

Develop your specialty flow on our advanced infrastructure

Imec's mature platforms give you access to established flows for state-of-the-art semiconductor devices.

But what if your innovation requires special process steps?

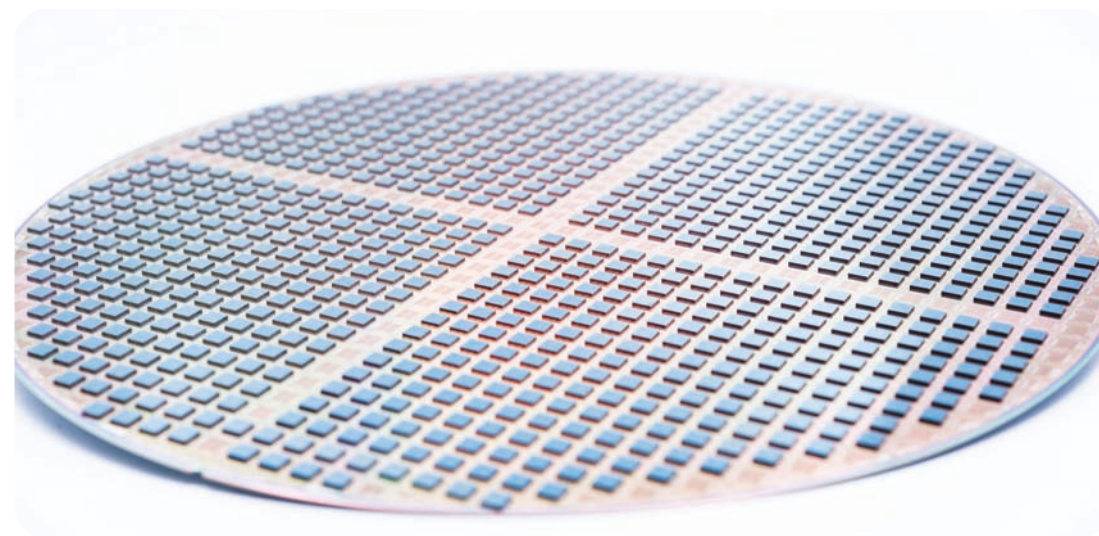
A university lab takes you no further than proving the validity of your concept. For the development of a **manufacturable device** and its production, you must get access to the equipment that you find in leading foundries.

In imec's cleanrooms, you can **bring your device to maturity**. The 300mm cleanroom is uniquely equipped for prototyping of highly advanced technologies: the most advanced lithography and CMOS post-processing of advanced materials. The 200mm cleanroom also allows for rapid prototyping and low-volume manufacturing of specialty technologies such as custom sensors and optics and non-standard substrate processing. Because of the compatibility of imec's tools with those in major foundries, your manufacturing process can always be **transferred to high-volume fabrication at major foundries**.

Advanced capabilities include **MEMS & 3D integration** with advanced integration features such as through-silicon via (TSV) 'middle' and 'last', direct low-temperature bonding, and micro-bumps assembly. SOI can be used for very large membrane devices such as microphones and pressure sensors or, bonded on CMOS, for monolithic integrations between MEMS and ASICs.

Over the years, imec has built up extensive expertise in the construction of silicon and polymer **microfluidic components**, and in their monolithic integration with silicon electronics, micro-optics, and photonics. Imec uses photolithography and nanoimprint lithography to make silicon fluidic structures such as micro-channels, -pillars and -reactors, mixers, droplet generators, capillary pumps and valves, mergers, and splitters. Our toolbox also includes indispensable surface chemistry.

Flat optics components such as filters, polarizers, and lenses are available to enable your specific application in the visible and infrared. These components can be processed on glass for standalone applications or stacked, post-processed on top of device wafers, and optimized at pixel level. Applications include light field/3D displays and cameras, polarimetric imaging, spectroscopy, micro-LEDs, and smart glasses.



Imec's infrastructure at a glance

- full set of CMOS-compatible **flow capabilities**: EUV, DUV, I-line, NIL, etc.
- wide **choice of substrates**, including post-processing on wafers from other foundries
- wide **choice of materials**: polymers, low-impedance & corrosion-resistant electrode materials, etc.
- special features: **3D integration**, bumping and TSV, thin wafer handling, metrology, integrated **optical filter stacks**, gallium nitride (**GaN**) processing, etc.

The imec facilities also host several **advanced labs** where our experts perform further in-depth research to advance your application.

www.imec-int.com/infrastructure



Download our white paper on monolithic microsystems



Think of a standard CMOS wafer with electronic functionalities or imagers, and top this with M(O)EMS, photonics, fluidics, electrodes, filters, etc.

Such a monolithic approach turns your application into an **integrated solution** with massive sensing parallelism, and improved speed, performance, cost, and user-friendliness.

To learn more about the power of monolithic microsystems and the various functionalities that can be post-processed on top of (foundry) wafers, download imec's white paper:

www.imec-int.com/monolithic-microsystems



Imec foundry services

Transform your ideas into reality with next-gen semiconductor and specialty technology.

imec

Low-barrier entry to flexible chip manufacturing

Is limited access to foundry capabilities slowing down your innovation?

Then it's high time you talk to imec.

As the world's leading semiconductor R&D hub, imec opens the door to **development, prototyping** and **manufacturing** in both its **own cleanrooms** and those of its **closely associated partners**. This enables the accelerated adoption of groundbreaking technologies for a better life and a sustainable future.

