



Postdoc position on Applications of lab-on-chip based Raman spectroscopy

UGent/imec - Photonics Research Group
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<http://photonics.intec.ugent.be/>

In the ERC project InSpectra we are developing photonic integrated circuits based on silicon photonics and silicon nitride photonics for spectroscopic sensing. One of the focus areas is the development of lab-on-chip approaches for Raman spectroscopy, in which we exploit the benefits of high index contrast nanophotonic waveguides to enhance Raman signals. With a team of five researchers we develop silicon nitride based circuits for the sensitive detection of a small concentration of analyte molecules. A proof of concept of basic spontaneous Raman spectroscopy has been demonstrated and we are now developing optimized approaches including the use of plasmonic nanoantennas integrated on the waveguides as well as CARS-like approaches. We also work on ultra-small photonic chips that can be inserted in living cells.

While the research work has so far largely concentrated on the basic devices and technologies for proof of concept demonstration, we also have the ambition to develop applications in which the Raman-on-chip approach has unique capabilities, either in terms of performance or in terms of practical general purpose use or cost.

The postdoc will have a key role in this development towards applications. To this end he/she should have a background in Raman spectroscopy (and the associated data analysis) and preferably also in integrated photonics technology. He/she should be keen to work at the interface between novel proof-of-concept research and application-driven innovation.

Application:

Apply by filling in the [application form](#)*.

* You will be redirected to an external application page

More information:

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About Photonics Research Group

The Photonics Research Group (about 70 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, N. Le Thomas, G. Morthier, G. Roelkens and D. Van Thourhout. The main applications under study are silicon nanophotonics, heterogeneous integration, optical interconnect, WDM optical communication, silicon photonics biosensors 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 group is also strongly involved in the development of heterogeneous technologies, whereby the silicon photonics platform is combined with other materials such as III-V semiconductors for efficient sources, nanocrystals and polymers.

The photonics research group has been coordinating the network of excellence ePIXnet and is currently involved in a number of EU-projects, including the FP7 projects ActPhast, PLAT4M, Cando, Pocket and SMARTFIBER. Furthermore, the group is partner in the Center for Nano- and Biophotonics of Ghent University and the group has been awarded with three ERC Starting Independent Researcher Grants and one ERC Advanced Investigator Grant.