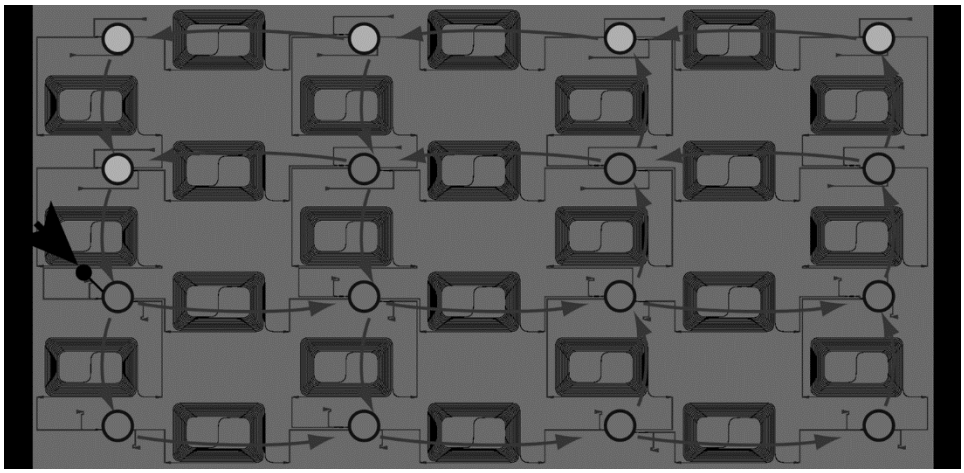
PhD Position PhD in Photonic Neuromorphic Computing for Telecom Applications

Ghent University – IMEC, Photonics Research Group
Tech Lane Ghent Science Park – Campus A
Technologiepark – Zwijnaarde 126, B-9052 Gent, Belgium

We are looking for highly motivated PhD candidates with a background in photonics and telecommunications and an interest in machine learning to do research into photonics reservoir computing, an exciting new paradigm of photonics information processing.
Reservoir computing is a methodology from the field of machine learning and neural networks, which has been used successfully in several pattern classification problems, like speech and image recognition. We initially demonstrated this concept experimentally in [Vandoorne et al., Nature Communications 5 3541, 2014] and have recently shown the experimental realisation of nonlinear dispersion compensation in a directly-modulated telecom link [S. Sackesyn et al., Optics Express, 29, 20, 30991, 2021].



Recently, we have been expanding this approach to different modulation formats and different applications with the field of telecom. In this context, we are looking for a motivated PhD student to help bring this research forward.
We offer you the opportunity to perform cutting-edge, blue-sky research, in a challenging, motivating environment, working within a multidisciplinary team consisting of both photonics people and computer scientists. A willingness to tackle challenges coming from these multidisciplinary collaborations is a must.

Application:

Please submit your expression of interest with resume and motivation letter by no later November 15 2022 via email to Peter.Bienstman@UGent.be

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. Dries Van Thourhout and has been active in photonics device research for many years. The other professors in the group are Roel Baets, Peter Bienstman, Wim Bogaerts, Stephane Clemmen, Bart Kuyken, Nicolas Le Thomas, Yanlu Li, Geert Morthier, Gunther Roelkens and Kasper Van Gasse. The main research directions are silicon nanophotonics, heterogeneous integration, optical communication, neuromorphic computing, photonic (bio)sensors and photonic integrated circuits for biomedical applications in the near-infrared and mid-infrared wavelength range.

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 ActPhast4R, AQUARIUS, CALADAN, FUN-Comp, Hydroptics, InSiDe, INSPIRE, MedPhab Pilot Line, MIRPHAB Pilot Line, PIX4Life Pilot Line, MORPHIC, NEBULA, Neoteric, TopHit and PhotonHub. The group also host two EOS Research projects, INTERREG projects and several ITNs (MICROCOMB, OMT, WON, Phonsi). Furthermore, the group is partner of the Center for Nano- and Biophotonics of Ghent University and leads ePIXfab, the European Silicon Photonics Alliance.

The group has been awarded five ERC Independent Researcher Starting Grants, one ERC Consolidator Grant and two ERC Advanced Investigator Grants.