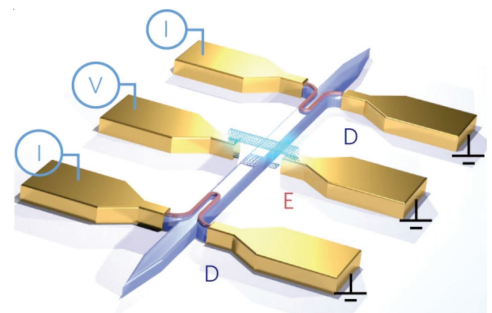
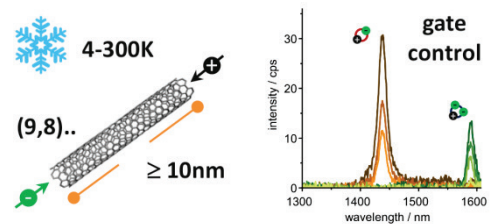


Master project – Light-emission from carbon nanotubes

We offer a master thesis project on light-emitting carbon nanotubes in the laboratory of Prof. Krupke at the Karlsruhe Institute of Technology (KIT).

We are developing electrically-driven on-chip light sources based on carbon nanotube (CNT). The devices are of great interest to silicon photonics due to their emission in the technologically important telecom band, CMOS compatibility, scalability, speed, and switchability by gate voltage [1-4]. Most importantly, the CNT devices can be operated as single-photon sources and have therefore great potential in future quantum information processing [5]. The master thesis project will focus on the fabrication of advanced optoelectronic devices and the investigation of charge transport and light emission properties.



In the course of the project, you will learn to use state-of-the-art equipment and receive training in electron-beam lithography patterning, field-assisted nanotube deposition, as well as electrical and optical device characterization methods, and optionally light-field simulation methods.

If you are interested please apply with your CV and study transcript. Very good knowledge of English or German is required.



Contact

Prof. Dr. Ralph Krupke
ralph.krupke@kit.edu
<https://int.kit.edu/krupke-group>
Institute of Nanotechnology
Karlsruhe Institute of Technology

Literature

- [1] He, Nature Materials 2018
- [2] Gaulke, ACS Nano 2020
- [3] Khasminskaya, Adv. Mater. 2014
- [4] Pyatkov, Nat. Photon. 2016
- [5] Khasminskaya, Nat. Photon. 2016