

PhD position for Entangled two-photon absorption in atoms and molecules



**UNIVERSITÉ
DE GENÈVE**

FACULTÉ DES SCIENCES

Applications are invited for a PhD position at the University of Geneva in the Quantum Technologies group led by Rob Thew and Hugo Zbinden.

The successful applicant will study different biomolecular and simple atomic samples to better understand the origins of the quantum advantage in entangled two-photon absorption (ETPA) – a quantum analogue to classical two photon absorption schemes. The first goal is to improve the performance of these experiments. This will include experimentally developing better entangled photon pair sources in different wavelength regimes as well as improved fluorescence collection and imaging schemes. They will also study plasmonic nanoarrays to improve absorption and fluorescence characteristics. The results of these studies should allow us to compare possible quantum solutions with existing classical applications.

The applicant is expected to hold a Masters degree in physics or related disciplines, ideally with some experience in optics (laser physics, photonics, quantum optics, etc.), with excellent grades, be highly motivated, and enjoy working in an international team. The salary is commensurate with living costs in Switzerland, starting at CHF53,000 gross per year. We particularly encourage applications from women and underrepresented groups.

The quantum technologies group is part of a dynamic and highly collaborative quantum initiative at the University of Geneva, with close collaborations with the group of Mikael Afzelius working on experimental quantum memories and repeaters, as well as Nicolas Brunner's Quantum Correlations group. We also have close collaborations with the company ID Quantique for a wide variety of activities and technology transfer projects.

Inquiries and applications should be sent by email to Rob Thew (robert.thew@unige.ch) and Hugo Zbinden (hugo.zbinden@unige.ch). Applications should include a letter of motivation, CV, and the names of three people who may be contacted to provide recommendation letters.

About the University of Geneva

Founded in 1559 by Jean Calvin, the Université de Genève (UNIGE) is dedicated to thinking, teaching, dialogue and research. It is Switzerland's second largest university with 17'000 students of more than 150 different nationalities and about 4'000 researchers (including 520 professors), who study and work in 9 different faculties (Science; Medicine; Humanities; Law; Theology; Psychology and Educational Sciences; Economics and Management; Social Sciences; Translation and Interpreting) and 15 interfaculty centres.

The university enjoys a strong international reputation, both for the quality of its research (it ranks among the top institutions among the League of European Research Universities) and the excellence of its education. This acclaim has been won in part due to its strong ties to many national and international Geneva-based organisations, such as the World Health Organisation (WHO), the International Telecommunications Union (ITU), the International Committee of the Red Cross (ICRC), and the European Organisation for Nuclear Research (CERN).

The scientific performance of UNIGE researchers is also expressed by the number of subsidies obtained on a very competitive basis from the Swiss National Science Foundation and the European Commission. The UNIGE is one of the best Swiss institutions of higher education for the allocation of these types of funding. It has also been a pioneer in quantum science and technologies in Europe and remains a world leading centre for quantum communication and quantum information science in general.

For more information see the group's web site: <http://www.unige.ch/gap/qtech>