Post-doctoral position
Optical fiber links for time-frequency metrology

Duration: 18 months, extension possible	Start date: January 2027
Lab : Laboratoire de Physique des Lasers (LPL) (UMR CNRS-USPN)	Salary: From €3,133 gross per month, depending on experience
Location : University Sorbonne Paris Nord – 93430 Villetaneuse - France	Desired experience: 3 to 5 years. Applications from candidates without experience will also be considered.

Context and description

As part of the **ARCSECOND** European project (*Advancing the Roadmap Criteria for the Redefinition of the Second*, arcsecond-project.eu), you will participate in strengthening and expanding the European optical fiber-link network to enable repeated and sustainable high-accuracy clock comparisons at the continental level. The aim is to study and develop techniques offering extreme sensitivity to compare the best European clocks with uncertainties at the 18th significant digit.

The systems implemented will combine optics, electronics, signal processing, and data analysis, relying in particular on high-resolution optical interferometry and low-noise electronics. You will design and develop experimental setups for frequency transfer over telecommunications optical fiber networks to enable optical clock comparisons. Your work will build on the REFIMEVE research infrastructure (refimeve.fr), which enables the dissemination of time-frequency metrological signals across France to establish, optimize, and operate ultra-stable optical links connecting the main European metrology institutes.

These developments will enable the optimization of optical links between Paris and Italy, and more generally the interconnection of fiber-optic networks between France and neighboring countries. Additional work will focus on improving the robustness of the links, automating adjustments, studying sensitivity to different types of disturbances, and conducting data analysis.

Key words

Optical links, phase noise compensation, clocks comparison, fiber propagation noise

Profile of Applicant

Candidates should hold a Ph.D. in Atomic, Molecular, and Optical (AMO) Physics or Applied Physics. Strong experimental expertise in laser physics, optics, electronics, instrument control, and programming for data analysis is required.

The ideal candidate will be highly motivated, creative, and capable of working effectively in a collaborative environment. While knowledge of French is not required, fluency in both spoken and written English is essential.

Interested applicants are invited to submit their application via email to Etienne Cantin (Etienne.cantin@univ-paris13.fr), including a letter of interest, two references if possible, a curriculum vitae (CV) and a list of publications.