

Postdoctoral Position at EPFL:

Nanophotonics & Quantum for Biosensing

Post-doc position:

The BIONanophotonic Systems (BIOS) laboratory at the School of Engineering of EPFL Switzerland is offering a postdoctoral fellow position to a highly talented and motivated young scientist to work on experimental nanophotonics for biosensing and spectroscopy.

Nanophotonics excels at confining light into nanoscale optical mode volumes and generating strongly enhanced light matter interactions. Through engineered structures, nanophotonics can manipulate light in ways that are not possible to achieve with diffraction limited optics and natural materials. The unique nano-scale effects have been unveiling a plethora of fundamentally new optical phenomena, yet an important issue ahead for the field is the development of novel devices and applications. To this end, our laboratory is focused on the applications of nanophotonics for bioanalytical and biomedical devices using plasmonic/dielectric metasurfaces, microfluidics, nanofabrication, and advanced data analysis.

In a well-established laboratory, the postdoctoral fellow will be able to explore new biosensing schemes utilizing nanoscale and quantum effects for enhanced device performance through multidisciplinary projects. Anticipated strategies include quantum-enhanced Fourier transform infrared spectrometry using novel IR light sources, detectors and metasurfaces, hyperspectral imaging, exploitation of quantum tunneling effects with nanophotonics and device integration. Some of the main tasks include designing experimental plan, establishing optical set-ups, designing and realizing optimized device parts, device integration, performing experiments, analyzing data, reporting and disseminating research outcome.

Your profile:

- Hands-on experience in experimental nanophotonics including electromagnetic design, nanofabrication, building/adapting optical set-ups, performing optical characterization, image/data analysis of acquired signals.
- Hands-on experience in optical microscopy, spectroscopy (e.g. FTIR) and optical/electronic instrumentation.
- Experience in programming user interfaces for devices and instrumentation (e.g., Python, Matlab, LabVIEW).
- Knowledge in quantum optics is a plus.
- Experience in image and spectroscopic signal analysis using data science tools (e.g. AI, DNN) is a plus.
- Independent, self-driven, creative, solution-oriented, open-minded, flexible and team-player.

We offer:

- Opportunity to work on multidisciplinary and cutting-edge projects using nanophotonics and spectroscopy for bioanalytical and biomedical applications.
- Opportunity to access state-of-the-art research facilities and laboratory resources.
- Opportunity to collaborate with world-leading research groups through international consortiums.
- Opportunity to interact with world-leading industry companies for technology transfer.
- EPFL is an international and top ranking engineering university. It offers a young, stimulating, dynamic, interdisciplinary, and international working environment, a broad range of scientific training and networking events and hosts a vibrant entrepreneurial community.
- EPFL is an equal-opportunity employer. Candidates will be recruited based on merit.

Group website:

<https://www.epfl.ch/labs/bios/>

Keywords:

Nanophotonics, biosensors, quantum sensing, mid-Infrared, quantum spectroscopy, on-chip and integration

Start date:

As soon as possible

Term of employment:

Fixed-term (CDD)

Duration:

2 years, renewable

Contact:

Please send your application with the subject line « **2022 Postdoctoral Research Fellow** » to hatice.altug@epfl.ch in a single pdf file containing all the required information. It shall include a cover letter, CV, a list of publications, and contact details of three referees. Please don't attach large sized files (and if possible use links that can be downloaded). Applications will be evaluated as soon as received. If you have to share large-sized files, please deposit them on [bios@epfl.ch](https://bios.epfl.ch)