Archer Materials
Technology

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ASX Announcement (ASX: **AXE**) 11 December 2023

Archer sends new Biochip gFET design to foundry partner in Spain

Highlights

- Archer Materials has previously validated earlier generations of Biochip gFET designs by the manufacture of chips at foundries in Germany and the Netherlands.
- Archer has sent a new Biochip gFET design to a foundry partner in Spain for fabrication through a whole wafer run, with advances over previous chip design features including gating and channel definition.
- The foundry in Spain provides Archer an additional foundry partner to benchmark the suitability for its gFET design.
- Archer is also working with the foundry partner in Spain to integrate testing of the gFET devices at point of manufacture to improve the efficiency of the Company's technology development processes.
- Having multiple gFET designs helps to potentially increase the Biochip's application and improve its quality control.

Archer Materials Limited ("Archer", the "Company", "ASX: AXE"), a semiconductor company advancing the quantum computing and medical diagnostics industries, has sent a new Biochip graphene field effect transistor ("gFET") design to a foundry partner in Spain for fabrication through a whole wafer run.

The foundry in Spain has ISO 13485 certification to manufacture medical device components, an important hallmark for future manufacturing partnerships.

The process run will be performed on a four-inch whole wafer. The gFETs are designed to be fabricated with structures suitable for liquid multiplexing, with advances over previous chip design features, including in gating and channel definition.

Archer is currently developing various gFET design techniques through the engagement of several commercial semiconductor foundries in Europe. This has the potential to increase the applications of its Biochip, improve their quality control, and bolster the Company's supply chain resilience.

The semiconductor chip manufacturing processes and technology in each graphene foundry will differ, including the characteristics of graphene within the devices. Performing wafer runs in several foundries is required as part of the gFET chip development process to optimise the gFET design and manufacturing for foundry readiness and compatibility.

Archer is continuing discussions with commercial foundries that specialise in graphene fabrication to secure future gFET device manufacturing capability and to support technology development of its Biochip, including further plans for device design validations.

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Archer expects to perform the testing of the chips diced from the wafer in its laboratory in Australia, with delivery of the new gFETs anticipated in the first half of 2024. Archer is also working with the foundry partner in Spain to integrate testing of the gFET devices at point of manufacture to improve the efficiency of the Company's technology development processes.

Archer has already validated a first-generation Biochip gFET design through a multi-project wafer run and joint fabrication with a German foundry partner, and validated an advanced gFET design through a four-inch whole wafer run at a commercial foundry in the Netherlands, as announced on 9 November 2023 and 14 September 2023, respectively.

On 2 November 2023, The Company announced that it was also able to demonstrate readout multiplexing of its advanced Biochip gFET sensor through integrating newly developed hardware and software.

Commenting on the gFET engagement with the foundry in Spain, Dr Mohammad Choucair, CEO of Archer, said,

"By developing various designs for our Biochip gFET sensor, we are able to widen our foundry network, improve quality control of our chips, and expand possible applications.

"Working with an ISO certified foundry for the manufacture of medical device components aligns with the nature and purpose of our Biochip, which is to potentially transform the medical diagnostics industry by providing better access for the detection of disease."

The Board of Archer authorised this announcement to be given to ASX.

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About Archer

Archer is a technology company that operates within the semiconductor industry. The Company is developing advanced semiconductor devices, including chips relevant to quantum computing and medical diagnostics. Archer utilises its global partnerships to develop these technologies for potential deployment and use across multiple industries. www.archerx.com.au