



Job vacancy: PhD quantum photonics

Project

Topic : Hybrid SiN nonlinear waveguides and microcavities for single photon manipulation

The project consists in manipulating photons (changing their frequency and making them interact) using the second order nonlinearity of a new type of waveguide exhibiting a very large second order optical response.

The project includes many aspects of physics engineering: theory, design, fabrication, and experimentation not only in photonics but also in material science. The candidate will focus more on fabrication of the hybrid waveguides and their use for frequency conversion. This includes building optical setups, work on new phase matching strategies and the interaction of single photons in those newly developed nonlinear waveguides.

Skills/Qualifications

At the starting time of the contract, the applicant must hold a master's degree in physics, physics engineering, photonics engineering or any closely related field.

A good knowledge of optics is required. Cleanroom training is a plus so as numerical simulation knowledge. Sufficient knowledge of French and English is required.

Responsibilities

- Perform research in an increasingly independent way
- Reporting on the research
- Communication to peers orally at conference and via specialized journal publications
- A limited amount of teaching hours is foreseen (8 full days / year)

Benefits

The monthly salary amounts for 2055 euros exempted from taxes. Benefits include mandatory health insurance, laptop, travel to conferences and doctoral schools. The contract is for an initial duration of 1 year to be extended to reach a normal PhD duration of 4 years.

Eligibility criteria

Because of funding regulations, candidates having finished their master more than a year ago won't be considered. Applications are possible as early as February 2020 and applications will be assessed until the positions is filled (without any hard deadline). The contract can start as soon as possible and no later than 1 October 2020. To apply, submit your CV and a cover letter to Stéphane Clemmen by email. References and possibly your master thesis can also be helpful.

Institution

The project will take place primarily at the Université Libre de Bruxelles under the supervision of Stéphane Clemmen. OPERA-photonics and the Quantum information laboratory share a large lab dedicated to nonlinear and quantum optics. Both the science faculty and the engineering school offer regular scientific talks and events, as well as courses and social events dedicated to PhD students. The candidate will be co-supervised by prof Stéphane Clemmen (OPERA-photonics, [LIQ](#)) and prof Simone Napolitano ([Polymer and Soft Matter Dynamics](#)) and in collaboration with the [photonics research group](#) at the university of Gent.