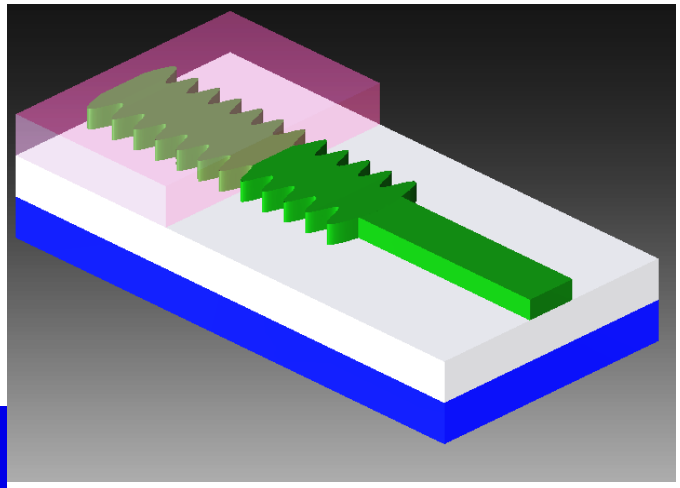
Master Thesis:
Waveguide-Based Distributed Feedback (DFB) Laser

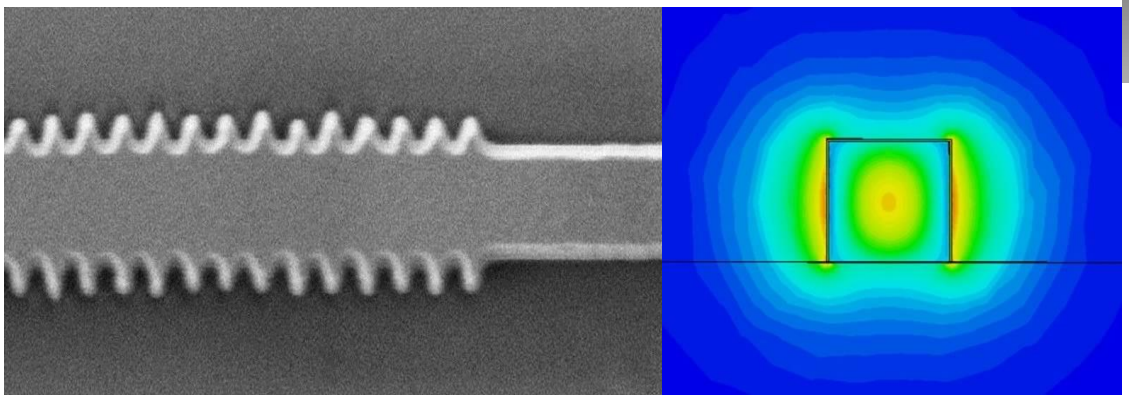
Karlsruhe Institute of Technology

Waveguide-based optical sensors show great potential for disposable point-of-care biosensors, which can be operated by portable equipment outside a lab environment. Coupling of light into the waveguides is a major challenge. Current concepts use fibers that have to be aligned to coupling structures with sub-micron accuracy. The on-chip DFB-lasers consist of a cavity formed by a nanophotonic waveguide that is covered by an optically-active cladding material. This work aims at realization of simple low-cost on-chip DFB lasers that can be pumped from above with a laser diode. With these integrated light sources, the needed alignment accuracy can be highly reduced.



Your task:

- Develop and simulate improvements of the current laser design
- Fabricate and characterize DFB-Laser cavities in cleanroom
- Find a sufficient composition of the optically-active cladding material
- Characterize the DFB-lasers in our optics lab



For detailed information contact:

Dipl. Phys. Daria Kohler
Daria.Kohler@kit.edu
Tel. 0721-608-23845

Prof. Dr. Christian Koos
Christian.Koos@kit.edu
Tel. 0721-608-42481