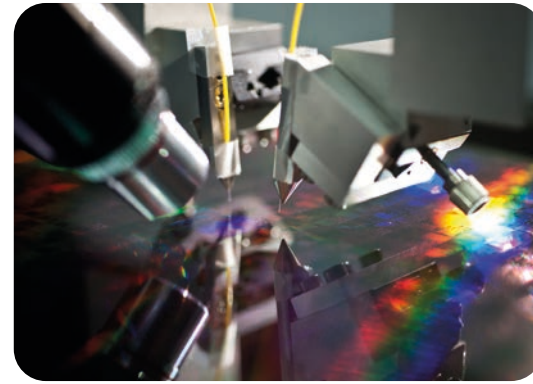
A wide range of technologies are available, using the tools currently used in the industry. **Fabrication volumes** are **extremely flexible**: ranging from a few dies on a multi-project wafer (MPW) to high-volume production of tens of millions at major partner foundries. Finally, as the trusted neutral ground of the global semiconductor ecosystem, we have the firewalls in place to ensure that breakthrough ideas can kindle without risk of cross-contamination with other partners or our own R&D activities.

Do you want to discuss using our foundry services?
Contact us through foundryservices@imec.be



Design and manufacture on our state-of-the-art platforms

As a groundbreaking R&D center with strong industry connections, imec has several mature platforms in place that offer the **most advanced processes on today's market**. Often, a **PDK** is available to allow you to immediately start designing, after which there's a swift trajectory to production in our own cleanrooms or those of our partners.



Silicon photonics

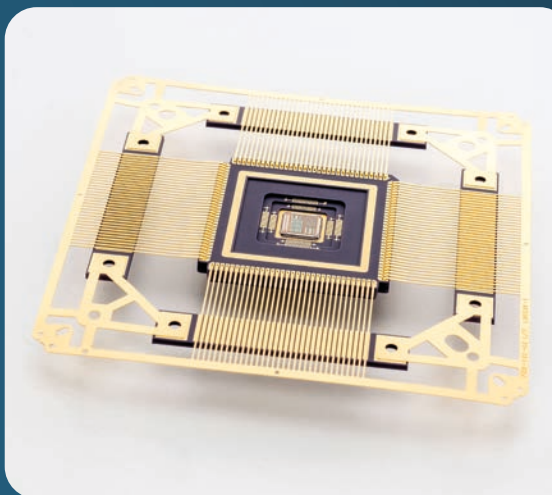
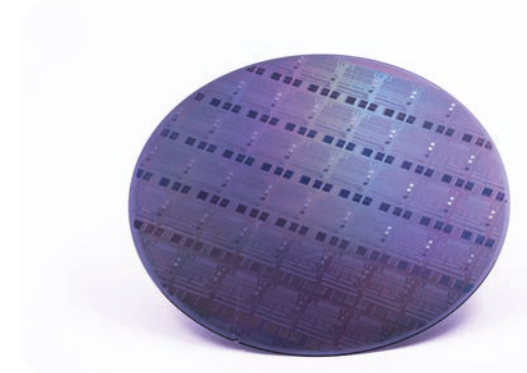
Imec's iSiPP200 platform co-integrates a **wide variety of passive and active components**. iSiPP200N is an extension of the iSiPP200 platform, integrating high-quality **LPCVD silicon nitride (SiN)** waveguide technology. Easy access to prototyping is available through the more standardized iSiPP50G and iSiPP50G Passives platforms that are geared to multi-project wafer (MPW) runs. We're continuously enriching the platforms with new modules for lasers, heterogeneous integration, and novel modulators.

www.imec-int.com/photonics

Silicon nitride-based photonics

Imec offers SiN integrated photonics in different flavors: **low-loss SiN** (based on LPCVD technology) and **CMOS-compatible SiN** (based on PECVD technology). These technologies are accessible for a wide range of applications: communication, computing (quantum, AI), biophotonics (sensing), AR/VR/MR, industrial sensing, and many more.

www.imec-int.com/sinphotonics



ASIC manufacturing in major foundries through imec.IC-link

Imec.IC-link, imec's ASIC division, guides you through the process of designing and manufacturing an application-specific circuit (ASIC). Imec.IC-link is a **TSMC value chain aggregator (VCA)** and has agreements with other major foundries, ensuring easy access to IC production in any volume and in several standard to advanced technologies. On top of manufacturing, several additional services are available: **design and IP support, assembly, advanced packaging, testing, qualification, and optimization**.

www.imeciclink.com

About imec



Thanks to its unique combination of talent, infrastructure, and partner network, imec is a world leader in nanoelectronics and digital technologies. Imec's collaborative approach bridges academia and industry, facilitating the **rapid transfer of knowledge and technology from the research lab to the market**. While imec's core activity is microchip technology, its impact extends across **application domains**: health, automotive, agritech, energy, and many more.

Imec brings together the entire nanoelectronics value chain, from system companies to chip manufacturers, material and equipment suppliers, and design houses. Imec's cleanrooms are home to the **most advanced collection of microchip processing tools in the world**. Alongside its R&D collaborations, imec offers **easy access to chip development and prototyping, with a path to production at major foundries**. It's committed to stimulating entrepreneurship and kick-starting remarkable technology start-ups.

Headquartered in Belgium, imec is represented around the world with a **global team of over 5,500 employees with more than 100 nationalities**.

www.imec-int.com



Want to talk about how you can benefit from imec's foundry services?

Reach out to us via foundryservices@imec.be

For more details about our offering, visit www.imec-int.com/foundry

