

ASX Announcement ([ASX: AXE](#))

15 March 2022

Progress update on recruitment and facilities access

Archer Materials Limited (“Archer”, the “Company”, “[ASX: AXE](#)”) is pleased to provide shareholders with an update on the Company’s progress related to its operations and growth.

In October 2021 the Company raised \$25 million (before costs) to execute on the Company’s strategy and to grow the Company. A key focus area for Archer’s scale up includes the Company’s domestic and international capabilities in advanced semiconductor design, fabrication, and prototyping. This includes both access to infrastructure and facilities, and also the recruitment of talent in the quantum computing industry to grow the Archer team.

Recruitment, team growth, and appointment of a leading quantum expert

Archer began its recruitment drive in early 2022. Archer has been approved by the Australian Department of Home Affairs as a standard business sponsor, which now broadens the scope of potential talent the Company could pursue by allowing the Company to sponsor international workers.

The Company has received over 650 applications for current advertised roles that include Quantum Hardware Engineers, Materials Chemists, and Nanofabrication Engineers. Exceptional candidates will be joining Archer over the coming months to execute on the Company’s technology development plans.

An example of the world-leading experts joining Archer in technology leadership roles to develop the ¹²CQ quantum computing chip includes Associate Professor Matthew Broome (Image 1).

A/Prof. Broome joins Archer with over 15 years’ experience in building quantum computers, recently moving to Archer from the University of Warwick, UK, where he led a research team designing and fabricating next generation semiconductor devices for a range of quantum applications. In 2017 he was awarded the prestigious Marie Curie Fellowship which he undertook at the world-class Niels Bohr Institute, Copenhagen, where he regularly set international benchmarks in multi-qubit devices.

Between 2014-16, Matthew was a lead researcher at CQC²T at UNSW Sydney, where he fabricated and measured the world’s first two-qubit device in a donor-based silicon quantum processor. He completed his PhD at the University of Queensland, Brisbane, in 2013. His thought leadership in the field of quantum computing is evident with over 30 high-impact peer reviewed scientific publications. His outstanding work in quantum computing and technology has been recognised internationally through funding by several organisations including The Royal Society, European Research Council, De Beers, and the UK Defence force.

Technology development, international collaborations, and access to deep tech infrastructure

The Company has proceeded to gain access to the Australian Nanofabrication Facility UNSW Sydney node. This infrastructure and facilities provides Archer access to multi-million dollar instruments such as the specialised RAITH150 Two Electron-beam Writer which is designed to help with Archer’s transition from single-device-oriented R&D towards small-batch high-resolution fabrication of nanodevice prototyping. This access expands on Archer’s operation within the [Research and Prototyping Foundry](#) in Sydney.

Archer researchers have gained access to additional advanced instrumentation for biological analysis at [Westmead Institute of Medical Research](#) and are preparing for automated testing across various other genomic analysis facilities in Sydney as part of the biochip development. Automated testing will provide the Company with efficiency in its 'big data' collection, and complements the Company's access to the Protein Production Facilities in Sydney.

The Archer team continues to collaborate with colleagues at the Swiss tech institute EPFL with the intent for multi-year co-development in building quantum devices (Image 3), and have also begun preliminary studies related to the ^{12}CQ chip development with renowned quantum experts and colleagues at Universities in Canada, that Archer visited in late 2021.

With the recent progress made by the Archer team in qubit control (ASX ann. [1 Feb 2022](#)), graphene integration with silicon electronics (ASX ann. [13 Jan 2022](#)), and talent recruitment, the Company has commenced the broadening of its technology development to include other areas that are integral to the ^{12}CQ chip operation. These areas include qubit optimisation and quantum electronic device fabrication. This work can now be performed in parallel to the Company's focus on qubit control.



Image 1. Archer's Quantum Technology Manager, Dr Martin Fuechsle (left), together with new team member Associate Professor Dr. Matthew Broome (right), while visiting the Company's collaborators at the Swiss tech institute EPFL earlier this year.

Networking, ecosystem and commercial outreach

Archer has recently been, and is actively and regularly pursuing exposure to global industry participants in the markets relevant to quantum computing and lab-on-a-chip biochip technology, to potentially foster connections with future partners, including at significant industry specific events that help inform Archer's tech development, for example:

- Archer staff attended the Quantum Australia conference in February 2022 (Image 2), which included over 800 participants and 100+ quantum experts, including the Chief Scientist of Australia, and Archer's collaborators from IBM and the global IBM Quantum Network.

