

hybrid platforms that enable complex high-frequency operations directly inside miniaturized photonic chips.

You will kick off diverse aspects of the experimental effort: technical (setting up an optical measurement setup design, including design of high-frequency electronics and custom-tailored mechanical components) and conceptual (develop the theory of millimeterwave/terahertz generation and detection inside photonic chips). In the lab, you will learn about integrated and free-space quantum optical technologies and engineering, and nonlinear optics. You will contribute to the automatisisation of measurement routines, comprehensive characterisation of fabricated samples and to bridging the area of microwave/terahertz-optical science and technology with the most modern integrated photonic techniques.

Main duties and responsibilities include

- Develop miniaturised millimeterwave/terahertz oscillator and mixers and apply them to photonic circuits, together with their driving software/hardware, automatize measurement procedures.
- Simulate optical and mmW/THz properties using simulations software such as COMSOL or CST.
- Characterize samples in the lab.
- Model experimental data from first principles using Matlab/Python codes.
- Write scientific publications, file patents, disseminate work at national and international conferences.
- Maintain collaborations and deliver periodic reports that describe your progress within the project.

Your profile

- M.Sc. in Physics or related fields, strong interest in high-frequency electronics and integrated photonics, nonlinear optics, high-frequency electronics, metrology and/or electro-optic transduction are mandatory.
- Knowledgeable in Python, Matlab, Labview, Inventor, Illustrator, CST Microwave studio and Comsol (or willingness to learn).
- Enjoy thinking about difficult problems and solving them step by step.
- Hands-on attitude and an interest for taking on new challenges are mandatory for this group. In return, you get to witness setting up experiments from scratch!
- Enjoy collaborations with various other scientific groups, take on a leading junior role in international teams.

We offer

- A unique opportunity to contribute and take on entirely new avenues in the field of quantum photonics in a young and dynamic team.
- Excellent infrastructure through the [cleanroom at EPFL](#), the Lausanne center for ultrafast science, and the Quantum Science Center at EPFL
- Competitive salary, coverage of conference costs, a dynamic and inspiring scientific community.

Start date :

1. May 2026 or later

Work rate :

100%

Duration :

(si CDD)

Contact : *(optional / warning : it may trigger a high number of contacts as well as job applications sent outside the e-Recruitment platform)*

To apply for this position, please send your CV and transcript of records to Prof. Cristina Benea-Chelmus at cristina.benea@epfl.ch. The position will remain open until filled, and we'll start revising applications from 15.03.2026. It is highly indicated that you write a short statement (max. one page) where you outline why you want to join this group, what your specific interests are, how your skills can contribute to the mission of the lab and how you think you can advance in your own academic/scholarly pursuit while being a part of the Hybrid Photonics Laboratory.