

## Job Announcement: PhD student (m/f/d) Functionalization of optical waveguides

At the **Light Technology Institute (LTI)**, Dr. Nils Rosemann and Prof. Uli Lemmer are looking for a PhD student for the project: "*On-chip Supercontinuum Generation and Advanced Spectroscopy on Adamantane-Type Cluster Molecules*".

Nonlinear white light generation based on adamantane - type cluster compounds was first observed in 2016. Now we want to bring this white light generation to application. By combining waveguide structures and cluster compounds, we are developing a novel light source that can be used in lab-on-a-chip applications in the future.

For this project we are looking for a PhD student to design and fabricate waveguide structures at KIT and to functionalize them with the cluster interconnects. Furthermore, the functionalized waveguide structures shall be tested for white light generation and spectroscopic experiments shall be performed on the cluster compounds.

The project is part of the [DFG research group FOR 2824](#) and is thus interdisciplinary linked with working groups of theoretical physics, chemistry and theoretical chemistry at several universities.

### Your Tasks:

- Design, simulation and fabrication of waveguide structures
- Functionalization of the waveguide structures with cluster compounds
- Setup and execution of spectroscopic experiments
- Coordination and communication with project partners
- Preparation and presentation of research results in peer-reviewed journals and at international conferences and meetings

### Your Profile:

- Master's degree in the field of physics, electrical engineering, materials science, or a comparable discipline
- Experience with finite element software (e.g. COMSOL or ANSYS Lumerical)
- Knowledge in the field of optical spectroscopy, the setup and handling of optical experiments
- Very good knowledge of English, both written and spoken
- Enjoyment in planning, setting up and operating optical experiments, as well as in evaluating and assessing measurement data
- Knowledge of programming languages (e.g. LabVIEW, Python, Matlab) is an advantage, in any case you should be willing to learn a new programming language
- Willingness to work in an interdisciplinary way and to learn new topics

### We Offer:

- Very good doctoral supervision in a small, growing team
- Remuneration according to TVöD E 13
- An interdisciplinary PhD with aspects of materials science, spectroscopy, physics and chemistry

Are you interested or do you have any questions? Then contact Nils Rosemann as soon as possible at +49 721 608 26839 or [Nils.Rosemann@kit.edu](mailto:Nils.Rosemann@kit.edu).