

JOB OFFER: POSTDOC POSITIONS IN NANOPHOTONICS and COLOR CENTERS

Ghent University – IMEC
Technologiepark-Zwijnaarde 126, B-9052 Gent, Belgium

Context

Color centers have received great attention owing to their high coherence properties well suited to quantum sensing and quantum information processing. A long-lasting difficulty has been to properly interface isolated color centers to nanophotonic waveguides in a way that ensures a high light-matter coupling while preserving the remarkable coherence of the color centers [1,2]. Within this project, we intend to address this challenge by a combination of nanophotonic integration and original choice of color center. This work is carried out in the context of a multidisciplinary nationwide project.

Job description

The candidate will be responsible for the research work including design, modelling, and complete characterization of the quantum PICs. The candidate will work together with and provide guidance to a small team of PhD-students working in the same project.

Responsibilities include:

- Performing research in an independent way
- Reporting on the research to supervisor and collaborators
- Communication to peers at conference and via journal publications

Profile

- At the starting time of the contract, the applicant must hold a PhD in physics, physics engineering or photonics engineering.
- Good knowledge of optics and/or quantum technologies.
- Active, hands-on experience with colors centers and quantum photonics is highly recommended.
- Proficient level in English

Benefits

Benefits include mandatory health insurance, laptop, travel to conferences.

About the Photonics Research Group

The project will take place primarily at the University of Ghent in the photonics research group (PRG). PRG has pioneered the field of integrated photonics and keeps on enriching that technology, especially using integration of other materials and functionalities. It hosts a fully equipped measurement infrastructure (single photon detectors, higher power lasers, cryostat, ...), a cleanroom facility, and an extensive simulation infrastructure. The group is also an

affiliated lab of IMEC: one of the world leading research institutions in microelectronics. The photonics research group hosts 12 professors, 15 postdocs and 50+ PhD students of many nationalities.

Application

The positions are open at the date of publication and evaluations are performed as they are received. To apply, submit to Stéphane Clemmen by email:

- your CV
- a cover letter highlighting your research interest, the expertise you already have and the one you currently miss for this project

For more information, please contact

Prof. Dries Van Thourhout (dries.vanthourhout@UGent.be)

Prof. Bart Kuyken (Bart.kuyken@UGent.be)

Prof. Stéphane Clemmen (stephane.clemmen@UGent.be)

<http://www.photonics.intec.ugent.be/>

References

- [1] Awschalom, D. D., Hanson, R., Wrachtrup, J., & Zhou, B. B. (2018). Quantum technologies with optically interfaced solid-state spins. *Nature Photonics*, 12(9), 516-527.
- [2] Yama, Nicholas, et al. "Hybrid Integration of GaP Photonic Crystal Cavities with Silicon-Vacancy Centers in Diamond by Stamp Transfer." *Bulletin of the American Physical Society*(2023).