

Development of thermo-optic phase shifters for integrated photonics applications

Context:

The partners of the project, TEEM Photonics (an industrial SME manufacturing advanced photonic components) and IMEP-LAHC (a laboratory from Grenoble INP and University Grenoble Alpes with research activities covering large areas which allow carrying out multidisciplinary research in common with our partners in nanophysics, material chemistry, circuit designers or system manufacturers in electronics and optoelectronics) develop specifically integrated photonic devices on glass. The ion exchanged technology used by both partners yields cost-efficient components that are easily interfaced with optical fibers, while all the on-chip functions are currently passive ones. This project aims at demonstrating active phase and intensity control via thermo-optic modulation.

The goal of the project is twofold: a) to design the thermo-optic heaters, namely an optimized combination of electrodes and optical waveguides and b) to fabricate and characterize the thermo-optic modulators obtained on each partner's platforms.

In the frame of this project, the candidate is expected to:

- Model and optimize the thermo-optic modulators with the help of commercial and open-source software (multi-physics simulations).
- Contribute to the optical waveguide fabrication and to developing new processes for the electrode patterning in the partners' cleanrooms.
- Characterize the obtained thermo-optic modulators in both partners' labs.
- Document and report his/her progresses to the academic and industrial stakeholders.

Profile:

Masters or Engineer Degree in Physics, Optics, Microelectronics, Electrical Engineering... ideally completed by a PhD. Experience in microfabrication, optical simulations, integrated photonics design and testing, would be an asset.

Location:

Grenoble, France

Contract:

2-years fixed term (CDD), possibly followed by a permanent contract at Teem Photonics in case of technical success.

Position available from December 2021.

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