

Talented Postdocs wanted!

Meet First Class Scientists for First Class Funding

What is the project karema about?

The basic idea of the project karema is to support a Principal Investigator-Postdoc matching by bringing together top-class researchers from Kaiserslautern and highly qualified international young researchers (Postdocs).

The key step towards creating your postdoctoral research project within karema consists of a short on-site stay in Kaiserslautern (the “karema Days”). During the karema Days, you will meet with a first-rate researchers in a match-making workshop, have an individual research counseling with him/her in order to advance your research project that will hopefully bring you back to Kaiserslautern.

Your benefits:

- Boost your research career
- postdoctoral research in the internationally renowned research centers of Kaiserslautern
- Individual counseling by top-class scientists
- Exclusive scientific exchange and international networking at an outstanding research center

International Postdocs may apply for the karema Days that will take place

from 2nd to 10th December 2017 in Kaiserslautern

Application Deadline: 31st July 2017

[Click here to get to the Application Portal](#)

Within karema, you can apply for one of the following three research fields, in which renowned scientists of Kaiserslautern are doing research:

- Mathematical Modelling in the Engineering Sciences
- Membrane Biology and Systems Biology
- Optics and Material Sciences

For more detailed information please have a closer look at the portraits of the scientists engaged in karema (“Individual Research Counselors”, IRCs). Please note: Due to the targeted research matching of karema, you should specifically tailor your research idea to the expertise of karema’s scientists.

>> Click on the name of the scientist for a more detailed portrait (PDF).

Mathematical Modelling in the Engineering Sciences and its scientists

Within this field of research, top-class scientists engage in the crosslinking between modeling, simulation and engineering. The research topic consists of three overlapping foci:

Mathematics

Mathematics and computer science represent a technology that is essential to engineers and natural scientists. Progress in relevant fields is therefore often dependent from computational mathematical modeling. Due to its focus on mathematical applications in engineering, Kaiserslautern attains a unique position.

- [Prof. Dr. Tobias Damm and Dr. Jan Hauth](#) (Systems Control, Technomathematik / System Analysis, Prognosis and Control)
- [Prof. Dr. Hans Hagen](#) (Computer Graphics & HCI)
- [Prof. Dr. Axel Klar](#) (Industrial Mathematics)
- [Prof. Dr. Ralf Korn](#) (Financial Mathematics)
- [Prof. Dr. Klaus Ritter](#) (Computational Stochastics)
- [Prof. Dr. Bernd Simeon](#) (Differential-algebraic systems and numerical analysis)
- [Prof. Dr. Gabriele Steidl](#) (Mathematical Image Processing)

Transfer

This focus researches via modeling and simulation solutions for problems in the following fields: transport processes, fluid dynamic and structure elastic processes, planning and decisions problems (e.g. logistics, engineering sciences, life sciences).

- [Dr. Walter Arne](#) (Flexible structure)
- [Prof. Dr. Oleg Iliev](#) (Hydrodynamics)
- [Prof. Dr. Karl-Heinz Küfer](#) (Optimization)
- [Dr. Jörg Kuhnert](#) (Meshfree Numerical Simulation)
- [Dr. Konrad Steiner](#) (Flow and Material Simulation)

Engineering/Application

This research focus examines trendsetting materials classes and technologies, in which highly dynamical scientific and technical developments take currently place. An important feature of the research is the intensive crosslinking between experiment, modelling and simulation to ensure a reliable and efficient operation of facilities and systems.

- [Prof. Dr.-Ing. Jan C. Aurich](#) (Manufacturing Technology and Production Systems)
- [Prof. Dr.-Ing. Tilmann Beck](#) (Mechanical and Process Engineering)
- [Prof. Dr.-Ing. Ulf Paul Breuer](#) (Material Science)
- [Prof. Dr.-Ing. Hans Hasse](#) (Engineering Thermodynamics)
- [Prof. Dr.-Ing. Eberhard Kerscher](#) (Materials Testing)
- [Prof. Dr.-Ing. habil. Ralf Müller](#) (Applied Mechanics)
- [Prof. Dr.-Ing. Norbert Wehn](#) (Microelectronic Systems Design)

Membrane Biology and Systems Biology and its scientists

Within this research topic, top-class scientists engage in the understanding of dynamic processes that happen within, at, or via biological membranes. Therefore, they use systems biology approaches to analyze the adaptation of protein- or lipid-compositions of membranes to changes in environmental conditions, fungal secretomes, or the exchange between intra- and extracellular compartments.

Experimental methods are high-throughput technologies such as Mass Spectrometry, Next Generation Sequencing, Spectroscopy and imaging techniques. With regard to mathematics/informatics, algorithms are developed in order to handle and analyze the generated large data sets and mathematical models, involving several types of ordinary and partial differential equations, are set up in order to reveal the underlying biological mechanisms.

- [Prof. Dr. Matthias Hahn](#) (Plant Pathology)
- [Jun. Prof. Dr. Timo Mühlhaus](#) (Computational Systems Biology)
- [Prof. Dr. Michael Schroda](#) (Molecular Biotechnology; Systems Biology)
- [Prof. Dr. Christina Surulescu](#) (Mathematics with Applications to Life Sciences (shortly Biomathematics))

Optics and Material Sciences and its scientists

Within this research field, top-class scientists engage in research about the interactions of light, spin (magnetism), and diverse forms of matter. The cutting edge research topics are studied across the borders of the traditional disciplines of sciences and engineering introducing new connections between the fields. For advancing the research topics, the scientists contribute their expertise in quantum optics, applied optics, magnetism, surface physics, molecular and material sciences and benefit from the exchange of ideas. The scientists engaged in karema in this field are from experimental and theoretical physics, as well as physical chemistry. Their manifold projects range from basic research, e.g. Bose Einstein condensates all the way to technology-oriented research, like the development of novel data carriers.

- [Prof. Dr. Martin Aeschlimann](#) (Ultrafast Phenomena at Surfaces)
- [Jun.-Prof. Dr. habil. Andrii Chumak](#) (Magnetism)
- [Prof. Dr. Michael Fleischhauer](#) (Theoretical Quantum Optics)
- [Prof. Dr. Burkard Hillebrands](#) (Magnetism)
- [Prof. Dr. Dr. Gereon Niedner-Schatteburg](#) (Cluster Chemistry / Physical Chemistry)
- [Prof. Dr. Herwig Ott](#) (Ultracold quantum gases and quantum atom optics)
- [Prof. Dr. Bärbel Rethfeld](#) (Ultrafast Dynamics of laser-excited Solids)
- [Prof. Dr. Volker Schünemann](#) (Biophysics and Medical Physics)
- [Prof. Dr. Georg von Freymann](#) (Optical Technologies and Photonics)
- [Prof. Dr. Artur Widera](#) (Individual Quantum Systems)

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