Post-doctoral positions are available in the group of Dr. Nathalie Picqué at the Max-Planck Institute of Quantum Optics in Garching near Munich (Germany). May 2021.

Our group studies the interaction between light and matter. Our research covers various areas of spectroscopy and nonlinear optics. Topics include precision spectroscopy, 3D imaging, quantum physics, molecular spectroscopy, ultrafast optics and laser frequency combs.

We are starting exciting projects in the fields of:

- **a) Precision spectroscopy of small molecules for tests of fundamental physics**
- **b) Digital holography, 3D imaging and dimensional metrology**
- **c) Quantum-enhanced interferometry with frequency combs**
- **d) Frequency combs and frequency-comb spectrometers on a chip**

In our group, we conceive new techniques of atomic and molecular spectroscopy using optical frequency combs. We explore new concepts of three-dimensional imaging and dimensional metrology. We harness new approaches to quantum interferometry to gain insight on microscopic samples down to single molecules and nano-particles. We develop novel frequency comb sources using state-of-the-art photonics and laser tools. We perform a variety of experiments in molecular physics with applications that range from precision spectroscopy of small molecules in the gas-phase to biosciences. We analyze our experimental spectra to gain insight on atomic and molecular structure and dynamics. All experiments are table-top and may be operated by one person or a very small team. For a recent publication list, please check our website: www.frequency-comb.eu

We are looking for highly motivated and reliable candidates who hold a PhD or doctoral degree in experimental physics and who are willing to take part to one project out of the four above mentioned topics (a-d). The candidates should have a passion for experimental work in atomic, molecular and optical physics, excellent experimental skills and a good theoretical background. Prior experience in at least one of the following fields is advantageous:precision spectroscopy, frequency metrology, frequency combs, atomic and molecular spectroscopy, digital holography, ultrafast and nonlinear optics.

The projects can be adapted to the profile and expectations of the candidates. All projects are challenging and multi-disciplinary, thus they require a large engagement. The candidates should be self-driven and have the ability to work independently as well as a part of an international research group. They should be fluent in spoken and written English. The ability to write technical peer-reviewed publications, evidenced through a strong publication record, is essential.

We offer **stimulating working conditions in a small and creative research group**. Our laboratories are equipped with state-of-the-art instrumentation. The Max-Planck Institute of Quantum Optics provides a world-class scientific environment with outstanding scientists and visiting scholars. Part of our work is performed in collaboration with research groups, who are amongst the leaders in their field.

Applications should be addressed to Nathalie Picqué (nathalie.picque@mpq.mpg.de) and should contain a curriculum vitae, a list of publications, a motivation letter (explaining why the applicant would like to join our group and indicating his/her desired starting date), transcripts of grades and the contact details of 2 or 3 scientists who know well the candidate and who are able to provide a recommendation letter. Even for pre-application inquiries, we strongly encourage potential applicants to always send a full application file, as this helps answering the questions by the candidates.

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