes bottlenecks at the large data centers, where the queries of millions of users meet. New technologies for optical wavelength-division multiplexing (WDM) in glass fibers might increase data speed at and between data centers by an order of magnitude, but they are still highly complex and, hence, not efficient from an economic point of view. The HYPHEN project headed by Christian Koos is aimed at developing a novel concept based on the integration of optical components on microchips and, hence, at designing compact emitter and receiver units for WDM. The concept is expected to result in great market potentials that are to be further developed under the project. Eventually, a spinoff company is to be established.

Press release on Prof. Koos' ERC Grant (2011):
http://www.kit.edu/kit/english/pi_2011_7455.php

LiVoX – Magic Angle Coil Spinning NMR on Living Voxels

By means of NMR methods, molecules can be analyzed in detail or detected in samples. Apart from fundamental research, they may be applied for the examination of food and medical substances or for the investigation of tissue samples in e.g. cancer therapy. The LiVoX project headed by Jan Korvink will scale up the production process of

Monika Landgraf Chief Press Officer

Kaiserstraße 12
76131 Karlsruhe, Germany
Phone: +49 721 608-47414
Fax: +49 721 608-43658
E-mail: presse@kit.edu

For further information, please contact:

Margarete Lehné
Press Officer
Phone: +49 721 608-48121
Fax: +49 721 608-43658
E-mail: margarete.lehne@kit.edu

chip-based NMR sensors that have been used as prototypes in laboratories so far for industrial series production. In cooperation with the spinoff Voxalytic GmbH, the production steps will be checked for scalability and quality controls will be defined.

Further information on Prof. Korvink's research: <https://simulation.uni-freiburg.de/>

PreScreenArrays – Peptide Arrays as Pre-screening Tool

Peptides are important reaction partners in biological processes, but may also be modified for use in engineering. The organic molecules consist of very long chains of various amino acids, whose precise sequence determines the properties of the peptide. To find the right peptide among the infinite number of combinations, the PreScreenArray project headed by Alexander Nesterov-Müller is aimed at further developing a parallel high-throughput screening method. Embedded in microscopic particles, the molecular peptide building blocks are transferred to discrete points on a surface, such that up to 25 million points will be located on one square centimeter. Combinatorial synthesis can be carried out in a highly dense format and the peptides to be synthesized can be tested for their properties more rapidly.

Press release on Prof. Nesterov-Müller's ERC Grant (2011):
http://www.kit.edu/kit/english/pi_2011_7455.php

CellScreenChip – All-in-one Cell Screening Chip

Under the heading of personalized medicine, therapies are to be tailored to the individual patient to find e.g. the combination of drugs with the best effect and the least side effects for cancer patients. For this purpose, many cell cultures have to be treated with various substances in parallel. The CellScreenChip project headed by Pavel Levkin focuses on the miniaturization of the "dishes" for cell cultures by replacing them by single water droplets. The droplets are kept at a certain place and separated from each other by highly water-attracting or water-repellent surfaces.

Press release on Dr. Levkin's ERC Grant (2013):
http://www.kit.edu/kit/english/pi_2013_13560.php

Karlsruhe Institute of Technology (KIT) is a public corporation pursuing the tasks of a Baden-Wuerttemberg state university and of a national research center of the Helmholtz Association. The KIT mission combines the three core tasks of research, higher education, and innovation. With about 9,400 employees and 24,500 students, KIT is one of the big institutions of research and higher education in natural sciences and engineering in Europe.

Since 2010, the KIT has been certified as a family-friendly university.

This press release is available on the internet at www.kit.edu.