

The research team on „Infrared Nano-Optics“ of Prof. Taubner at the Institute of Physics (IA) at RWTH Aachen University is currently searching for a

PhD Student or PostDoc (Topic: Experimental Physics / Nanotechnology)

My research group is generally focused on the development and application of new methods and concepts for high-resolution imaging and spectroscopy with infrared light. Among superlenses, optical antennas and metamaterials the method of scattering-type infrared near-field microscopy („s-SNOM“) is one of the group’s key topics. In s-SNOM, a sharp probing tip is illuminated with IR light and scanned over a sample. At the tip apex, strongly confined and enhanced near-fields occur which allow to perform IR spectroscopy at a spatial resolution of only a few 10 nm, far below the diffraction limit of light.

Within this new project we want to employ the IR s-SNOM for the first time as a tool for high-resolution microscopy and as a spectroscopic method for the investigation of 2-dimensional electron gases (2DEG) which occur at the buried interface between the two insulators SrTiO₃ (STO) and LaAlO₃ (LAO).

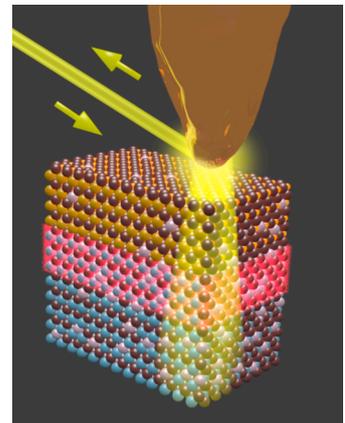


Illustration of the enhanced near-fields of a SNOM tip probing the buried 2DEG at the LAO /STO interface.

The work topics will include

- performing **s-SNOM measurements on 2DEGs** (prepared at FZ Jülich in various configurations)
- **Improvement of the spectroscopic s-SNOM** by implementation of new laser sources
- **Improvement of the theoretical models on s-SNOMs** for their application on **2DEGs**

The applicants shall:

- have a Master or PhD in Physics, Electrical Engineering or Material Science (Nanotechnology).
- be motivated, self-driven, skilled and have fun with experimental work.
- preferred: knowledge in scanning probe microscopy (SPM), condensed matter physics.

The position will be for a limited time and paid according to state laws. If you are interested, please send your application including the usual documents (CV, grades, letters of recommendation, etc.) to the contact information stated below.

Aachen, 15.9.2017

Prof. Dr. Thomas Taubner

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