

# Innovative Provider of Diamond Semiconductor Wafers, DIAMFAB, Unveils New Strategy and Technology Vision

*DIAMFAB ready to reinforce and advance its position as a leading diamond semiconductor technology provider with a disruptive approach and unique know-how.*

GRENOBLE, FRANCE, November 9, 2022 /EINPresswire.com/ -- Innovative Provider of Diamond Semiconductor Wafers, DIAMFAB, Unveils New Strategy and Technology Vision



DIAMFAB, a start-up innovator of high value-added diamond semiconductor wafer technology for next-generation electronics, today announced that the company will move to a new dual business model strategy. Under this new approach, DIAMFAB will sell its technology directly and through application-oriented strategic partnerships and alliances. This new strategy will enable DIAMFAB to reinforce and advance its position as a leading diamond semiconductor technology provider with a disruptive approach and unique know-how, unlocking significant new market opportunities and helping to meet major environmental and economic challenges.

“

We have made significant progress working with R&D teams to process high value-added diamond wafers. Our application-oriented approach will now allow us to work with industrial partners.”

*Gauthier Chicot*

The strategy is designed to achieve a scalable go-to-market model implemented through a mix of in-house capabilities and an extended partner ecosystem based on co-development. “Over the past two years, we have made significant progress working with R&D teams to process high value-added diamond wafers. Our application-oriented approach based on a dual business model will now allow us to work with a broader set of industrial partners, to develop and sell high value-added diamond wafers and our patented diamond devices manufacturing processes, while also selling directly to end users with a fab-light model,” said Gauthier Chicot, CEO of DIAMFAB.

DIAMFAB has already started to work with partners on the design and fabrication of high-performance devices including diodes, transistors, capacitors, quantum sensors, and high-energy detectors. The company's first market is capacitors for electrical vehicles, where the advantages of diamond semiconductors over actual capacitor technologies show tremendous potential for improving compactness and performance over the lifetime of a vehicle. "We have already filed a patent on an all-diamond capacitor and are collaborating with a leading player in this field," continued Chicot. Among other parameters, we have achieved our targets: a high current density of over 1000A/cm<sup>2</sup> and a breakdown electric field larger than 7.7MV/cm. These are key parameters for the performances of future devices and are already superior to what existing materials like SiC can provide for power electronics. Moreover, we have a clear roadmap to reach 4-inch wafers by 2025 as a key enabler for mass production."

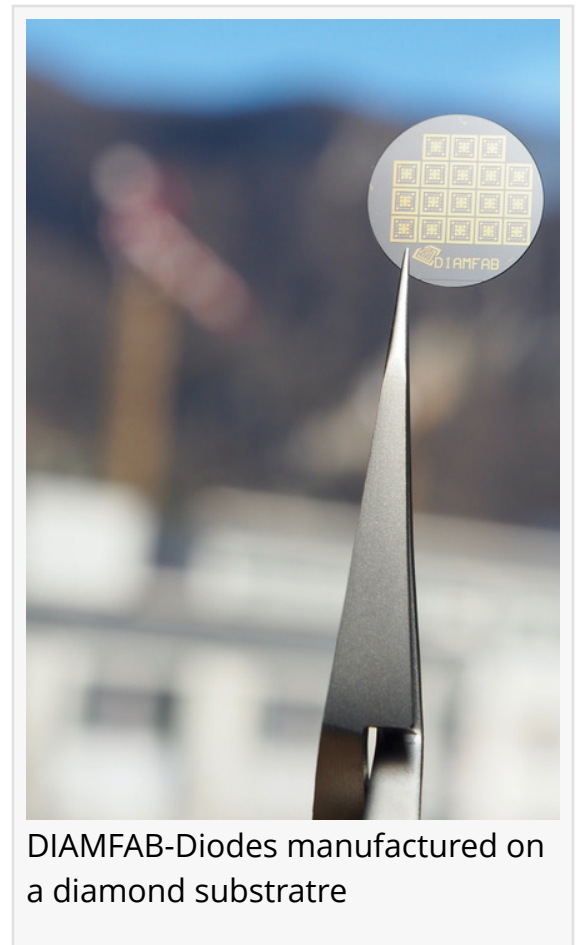
### Diamond as a Semiconductor

Diamond has the potential to be the ultimate semiconductor due to its superlative electrical properties (5000 higher current density and 30 times higher voltage compared to silicon) and its ability to operate in harsh environments (high temperature and radiation). DIAMFAB's patented approach to growing synthetic diamond material ranging from a few nanometers in thickness to tens of micrometers is unique in the industry. DIAMFAB diamond wafers can be used for insulator, semiconductor, metallic, and superconductive conduction applications. In automotive applications, DIAMFAB wafers could allow the fabrication of 80% lighter and more compact power converters. In power grid applications, DIAMFAB wafers could also more easily handle higher voltage and reduce energy losses by a factor of 10 compared to silicon.

Applications range from electric vehicles with diamond power electronics devices to IoT with 20 years long life battery, to nuclear and spatial applications with hardened electronics components or detectors in healthcare, and even ultraprecise quantum sensors for autonomous vehicles.

### Additional Details

DIAMFAB provides a unique control know-how which consists of synthesizing and doping diamond epitaxial layers representing, the only one of its kind in the world. In microwave-generated plasma and under controlled temperature and pressure conditions, the company cracks methane molecules into carbon which are then rearranged on the surface of a diamond



seed. At the same time, a precise and controlled amount of boron or nitrogen is added to grow diamond-doped layers and form a high value-added wafer ready for device fabrication.

About DIAMFAB: Founded in March 2019 and based in Grenoble (France), DIAMFAB is a spin-off of the French National Centre for Scientific Research (CNRS). The company synthesizes and dopes diamonds for the semiconductor industry. Thanks to its superior electrical performance, record efficiency, and high compactness, DIAMFAB high value-added diamond wafers are designed to play a major role and be at the heart of the energy transition. From the electric car to the future high voltage network, from hybrid aircraft to batteries for connected objects, diamond will be the key to the electrification of our society.

For more information visit: [www.diamfab.com](http://www.diamfab.com)

CAMILLE DUFOUR

International PR Consulting (for DIAMFAB)

+33 6 79 49 51 43

[camille.prconsulting@gmail.com](mailto:camille.prconsulting@gmail.com)

Visit us on social media:

[LinkedIn](#)

---

This press release can be viewed online at: <https://www.einpresswire.com/article/600331649>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2022 Newsmatics Inc. All Right Reserved.