

PhD positions in optics/ quantum physics /precision spectroscopy / photonics in the group of Dr. Nathalie Picqué at the Max-Planck Institute of Quantum Optics near Munich, Germany



We are looking for 3 highly-motivated doctoral students to join our research group. Three different experimental thesis topics are proposed:

- 1) Quantum-enhanced frequency-comb interferometry**
- 2) Precision dual-comb spectroscopy of molecules for fundamental tests of physics**
- 3) Frequency-comb-based spectrometer on a photonic chip**

Each explores new frontiers in atomic, molecular and optical physics (topic 1,2) or in optical sensing (topic 3) using frequency comb synthesizers, laser sources that emit a broad spectrum of evenly spaced phase-coherent narrow lines.



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.

Each project may involve international collaborations with research groups, who are amongst the leaders in their field.

The ideal candidates will be **qualified in physics, optical engineering or a related subject**. They must hold a Master's degree (or a degree that is equivalent in level). They should have a passion for experiments in atomic, molecular and optical physics (AMO) and should be stimulated by challenging projects. They must be highly proficient in spoken and written English, with skills for scientific writing. They should be self-driven, reliable, motivated and hard working. A solid educational background in AMO physics is needed and first experience (such as internship, master thesis etc) in research areas such as frequency metrology, precision spectroscopy, optical frequency combs or ultrafast lasers is advantageous. The positions will be based in Garching near Munich, with occasional travelling to conferences and workshops and potentially to the laboratories of collaborators.

The funding for the student salaries and for the project equipment and consumables is secured. Starting dates can be anytime in 2020 (or early 2021).

Enquiries and applications should be addressed to Dr. Nathalie Picqué (nathalie.picque@mpq.mpg.de) and should contain a curriculum vitae, a list of publications (if applicable), a short motivation letter (explaining why the applicant would like to join our group and indicating his/her desired starting date), transcripts of undergraduate and graduate grades and the contact details of at least 2 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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