

## Press Release



Siltronic AG  
Hanns-Seidel-Platz 4  
81737 München,  
Germany  
[www.siltronic.com](http://www.siltronic.com)

### **Siltronic AG Joins imec's GaN-on-Si Research Program to Develop Technology for Next-Gen Power Semiconductors and LEDs**

- gallium nitride on silicon wafers with 200 mm diameter
- enhanced properties and reduced production costs

Munich / Leuven (Belgium), July 1, 2011 – Siltronic AG and the Belgian nano-electronics research institute imec have concluded an agreement to collaborate on the development of silicon wafers with a gallium nitride layer as partner of imec's GaN-on-Si industrial affiliation program (IIAP). The endeavor aims to enable production of solid-state lighting (e.g. LEDs) and power semiconductors of the next generation on 200 mm silicon wafers.

Gallium nitride (GaN) is a very promising material. Combining superior electron mobility, high breakdown voltage and good thermal conductivity, it is particularly suitable for optoelectronics and advanced power semiconductors. These are used, for example, in wind power turbines, solar power systems, electric vehicles and energy-saving kitchen appliances. In comparison with conventional, silicon-based applications, structures with GaN/(Al)GaN layers evidence a very efficient switching behavior. However, GaN technology still needs further refinement to also be economically competitive. To achieve this, inexpensive and efficient production methods for epitaxial deposition of GaN/(Al)GaN structures on larger-diameter silicon wafers are very promising.



As a world market leader for silicon wafers, Siltronic AG can draw on decades of experience in epitaxial deposition of materials on silicon substrates. Imec is a pioneer in the area of GaN deposition on silicon substrates with diameters of 2-6 inches. Economies of scale in the production of 200 mm wafers could significantly reduce the manufacturing costs for GaN-based LEDs and power semiconductors.

In addition to Siltronic, other participants such as integrated device manufacturers (IDMs), foundries, silicon compound producers and substrate manufacturers are also involved in this multinational research platform. Siltronic will actively use the facilities and technical resources of imec in Leuven, Belgium. This coordinated on-site approach enables inter-company collaboration between all involved partners, while at the same time providing very early access to process and equipment technology for the next generation of LEDs and power semiconductors.

“We are delighted to welcome Siltronic into our research network,” said Rudi Cartuyvels, Vice President R&D Business Lines at imec. “Siltronic has an enormous amount of experience in epitaxial deposition on silicon wafers that will increase the momentum of our GaN program to deliver a manufacturable GaN technology on 200 mm silicon wafers.”

“Siltronic is already the world market leader for silicon wafers used to manufacture discrete and integrated power devices,” points out Dr. Rüdiger Schmolke, Senior Vice President Technology at Siltronic. “This research project will help us to further consolidate our leadership position in this market.”



### **About Siltronic**

Siltronic is a global leader in the market for hyperpure silicon wafers and a partner to many top-tier chip manufacturers. Our production facilities in Europe, the USA, Asia and Japan develop and manufacture wafers with diameters of up to 300 mm.

Silicon wafers form the basis of the modern micro and nanoelectronics. They are used, for instance, in computers, cellphones, the internet, DVD players, flat-panel displays, navigation systems, airbags, computer tomography equipment, aircraft control systems and many other applications.

### **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 and Japan. Its staff of about 1,900 people includes more than 500 industrial residents and guest researchers. In 2010, imec's revenue (P&L) was 285 million euro. Further information on imec can be found at [www.imec.be](http://www.imec.be).

### **For further information, please contact:**

Siltronic

Christof Bachmair                      Phone: +49 89 6279 1830

Corporate Communications    [christof.bachmair@wacker.com](mailto:christof.bachmair@wacker.com)

Imec

Hanne Degans, External Communications Officer, T: +32 16 281 769,  
Mobile: +32 486 065 175, [hanne.degans@imec.be](mailto:hanne.degans@imec.be)

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