
PhD position

Miniaturized electro-optically tunable lasers for distance measurement

The University research group Optical Systems at the Department of Microsystems Engineering (IMTEK) of the University of Freiburg works on different aspects of optical frequency conversion, using state-of-the-art methods and techniques. We develop novel sources for laser light providing unequalled wavelength flexibility and integration density. Our research spans from the investigation of fundamental aspects to applications. Various research projects are conducted in close collaboration with the Fraunhofer Institute for Physical Measurement Techniques IPM.

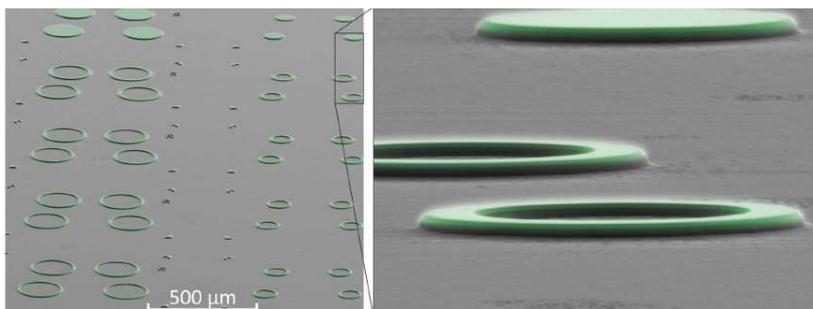
Due to the sensor requirements for autonomous driving, a LiDAR boom has set in. Here LiDAR is the acronym for “Light detection and ranging”, i.e. laser radar. It turns out that here precise and fast modulation of the laser frequency is the most suitable approach. However, realization of a suitable laser light source is challenging. The goal of the PhD project is to explore a new solution to address this demand. A chip-integrated laser shall be realized and investigated with unique capabilities to tune the emission frequency highly linear and fast, spanning a wide spectral range. To accomplish this, one can make full use of an integrated photonics platform based on lithium niobate crystals, that has been build up in the past years.

We are looking for a candidate with an above-average Master's degree in physics, photonics, microsystems technology or similar with interest in a challenging research topic and the ability to work independently in an interdisciplinary team. For this project good linguistic proficiencies in German are required.

We offer an exciting research topic, excellent equipment, and intense supervision embedded in an open-minded vivid team. Freiburg does not only offer a high quality of life but is also ideal for personal scientific development on a very high level with a corresponding reputation. For this project, the Fraunhofer Institute for Physical Measurement Techniques IPM will provide full access to its infrastructure and expertise.

The employment is based on a 75 % E13 position for three years.

Please send your applications including a statement letter, curriculum vitae and certificates to PD Dr. Ingo Breunig (ingo.breunig@imtek.de). He will also gladly answer questions regarding this announcement.



Chip-integrated photonic structures that might be used as part of the offered PhD project.