Our profile

AMO GmbH, a non-profit high-tech-SME with close to 40 employees, runs a 200 mm pilot line and specializes in R&D for micro/nano electronics and photonics. AMO operates 400 m² cleanroom equipped with an electron beam lithography and i-line projection lithography system for definition of nanostructures supported by a large selection of tools for thin film deposition, reactive ion etching and metrology. Currently the main research activities are focused on development of integrated laser sources for silicon photonics, optoelectronic devices based on 2D materials (graphene, transition metal dichalcogenides) and plasmonic bio sensors.

Master thesis topic

Development of integrated nanophotonic components for quantum technology

Supervised by

Univ.-Prof. Dr.-Ing. Max Christian Lemme,
Lehrstuhl für Elektronische Bauelemente,
Fakultät für Elektrotechnik und Informationstechnik

Overview

Quantum technology (QT) is based on the controlled manipulation and exploitation of quantum states and may lead to such paradigm changing devices like quantum computers. During the last years QT has reached a level of maturity which is widely considered to warrant a broad push towards application development. In this scope AMO is applying its rich microelectronics and nanophotonic experience towards the fabrication of integrated nanophotonic chips for quantum technology. **Your task will be to realize parts of such a nanophotonic chip**, manufactured via a highly scalable process technology based on CMOS compatible processes.

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Your profile:

- Master student of electrical engineering, physics, material science or similar
- Strong interest in nanotechnology fabrication in our clean room and experimental work
- Background in microelectronic fabrication or/and optics is a plus

Your tasks:

- Development of efficient broadband couplers to nanophotonic chips: evaluate different structures and fabrication processes using lithography, etching and thin film deposition
- Fabrication and optical characterization of nanophotonic filter chips