

Open postdoc positions for Coherent multi-dimensional spectroscopy of nanosctructured quantum systems and exciton dynamics within (supra)molecular systems

Devices built from molecular aggregates become an important key technology due to their highly tunable opto-electronic properties and cost-efficient production. The range of applications is further extended by coupling these molecular systems, or even single quantum emitters, to nanostructured surfaces and optical antennas. Since the device functionality is based on the light-induced dynamics it is mandatory to disentangle the interaction among the building blocks and their connection to the environment. We use the method of coherent multi-dimensional spectroscopy to reveal the system's dynamic on femtosecond timescale and employ various microscopy techniques to image it with nanometer spatial resolution.

Job description

The main task is the design and conduction of ultrafast and nonlinear spectroscopic experiments, which include the handling of optics, amplified laser systems, and, in the case of nanometer spatial resolution, a photoemission electron microscope. While specific modeling tasks, e.g., performing quantum dynamical simulations or tailoring optical near-fields, can be accomplished in our group, sample fabrication and in-depth theoretical investigations are embedded in a large network of local and (inter)national cooperation partners. The co-supervision of students and communicating results to the scientific community through publications and presentations is obligatory.

Desired skills and experience

- PhD in Physics/Chemistry or in fields which are related to optics and spectroscopy
- Hands-on experience in ultrafast laser technology and spectroscopy (molecular or plasmonic systems)
- In-depth understanding of light-matter interaction and, ideally, of nonlinear optical spectroscopy
- Computer-based data acquisition and experimental measurement automation (LabView and Matlab)
- Excellent communication skills in English (in writing and speaking)

Place of work

The University of Würzburg is, with a 600-year history and ~30,000 students, the biggest employer in the city (~130,000 inhabitants) and home to numerous Nobel laureates. According to the 2018 Funding Ranking published by the German Research Foundation (DFG), our institute ranks #2 in Germany. In connection with extended collaborative scientific networks, this makes Würzburg an ideal place for a young scientist to launch a career. Würzburg itself is located on the river Main in northern Bavaria, a famous wine growing region in Germany.

Contact information and applications

The position is available immediately. Interested applicants should send an e-mail to Prof. Tobias Brixner, including a CV, a degree certificate, a complete list of publications, a motivation letter describing future research plans and information about research activities, information about teaching experience, and contacts for two academic references.