Master’s Thesis – Design, fabrication, and optical characterization of a polarization splitting thin-film coating for optical telecommunication applications

Description of work

You are:
- Student (div/f/m) enrolled in a M.Sc. program of electrical engineering, physics or comparable
- Motivated to work in our Cleanrooms

You are going to:
- Design a polarization splitting thin film coating
- Develop the process for the Layer stack and deposit the coating
- Perform optical characterization tests of the coating

We offer:
- flexible working times
- Participation in a Project with leading industry and research partners

Wall of Text:

Thin film coatings play an important role in the implementation of optical components. They are the core technology for anti-reflex coatings, wavelength selective filters, high performance reflectors, etc. The fabrication of these coatings are extremely challenging since they have to meet tight specs and are usually deposited on 3D shaped surfaces. Therefore, these coatings are usually fabricated in high grade clean rooms with state of the art thin film deposition equipment.

The Institute of Integrated Photonics (IPH) is offering a master’s thesis to a student who is interested in learning how to design, fabricate, and experimentally characterize polarization splitting thin film coatings for telecommunication applications.

You will work with state of the art design tools, microfabrication equipment including high value cluster deposition tools in our cleanroom, as well as optical characterization equipment in our dedicated optical communications laboratory.

Your task will include the design of a polarization splitting thin film layer stack, the development of the deposition process using test structures and the optimization of the same, and finally the application of the process for a real component together with the optical characterization of the latter to verify its functionality.

IPH is currently setting up a new prototype pilot line for photonic ICs and optical components in the newly established clean room facility of the Center for Digital Photonic Production (CDPP). In addition, part of the work will be conducted at the ZMNT cleanroom.

Interested candidates should please e-mail Florian Merget at fmerget@iph.rwth-aachen.de. Please include a grade transcript in your Mail, however we value motivation the most.

We are looking forward to hearing from you!
**We are: The Institute of Integrated Photonics (IPH)**

At the Institute of Integrated Photonics, we are doing research on semiconductor based optical components and their integration into complex photonic systems in semiconductor chips. In particular, we focus on those devices and systems that can be fabricated on silicon substrates with CMOS compatible technology – so called Silicon Photonics - that enable scalable and low cost fabrication of these components. These photonic integrated circuits (PICs) can be applied e.g. to optical communications, biosensing and other optical metrology / measurement systems.

We welcome you to work in a highly diverse and international team, where even the Professor will know your name.
To get some impressions visit: [http://www.iph.rwth-aachen.de](http://www.iph.rwth-aachen.de)