- Recent and ongoing participation and contributions to consultations to inform the development of Australia's [National Quantum Strategy](#). The strategy development, and such roundtables, are led by Australia's Chief Scientist Dr Cathy Foley.
- Participation in the South Australian Forum on the Industrial Application of Quantum, led by Australia's Chief Scientist, and South Australia's Chief Scientist (Professor Caroline McMillen).
- Attending the largest in-person quantum technology conference, Quantum.Tech, in Boston, USA, in June 2022.
- Archer has now expanded its Sydney office spaces to include The Quantum Terminal. The co-working space houses organisations within the Quantum Technology, High-Performance Computing, and Artificial Intelligence technology verticals that are key innovation enablers.
- Archer has joined the NSW Health Cicada MedTech commercialisation program.
- Attending the AusMedtech conference in Melbourne in May 2022, which is Australia's foremost conference for knowledge exchange and networking in the MedTech sector. It will be attended by major Australian MedTech companies and Archer will look to utilise the AusPartnering program.
- Attending the BIO international conference in San Diego in June 2022. This is one of the most important global industry networking events in the biotech industry which focuses on bringing start-ups, investors, and commercial partners together. It is attended by several global companies active in biosensor technology R&D and commercialisation, including Johnson & Johnson, Roche, Merck, Novartis, Pfizer, and Abbott.



Image 2. Archer attends the Quantum Australia conference held in Sydney, in February 2022.

Further information on Archer's global competitive advantage and tech differentiation

The scientific breakthrough made in 2016 to realise Archer's ^{12}CQ qubit material is available online in the peer-reviewed scientific journal [Nature Communications](#), which reports the advantages, technological trade-offs, and the technological barriers that have been overcome towards realising practical quantum computing, over several other qubit proposals.

Some of the advantages of Archer's ^{12}CQ chip qubit material include the *combination of the potential use for room temperature quantum computing and integration with electronic devices*. Archer's technology development advances continue to provide direct evidence to support this exciting possibility (ASX ann. [1 Feb 2022](#)) (Image 3).

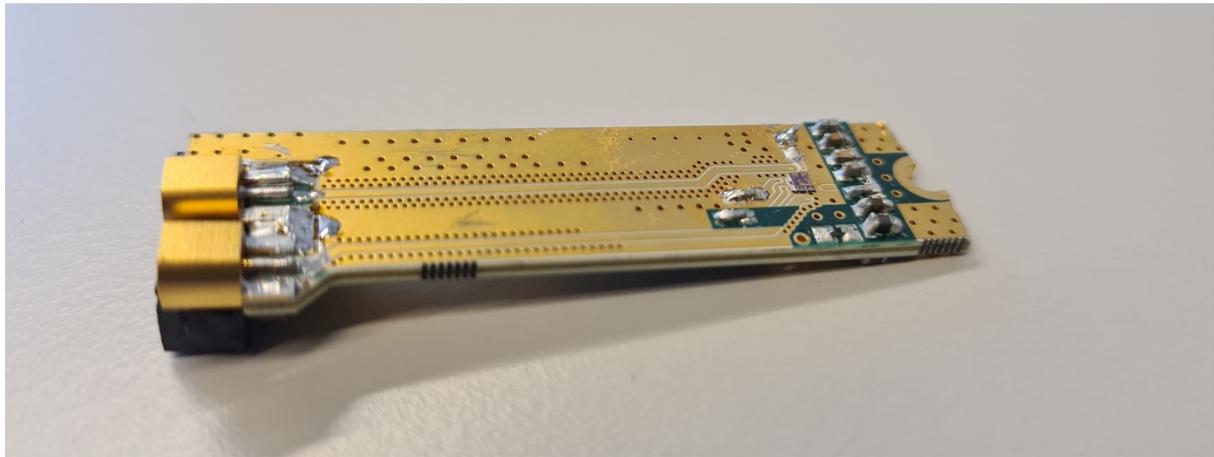


Image 3. The integrated single chip ESR detector based on mobile compatible chip technology that Archer and EPFL teams used to detect the quantum spin states in Archer's ^{12}CQ qubit material at room temperature. The whole device is about the size of a traditional USB stick.

About Archer

Archer is a technology company developing advanced semiconductor devices, including processor chips that are relevant to quantum computing. Archer is developing the ^{12}CQ chip, a world-first qubit processor technology, that could allow for quantum computing powered mobile devices ('QPMDs'). For more information, please view Archer's [webinar](#) with IBM.

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

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