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Ghent University and imec report Open Source software release of IPKISS, a parametric design environment for integrated photonics

Brussels (Belgium) – April 17, 2012 – Ghent University and imec announce the launch of IPKISS as open source software platform. IPKISS is a generic and modular software framework for parametric design of photonic integrated components and circuits. The software platform is made available by means of a GPLv2-licensed code base (free of charge), a custom developer license and a custom commercial license. With this launch, Ghent University and imec provide the integrated photonics design community access to a powerful and flexible software platform.

What is the IPKISS Software Framework ?

IPKISS was originally conceived in 2002 by the Photonic Research Group of Ghent University and imec as a programmable generator of Mask Layouts (GDSII) written in Python, but has since then evolved significantly.

Its main use is currently the design of photonic components and complex photonic integrated circuits. In IPKISS, a designer can quickly define photonic components, directly simulate them in electromagnetic solvers and integrate them in a circuit on a photomask for fabrication. For this, IPKISS integrates easily with popular third-party simulators.

While currently most applicable to photonics, IPKISS is conceived as a generic and flexible framework. IPKISS can be customized for use (and is already used) in many other domains related to micro- and nano-electronics (microfluidics, plasmonics, MEMS, etc).

IPKISS is based on scripting in Python, which makes it easy to learn and extremely flexible in use. Through Python scripting, the user specifies in an analytical manner how a component is represented in terms of parameters. Internally, the component knows how to generate its layout, its input/output connections with other components, its internal circuit representations, etc. This ensures a separation between the formal specification of a component or circuit and different representations that can be derived (e.g. a mask layout in GDSII, a 2D or 3D model, a circuit model). Components can be defined to accept outside technology information provided by the fab, effectively allowing a design that could be fabricated in different locations. Design kits for imec's silicon photonics technologies are made available

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through ePIXfab, a European foundry service for Silicon Photonics prototyping and through imec directly for customized photonic IC development.

This IPKISS design approach is powerful and flexible, while at the same time very accurate, resulting in a productive design cycle with little margin for copy-and-paste errors: This contrasts with a design workflow which is static and cannot be influenced by the user, or where the user is limited to the functionality provided in a graphical user interface. Users of IPKISS will have access to a powerful and flexible software platform that can catalyze their research with a relatively small incremental effort.

This software platform is now made available free of charge to the broad community.

Source code licenses

The IPKISS framework is made available under different open source licenses.

- **Community:** A GPLv2-licensed code base of IPKISS will allow access to the framework free of cost. The objective of this license scheme is to stimulate the people in developing on the IPKISS framework, so a thriving community can evolve around the framework.
- **Developer:** A custom license at modest annual fee that allows the licensee to develop plug-ins and add-ons for distribution.
- **Custom commercial:** This license is targeted as software developers who wish to incorporate IPKISS into a product, and therefore bundle a (modified) version of the code base with their own additions. This license and its cost will be tailored to each individual case.

Further information on the platform can be found on <http://www.ipkiss.org>

The platform will be launched at SPIE Photonics Europe 2012 – Exhibitor Product Demonstrations, Tuesday April 17th, 1:30PM.

Come and visit us also at the SPIE Photonics Europe 2012 Innovation Village and European Network space 24: ePIXfab - IPKISS booth

News release can be downloaded at http://www2.imec.be/be_en/press/imec-news/ipkiss.html or at <http://www.ipkiss.org> or email Wim.Bogaerts@UGent.be

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About Ghent University (UGent)

The Photonics Research Group of Ghent University and closely associated with imec has been active in photonic integration for more than 20 years. Since 2000 the focus has shifted to silicon photonics. With about 70 researchers the group is working on innovative concepts for the compact integration of complex photonic functions with applications in telecom, datacom and interconnect, sensing and biosensing. The technology base for doing so encompasses imec's CMOS process technology as well as heterogeneous integration with a variety of materials and nanomaterials. These activities are complemented by research on design methodologies for photonic IC's. Further information on UGent can be found at www.UGent.be and <http://photonics.intec.ugent.be>.

About imec

Imec performs world-leading research in nanoelectronics. Imec leverages its scientific knowledge with the innovative power of its global partnerships in ICT, healthcare and energy. Imec delivers industry-relevant technology solutions. In a unique high-tech environment, its international top talent is committed to providing the building blocks for a better life in a sustainable society. Imec is headquartered in Leuven, Belgium, and has offices in Belgium, the Netherlands, Taiwan, US, China, India and Japan. Its staff of close to 2,000 people includes more than 600 industrial residents and guest researchers. In 2011, imec's revenue (P&L) was about 300 million euro. Further information on imec can be found at www.imec.be.

Imec is a registered trademark for the activities of IMEC International (a legal entity set up under Belgian law as a "stichting van openbaar nut"), imec Belgium (IMEC vzw supported by the Flemish Government), imec the Netherlands (Stichting IMEC Nederland, part of Holst Centre which is supported by the Dutch Government), imec Taiwan (IMEC Taiwan Co.) and imec China (IMEC Microelectronics (Shanghai) Co. Ltd.) and imec India (Imec India Private Limited).

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