

Bachelor / Master Thesis:

Solid-state light detection and ranging (LiDAR) System - Development of an optical phased array (OPA)

To realize compact and robust LiDAR systems, beam shaping and beam steering with a silicon based photonic integrated circuit (PIC) is under investigation. The application for such LiDAR systems range from “Internet of Things” (IOT) to “Industry 4.0” and self-driving vehicles. All require a fast and reliable ranging system that delivers a three-dimensional image of the environment. We will investigate novel concepts to realize an optical phased array based on silicon-on-insulator nano-photonic devices.

The work will include simulation, characterization and calibration of LiDAR chips.

Your tasks:

- Characterization of test structures of first PIC designs
- Implementation of calibration algorithms for OPAs
- Experimental characterization of OPAs

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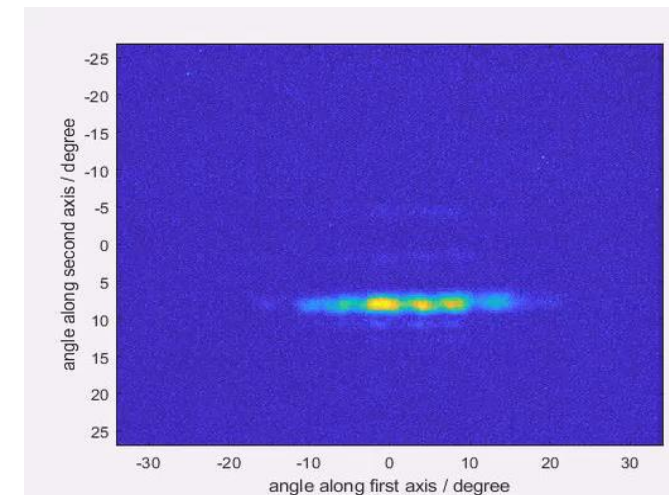
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LiDAR technology enables autonomous cars and recognition of the environment. Source: OSRAM



Measured angular farfield radiation pattern of first OPA designs.