

Optical Passive Device Specialist

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Engineering - Leuven | About a week ago

Together, we shape the Si-Photonics technology that will define the society of tomorrow.

Optical Passive Device Specialist

Imec is a global pioneer in developing integrated silicon photonics technology through its Optical I/O R&D program targeting short-reach optical communications. This technology is successfully offered via wafer-level prototype fabrication services to customers in telecom, datacom, computing, bio-medical, and sensing applications. By leveraging the mature Complementary Metal Oxide Semiconductor (CMOS) processes used in electronics, high-volume and high-yield Photonic Integrated Circuits (PICs) can be fabricated at a relatively low cost. Among the major building blocks within a PIC, passive optical components are critical for scaling up the number of channels, while keeping overall optical power low and the circuit area under control. Further technological developments are targeting low-loss silicon photonics (SOI and SiN) in the 200 mm and 300mm platforms at imec. These activities are growing and require the expansion of our team.

What you will do

As an optical passive designer, you contribute to further development in our silicon photonics technology. You act as the technical interface between cross-collaborating teams of Device design and Layout, process integration, Optical testing, and customers and use their feedback to improve your class of devices. You participate in internal Silicon Photonics (SiPho)

development runs on 200mm and 300mm wafers to implement improved component designs and you leverage imec's automated SiPho test stations to test and validate your new device concepts with fast turnaround times. You will be a member of a highly talented pathfinding team who have expertise in their fields and are always curious.

Your responsibilities include:

Design state-of-the-art passive building blocks for imec silicon photonics platforms (SOI and SiN), in 200mm and 300mm SiPho Technology.

Own design test structures, implement, and document design methodologies for robust passive designs.

Among other devices: low-loss and broadband waveguides, bends, power-splitters, crossings, transitions, gratings and wavelength selective filters, polarization rotators and splitters.

Simulate, model, design, layout, and characterize (test procedure, data analysis, and reporting) your devices with the tools used in the team and contribute to improved functionality of those Python-based tools and design automation.

Improve the advanced patterning capabilities of imec SiPho Technology. Work closely with the process OPC team to improve process control and optimize device performance.

Build compact models to be used by circuit designers (internal and external customers/vendors (EPDA)).

Share your expertise with your colleagues in the silicon photonics group and collaborate with universities.

Interact directly with external imec partners and customers.

Please note that the position is based in Leuven (Belgium). Onsite presence of at least 3 days is required.

What we do for you

We offer you the opportunity to join one of the world's premier research centers in nanotechnology at its headquarters in Leuven, Belgium. With your talent, passion and expertise, you'll become part of a team that makes the impossible possible. Together, we

shape the technology that will define the society of tomorrow.

We are committed to being an inclusive employer (</en/careers#diversity>) and proud of our open, multicultural, and informal working environment with ample possibilities to take initiative and show responsibility. In everything we do, your future colleagues are guided by the imec values of passion, excellence, connectedness, and integrity. We commit to supporting and guiding you in this process, not only with words but also with tangible actions. Through imec. Academy, 'our corporate university', we actively invest in your development to further your technical and personal growth.

We are aware that your valuable contribution makes imec a top player in its field. Your energy and commitment are therefore appreciated by means of a market appropriate scholarship.

Who you are

You have an excellent understanding of the physics of integrated photonics, especially passive devices, and knowledge of semiconductor manufacturing processes and constraints. In this context, prior hands-on knowledge on photo-lithography processing is plus.

You have demonstrated experience with robust passive optical devices for example Si and/or SiN, preferably in an industrial context and characterizing electro-optical devices.

You have run large simulations to explore design spaces and evaluate device sensitivity. You master simulation tools (Ansys/Lumerical and/or RSoft/ Synopsys, COMSOL, etc) and understand the pros and cons of each simulation method.

You have experience and you are comfortable programming in Python, and using git.

You layout your designs using a scripting language (like ipkiss from Luceda Photonics).

You are curious and creative. You like to collaborate with colleagues using code.

You have good communication skills in English to communicate with your colleagues in our multinational team and with customers.

You have a PhD degree in Physics or Photonics and 3 – 5 years of experience in the relevant field will be desirable.

You live in Belgium or are willing to relocate (imec provides relocation support).

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