

## Lab project / internship M1 PPN-QuanTEEM (1,5 months : 15/05-30/06)

2022-2023

**Title of the project:** Characterization of a heterodyne interferometer for photonic integrated circuits metrology.

**Supervisor(s):** Aurélien Coillet, Benoit Cluzel

Laboratory / Department / Team : ICB / Photonics Department / Team PRISM

**Collaborations:** CEA Grenoble, MENLO System

### Summary:

We are looking for a motivated master student with a deep knowledge in the field of fiber optics, ultrafast laser and nonlinear propagation to work on a project with potential industrial outcomes.

The aim of this lab project is fully characterize an interferometer using heterodyne detection to measure the optical phase and amplitude transmission of photonic integrated devices. As an intern, you will have to:

- Characterize the interferometer on known devices: measure its sensitivity, signal-to-noise ratio, stability, ...
- Integrate a new pulsed laser source in this interferometer and evaluate its advantages,
- Process the data from the interferometer to extract sought-after parameters.

The internship is part of an ongoing technology transfer project, and will therefore be subject to confidentiality clauses.

Applications for this lab project must be sent to [aurelien.coillet@u-bourgogne.fr](mailto:aurelien.coillet@u-bourgogne.fr) and [benoit.cluzel@u-bourgogne.fr](mailto:benoit.cluzel@u-bourgogne.fr) with a full CV including undergraduate details, and a transcript of your academic records.

**Type of project (theory / experiment):** Experiment

**Required skills:** knowledge in wave propagation, fiber optics, ultrafast lasers, basic Matlab/Python scripting.