# Master Thesis

# Simulation, design and experimental demonstration of novel stabilization concepts for sensing applications

Frequency and phase stabilization of lasers is important for many applications ranging from precise sensing to novel concepts such as ultra-broadband photonic-electronic waveform generation. The goal of this thesis is to investigate a novel stabilization concept which is based on digital control loops to compensate for circuit and device-related non-idealities and allow for phase and frequency stabilization of the optical carriers using integrated optical frequency shifters.

### Your tasks:

- Theoretical estimations of system performance and limitations
- Design and simulation of control circuits required for frequency stabilization
- Experimental demonstration of novel sensing application

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In this collaborative project of Prof. Koos' research group and ZEISS you will be supervised by a KIT PhD candidate as well as ZEISS researchers. This allows you combining state-of-the-art research with an industrial perspective.





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