FACULTY OF ENGINEERING AND ARCHITECTURE

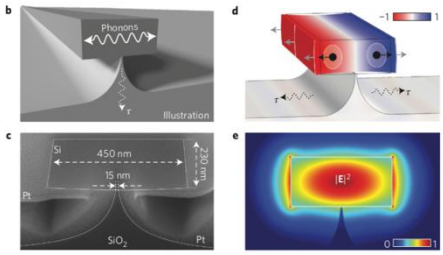
DEPARTMENT OF INFORMATION TECHNOLOGY
PHOTONICS RESEARCH GROUP

This project has received funding from the European Union's Horizon 2020 research and innovation programme.

Post-doc position "Silicon Optomechanics"

Ghent University – IMEC, Photonics Research Group
Tech Lane Ghent Science Park – Campus A
Technologiepark-Zwijnaarde 15, B-9052 Gent, Belgium

Job context:



Phonons and photons in silicon nanowire waveguides (from Van Laer e.a., Nat. Phot., Feb. 2015)

The HOT-project (http://hot-fetpro.eu) consists of 17 leading academic and industrial partners from across Europe, composed of 13 universities and 4 industrial partners. The collaboration is funded by the EU Horizon 2020 FET-Proactive programme for research and innovation. Its aim is to lay the foundation for a new generation of hybrid devices which exploit a nano- or micro-mechanical oscillator to couple and control the electrical, optical and microwave domains. These devices will enable capabilities such as low phase-noise microwave generation, radiofrequency-to-optical conversion and on-chip microwave and optical isolators. Target domains include medicine (MRI), security (radar and terahertz imaging), timing and navigation, and future quantum technology. There is not only rich fundamental physics to be investigated in these systems – HOT seeks to generate non-classical states of mechanical systems, observe self-organization of multi-element systems and demonstrate molecular optomechanics – but also room for commercialization of these technologies.
To this end, the task of the UGent Photonics Research Group is to develop processes that allow to fabricate the devices in CMOS foundries and to demonstrate the technology can scale according to the demands of the consumer market.

Job description:

In collaboration with other project partners, you will model and design novel hybrid opto-electro-mechanical structures. Following their fabrication in a CMOS-pilot line, you will be responsible for their characterization and evaluation. The work is carried out in the context of the EU-project HOT, coordinated by prof. T. Kippenberg (EPFL). You will participate in the project meetings and collaborate with other partners.

Profile:

You are ambitious, talented and have a strong background in photonics. You have recently obtained a PhD-degree or carried out substantial research, in the fields of integrated photonics and/or optomechanics. You are passionate about science but also interested to investigate how to bring fundamental research closer to an application. You possess good verbal and written English communication skills allowing you to effectively communicate with the project partners.

Application:

Please submit your expression of interest with resume and motivation letter by applying online through the following link: photonics.intec.ugent.be/contact/vacancies/Application.htm

For more information, please contact Dries.VanThourhout@ugent.be

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About the Photonics Research Group

The Photonics Research Group (about 85 people) is associated with imec and is part of the Department of Information Technology of Ghent University. The group is headed by Prof. R. Baets and has been active in photonics device research for many years. The other professors in the group are P. Bienstman, W. Bogaerts, B. Kuyken, N. Le Thomas, G. Morthier, G. Roelkens and D. Van Thourhout. The main research directions are silicon nanophotonics, heterogeneous integration, optical communication, photonic (bio) sensors and photonic integrated circuits for biomedical applications in the near-infrared and mid-infrared wavelength range. More in particular, the silicon nanophotonics work focuses on the design and fabrication of SOI - based photonic devices using standard lithographic techniques compatible with CMOS processing. The Photonics Research Group has been coordinating the network of excellence ePIXnet and is involved in a number of EU - projects, including the H2020 projects OMT, HOT, TOPHIT, TeraBoard, PIX4Life, MIRPHAB, AQUARIUS and Phresco. Furthermore, the group is partner of the Center for Nano- and Biophotonics of Ghent University and the group has been awarded four ERC Independent Researcher Starting Grants, one ERC Consolidator Grant and one ERC Advanced Investigator Grant.