

## Optics & Photonics

Optics & Photonics are key technologies of the 21st century. They form the basis for today's optical communications, environmental sensing, biomedical diagnostics in the life sciences, energy efficient lighting and solar energy harvesting.

## Karlsruhe School of Optics & Photonics

The Karlsruhe School of Optics & Photonics (KSOP) is the excellence Graduate School of the Karlsruhe Institute of Technology (KIT). KSOP provides a multidisciplinary environment for first-class research and education as well as for the generation of knowledge and innovation in Optics & Photonics. Comprising both Master and Doctorate Programs, the educational concept is designed to qualify graduates for accelerated careers at world leading academic institutions and in high-technology industries.



In 2006, KSOP was founded as one of the first Graduate Schools of the Karlsruhe Institute of Technology (KIT) within the scope of the German „Excellence Initiative“. The excellence status of KSOP was renewed for another five years after a successful evaluation by international experts in 2012.

By now, over 400 Master and PhD students and alumni from 37 different countries are part of KSOP.

## PhD Program

The Karlsruhe School of Optics & Photonics offers a **3-year PhD program** in one of the research areas: Photonic Materials & Devices, Advanced Spectroscopy, Biomedical Photonics, Optical Systems, and Solar Energy.

KSOP provides PhD candidates with an optimal research environment at the Karlsruhe Institute of Technology (KIT) to carry out first rank PhD projects in the multidisciplinary field of Optics & Photonics. Integrated into the graduate school, doctoral researchers pursue their projects autonomously.



### Additional Benefits

Supervision	Modular Courses	Networking
Continous Support Personal Mentor Independent Advisors	Technical Scientific Management *Key Competencies *MBA Fundamentals Program <small>*optional</small>	Industry Partner Career Events International Conferences University Network Alumni Association

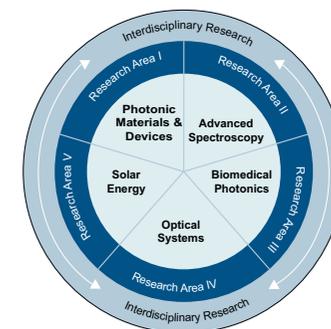
Since successful careers in industry or academia often require leadership and interdisciplinary knowledge, emphasis is laid on management skills, which are taught as mandatory **management modules** within KSOP. In addition, there are also elements as **technical, scientific and personal key competence modules**.

To support their endeavor, two independent **advisors and a mentor** accompany the research work of the doctoral researcher. All PhD positions are financed - either by KSOP scholarships or other sources.

In addition to that, KSOP fosters an active **network** amongst its members - active or alumni. A scientific exchange with international peers and leading scientists is facilitated through events and international conferences.

## Research Areas

There are five KSOP Research Areas (RA). Most institutes feature research projects comprising more than one area.



### Photonic Materials & Devices

Research in new materials-, synthesis-, and deposition technologies fosters new designs of photonic materials and devices, e.g., luminescent nanoparticles, organic films, or photoresists.

### Advanced Spectroscopy

Spectroscopy plays a crucial role in uncovering and characterizing novel quantum and nonlinear phenomena molecular photophysics or atmospheric chemistry.

### Biomedical Photonics

Biomedical photonic technologies are crucial for noninvasive clinical monitoring, molecular diagnostics, or imaging of physiological parameters in living cells, humans, and whole organisms.

### Optical Systems

Sensing and machine perception systems, laserbased manufacturing, and production monitoring are examples where optical materials and devices are integrated into real-world applications.

### Solar Energy

The conversion of solar radiation into electrical energy might one day cover the major part of the electricity supply. Light management by means of tailored plasmonic or dielectric structures can reduce costs of the future solar electricity.

## Voices of Alumni



Dr. Tolga Ergin

"Taking part in KSOP's PhD program turned out to be an excellent opportunity to look beyond the frontiers of one's own studies. KSOP offers a platform to get to know a variety of people from different disciplines and provides a broad program of training courses. These courses are particularly valuable, and it is my experience that people in the industry share this opinion."



Dr. Tobias Großmann

"KSOP has supported me from the beginning of my PhD, starting with a scholarship. In addition, my work benefited from contacts to scientists in the optics field which were mediated by KSOP and led to several fruitful collaborations with other institutes within KIT."



Dr. Ninette Stürzl

"The reason why I joined KSOP was that I hoped to broaden my horizon. In fact: During the PhD seminars and the management and technical modules, I gained insight into more applied approaches which I, as a scientist in basic research, would not have obtained so easily otherwise. In plus, KSOP made it possible for me to attend international conferences and also financed a visiting research fellowship at Peking University, allowing me to adopt a more global perspective."

More Voices can be found online or on Youtube.

## Key Data & Benefits

-  3-years Doctorate Program
-  Research Areas: Photonic Materials & Devices, Advanced Spectroscopy, Biomedical Photonics, Optical Systems, Solar Energy
-  Modular training in management, technical, scientific and key competencies
-  Scholarship program
-  Supervision & mentoring concept, national and international networking

Start: Individual | Language: English | Application: Any time  
Optional: MBA Fundamentals Program for Doctoral Researchers

## Contact & Application

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In 2015, KSOP will contribute to the International Year of Light, proclaimed by the United Nations.

# Looking for a bright future? Do research in Optics & Photonics

## INTERNATIONAL PHD PROGRAM

