



Postdoctoral position on Integration of III-V laser devices with silicon photonics circuits

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

A major road block in the wide scale industrial take-up of silicon photonics is the lack of a cost-efficient approach to integrate lasers with this platform. Hybrid III-V on silicon laser sources fabricated using wafer bonding approaches have shown performance close to that of stand alone III-V sources but still does not make very efficient use of the expensive III-V epitaxial materials involved. Also high-temperature operation and long term reliability might be an issue. In the context of the EU Horizon2020 project TERABOARD we will develop an innovative integration approach to overcome these bottlenecks. Initially we will focus on the integration with standard passive waveguide circuits. In a second phase, demonstration of a full transmitter, including coupling to high-speed modulators will be pursued.

Profile:

Experience in Photonic IC design and/or processing.

Application:

motivation letter and CV should be sent before January 31, 2016 to:

Prof. Dries Van Thourhout (Dries.VanThourhout@ugent.be) and Mrs. Ilse Van Royen (Ilse.VanRoyen@intec.ugent.be)

More information:

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About Photonics Research Group

The **Photonics Research Group** (www.photonics.intec.ugent.be) is one of Europe's most prominent groups carrying out research in the field of Photonic Integrated Circuits, covering fundamental as well as applied topics. The group investigates novel integration technologies, design of innovative photonic devices and circuits and applications covering telecom, optical interconnect, sensing and spectroscopy. The group has its own cleanroom facilities, extensive

characterization setups and collaborates intensively with the Silicon Photonics team at imec (www.imec.be).

Teraboard (www.teraboard.net) will develop ultra low power - high bandwidth density data communication for server and packet processing boards of data centers. Data communication is a fundamental aspect of the societal evolution. The current use of internet and voice in communications will evolve in the future 5G (the fifth wireless communication generation), in which standard datacom and telecom will be merged with the IoT (Internet of Things). As a consequence, in the next five years data traffic will exponentially grow beyond the Zettabyte era. This evolution will require a technological roadmap that guarantees an increase of communication bandwidth by a factor of 1000 by 2020. TERABOARD targets the needs of intra and inter-board communication in data centers and will deliver prototypes of optical interposers for Multi Chip Module applications. The prototypes will demonstrate Tb/s of aggregate traffic, scalable to hundreds of Tb/s by means of banks of high density optical interfaces in Silicon Photonics, communicating through a new VIAs-based multilayer optical intraboard interconnection platform.