Project title	Cryogenic study of millimeter-wave/terahertz integrated chips

Your mission

We are looking for a motivated master student to join our research on photonic integrated circuits (PICs) for millimeter-wave and terahertz applications. Recent advancements have demonstrated the monolithic generation and detection of these signals through cavity-enhanced electro-optic interactions on a thin-film lithium niobate (TFLN) platform.

As part of this project, you will help characterize the performance of these integrated systems at cryogenic temperatures (4 K or below) using a cryostation or dilution refrigerator. The experiments involve high-end microwave and optical equipments, making this position ideal for candidates with hands-on experience in experimental physics, photonics, or microwave engineering.

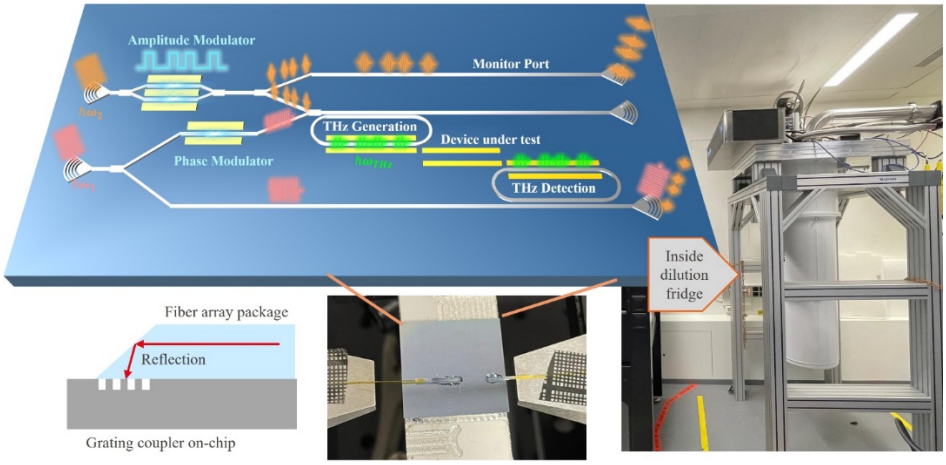

Figure 1. Photonic integrated circuits with cryo-packaged fiber connections in a dilution fridge.

What you will learn about

- Design and implement microwave setups inside dilution refrigerator for cryogenic studies of superconducting circuits/resonators at 4K or below
- Design and implement fiber-based optical setups inside dilution refrigerator for cryogenic studies of photonic integrated circuits at 4K or below
- Automate setup alignment and data acquisition using Python or MATLAB

Contacts

Interested candidates please send your CV and transcript of records to Jiawen Liu at Jiawen.liu@epfl.ch and Prof. Cristina Benea-Chelmus at cristina.benea@epfl.ch.