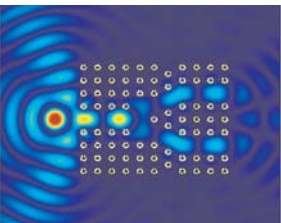


Profile: The Karlsruhe School of Optics & Photonics (KSOP)



Optics and photonics are driven by fascinating scientific challenges, unexpected breakthroughs, and by a huge market of more than one hundred billion € annually. Moreover, as enabling technologies, optics and photonics drive other disciplines such as physics, chemistry, biology, as well as electrical and mechanical engineering. Unfortunately, Germany - like most other countries - has substantial shortcomings regarding education in this field. While the basics of optics are typically covered throughout all these disciplines during undergraduate education, modern aspects of optics and photonics are only subjects of specialized lectures in different university departments.

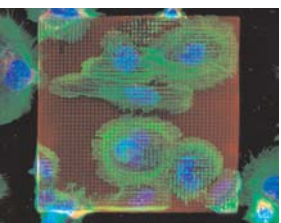
To overcome these limitations, the **Karlsruhe School of Optics & Photonics (KSOP)** offers a novel comprehensive Masters and a Ph.D. program at the Universität Karlsruhe (TH). Physicists, chemists, biologists and mechanical as well as electrical engineers from our university and partner institutions contribute in a multidisciplinary approach to the new program. It is supported by twelve professors and more than ten other principal investigators covering the four research areas of KSOP: **Photonic Materials & Devices, Advanced Spectroscopy, Biomedical Photonics and Optical Systems**. While the start of the Masters program is scheduled in fall 2007, a significant number of carefully selected young scientists are already pursuing their research projects in the Ph.D. program since the beginning of 2007.



Research area I:
Photonic Materials & Devices



Research area II:
Advanced Spectroscopy



Research area III:
Biomedical Photonics



Research area IV:
Optical Systems

The educational concept of the KSOP was a major success in the category "Graduate Schools" of the **German Excellence Initiative**. Together with the **Center for Functional Nanostructures (CFN)** as "Cluster of Excellence" and the **Karlsruhe Institute of Technology (KIT)** as promising "Strategy for the Future" the KSOP is one of the cornerstones of the initiative in Karlsruhe. The elements of this convincing approach not only provided significant funds but also the status of "**Elite-Universität**", one of currently only three in Germany. An interdisciplinary team of renowned scientists, led by Prof. Dr. Uli Lemmer, developed the ambitious concept of the KSOP. Accepted students will be embedded in an excellent research environment: In conjunction with the Forschungszentrum Karlsruhe (FZK), the Research Centre for Information Technologies in Karlsruhe (FZI) and the Stuttgart-based Centre for Solar Energy and Hydrogen Research (ZSW) the best regional forces in the field of optics and photonics are bundled.

The three-year Ph.D. program in optics and photonics comprises the research project of the young scientists leading to a Ph.D. thesis, compulsory modules, as well as optional lecture courses. The latter can be chosen from the Masters program in optics and photonics starting in fall 2007. A specific modular Ph.D. training program which includes units from a catalogue of **technical, scientific** as well as **management modules** is offered. Each technical module is a compact two-week hands-on course and directly related to KSOP research. Scientific excellence and technical achievements are always the prerequisite for an excellent Ph.D. thesis; successful careers in industry or academia, however, often require additional leadership and management skills and interdisciplinary knowledge. Therefore, emphasis is laid on management skills which will be taught as mandatory management modules within the HECTOR School of Engineering and Management, a recently founded branch of the International Department of the Universität Karlsruhe (TH). The International Department also provides other relevant infrastructure. Furthermore, a well-balanced **mentoring and quality management** system is implemented to ensure a smooth ride for the candidates towards their Ph.D.

As a graduate school, the KSOP aims at becoming one of the leading European research and education centers in optics and photonics. Because of the extensive interaction between scientists and engineers it will also contribute to novel success stories such as those written in the past for the laser and other unique technologies. For the graduate student it will provide in-depth and interdisciplinary knowledge, necessary for a successful academic or industrial career in the field of optics and photonics and associated technologies.