



Media Release

Australian Prime Minister and French President announce plans for new quantum computing collaboration

French-Australian partnership is a tangible next step in development of a silicon quantum computer

Wednesday 2 May, 2018 (Sydney, Australia): The Prime Minister of Australia, Malcolm Turnbull, and the President of France, Emmanuel Macron, today announced plans for a new French-Australian collaboration between Australia's first quantum computing company, Silicon Quantum Computing Pty Ltd (SQC), and the world leading French research and development organisation, the Commissariat à l'Energie Atomique et aux Energies Alternatives (the CEA).

The Memorandum of Understanding (MoU), signed today, outlines plans to form a joint venture in silicon CMOS quantum computing technology to accelerate and focus technology development, as well as to capture commercialisation opportunities – bringing together French and Australian efforts to develop a quantum computer.

“The work at Silicon Quantum Computing in Sydney is world leading and vital to Australia’s innovation and science agenda,” said Prime Minister Malcolm Turnbull.

“Quantum computing promises to revolutionise the IT industry,” said 2018 Australian of the Year Professor Michelle Simmons, who is an SQC director and founder. “We have phenomenal leadership in silicon quantum computing across a range of platforms, and SQC is now moving rapidly to commercialise all these technologies. It is very exciting that Professor Andrew Dzurak and his team have found a design, development and fabrication partner of the quality of the CEA.”

SQC is a world-leader in silicon-based quantum computing, with a technology development program led by Professor Simmons, Professor Dzurak, Professor Andrea Morello and Professor Sven Rogge. Leveraging intellectual property developed at the Australian Centre of Excellence for Quantum Computation and Communications Technology (CQC²T), SQC is pursuing parallel approaches using single atom qubits and qubits fabricated using silicon-CMOS technology. Under the leadership of Professor Dzurak, SQC has world leading expertise in designing and demonstrating components of the quantum chip based on silicon-CMOS technology. This MoU concerns this silicon-CMOS approach.

“SQC’s scientific capability in Australia and the CEA’s research and development capability in France provide an excellent basis for a collaboration to develop and commercialise a quantum silicon integrated circuit based on Silicon-CMOS,” Christophe Gégout, Chairman of CEA Investissement. “This alliance will develop world leading quantum hardware, and could be the cornerstone for the continuing growth and development of a prominent scientific and industrial quantum computing dynamic in both countries.”

A key player in research, development and innovation, and widely acknowledged as an expert in its areas of skill, the CEA is actively involved in the international innovative ecosystem. The CEA maintains an advanced

Silicon-CMOS research and development facility with globally recognised expertise in developing innovative new integrated circuits in partnership with industrial companies. The CEA has unique knowledge in quantum properties of silicon nanodevices, and the teams based in Grenoble recently announced breakthroughs towards large-scale fabrication of qubits, the elementary bricks of future quantum processors. They demonstrated on a 300 mm industrial-scale research and development facility that silicon CMOS technology can be leveraged to create qubits and they fabricated isotopically ^{28}Si substrates to further benefit from intrinsic coherence properties of silicon. The CEA teams in coordination with the CNRS Neel Institute have gathered unique skills to focus on quantum computing in their Quantum Silicon Group.

As the commercialisation company for CQC²T's silicon quantum computing programs, SQC is developing a portfolio of opportunities, such as joint ventures and partnerships, aimed at maintaining Australia's leadership in the commercialisation of silicon quantum technology and in production of devices in Australia. SQC is currently working on three approaches for creating silicon-based quantum devices. The joint venture contemplated by this MoU would bring SQC's silicon-CMOS work together with the CEA's silicon-CMOS expertise – with the ambition to form a leading player in the global competition to manufacture and industrialise quantum computing hardware.

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For further information

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About Silicon Quantum Computing

Silicon Quantum Computing Pty. Ltd. (SQC) is working to create and commercialise a quantum computer based on world leading intellectual property acquired from the Australian Centre of Excellence for Quantum Computation and Communication Technology (CQC2T). SQC currently has parallel platforms for creating a silicon-based quantum computer using atomically engineered phosphorus donors, quantum dots using CMOS technology and hybrids. SQC is owned by the Australian Government, the Commonwealth Bank of Australia (CBA), Telstra, UNSW and the NSW State Government. For more information, visit sqc.com.au.

About the French Atomic Energy and Alternative Energy Commission (the CEA)

The French Alternative Energies and Atomic Energy Commission (the CEA) is a public research organisation working in four main areas: defence and security, nuclear and renewable energies, technological research for industry and fundamental research. Building on its recognised expertise, the CEA takes part in implementing cooperation projects with a wide range of academic and industrial partners. With its 16,000 researchers and employees, it is a major player in European research and is expanding its international presence. In 2017, Thomson-Reuters / Clarivate identified the CEA as the most innovative public research organization in Europe.