

# FutureHorizons



The Global Semiconductor Industry Analysts

## FH MONDAY

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### ST and MACOM RF GaN-on-Si prototypes

STMicroelectronics of Geneva, Switzerland and MACOM Technology Solutions Inc of Lowell, MA, USA (which designs and makes analog RF, microwave, millimeter-wave and photonic semiconductors, components and subassemblies) have announced the production of radio-frequency gallium nitride on silicon (RF GaN-on-Si) prototypes.

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### Imec Spinoff Raises €10m to Develop Solid-State Batteries

Accelerating the transition to full electrification of transportation systems requires innovation to address today's challenges in range, performance, and safety. After ten years of research to improve the performance of solid-state batteries, Imec announced it has invested in the newly-created spinoff SOLITHOR.

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### Spanish Startup Secures Smart Grids from Cyberattacks

Smart grids are designed to optimize energy production, distribution and consumption. Securing smart grid infrastructures is essential to ensure the overall security of energy systems. Madrid, Spain-based Barbara IoT announced it has raised €2.5 million to accelerate the development of its edge computing technology.

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## TALK TO US



### Okmetic to Build €400m Wafer Fab, Create 500 Jobs in Finland

Okmetic, a Finnish manufacturer of silicon wafers for MEMS, sensor, RF and power devices, unveiled its plans to more than double its current production capacity by building a new silicon wafer fab at its headquarters in Vantaa, Finland. Production is expected to start in 2025.

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## EVENTS

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### The rise of LFP batteries in electric vehicles

The number of electric vehicles (EVs) expected to equip lithium-iron phosphate (LFP) batteries in 2022 will reach new heights as automotive OEMs continue to adopt the technology, according to new data from Researcher and Research.

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## **ST and MACOM RF GaN-on-Si prototypes achieve technology and performance milestones**

STMicroelectronics of Geneva, Switzerland and MACOM Technology Solutions Inc of Lowell, MA, USA (which designs and makes analog RF, microwave, millimeter-wave and photonic semiconductors, components and subassemblies) have announced the production of radio-frequency gallium nitride on silicon (RF GaN-on-Si) prototypes.

As the long-term incumbent RF power technology, silicon-based laterally diffused metal-oxide semiconductor (LDMOS) dominated early-generation RF power amplifiers (PAs). However, GaN can offer superior RF characteristics and significantly higher output power than LDMOS for the RF PAs, with high potential especially for 5G and 6G infrastructure. Further, GaN can be manufactured on either silicon or silicon carbide (SiC) wafers.

## **Imec Spinoff Raises €10m to Develop Solid-State Batteries**

Accelerating the transition to full electrification of transportation systems requires innovation to address today's challenges in range, performance, and safety. After ten years of research to improve the performance of solid-state batteries, Imec announced it has invested in the newly-created spinoff SOLITHOR.

Genk, Belgium-based SOLITHOR has raised €10 million in a seed investment by Imec.xpand with the participation of LRM, Nuhma and FPIM.

In a recent article co-authored for EE Times Europe, Milan Rosina, principal analyst, Power Electronics & Batteries, and Shalu Agarwal, Technology & Market analyst, Power Electronics & Materials, at Yole Développement, explained: "In a solid-state battery, as its name suggests, the flammable liquid-electrolyte is replaced by a solid-state electrolyte, which results in greater safety and enhanced battery characteristics. Solid-state battery development aims for a next-generation battery with higher energy density, fast charging capability, lower cost, and greater safety."

## **Spanish Startup Secures Smart Grids from Cyberattacks**

Smart grids are designed to optimize energy production, distribution and consumption. Securing smart grid infrastructures is essential to ensure the overall security of energy systems. Madrid, Spain-based Barbara IoT announced it has raised €2.5 million to accelerate the development of its edge computing technology.

Barbara IoT was founded in 2016 with a mission to facilitate and secure the connection of industrial devices to the Internet. "We found an opportunity within the critical infrastructure sector that needs to be digitized and where cybersecurity is paramount," David Purón, CEO of Barbara IoT, told EE Times Europe.

## **Okmetic to Build €400m Wafer Fab, Create 500 Jobs in Finland**

Okmetic, a Finnish manufacturer of silicon wafers for MEMS, sensor, RF and power devices, unveiled its plans to more than double its current production capacity by building a new silicon wafer fab at its headquarters in Vantaa, Finland. Production is expected to start in 2025.

Okmetic's existing facility in Vantaa focuses on crystal growing and production of 150-200 mm silicon wafers, such as silicon-on-insulator (SOI) wafers with and without cavities, high-resistivity RFSi wafers as well as patterned wafers, SSP and DSP wafers, TSV wafers and wafers for power devices.

Over the years, Okmetic has expanded its facilities several times. For example, an increase in SOI wafer capacity was announced in 2011 and an investment on patterning line took place in 2017. Over the period 2017-2021, the company invested more than €100 million in increasing its production capacity.

## **The rise of LFP batteries in electric vehicles**

The number of electric vehicles (EVs) expected to equip lithium-iron phosphate (LFP) batteries in 2022 will reach new heights as automotive OEMs continue to adopt the technology, according to new data from Researcher and Research.

In March, the share of LFP batteries in the global EV market rose to 19.2%, the highest it has ever been. Researcher and Research expects the share of EVs using LFP batteries to continue to expand this year driven by sales from Tesla, BYD, General Motors, Chery, GreatWall, XPeng and more.

In 2021, EVs equipped with LFP batteries accounted for 14.3% of the global market, an increase of 5.2% from 2020. Researcher and Research updated its forecast for LFP battery adoption this year from 20.6% to 21.5%.