中央研究院講座
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Quantum Computers and Quantum Supremacy
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【Abstract】

Nature allows the storage and manipulation of data in new and powerful ways using quantum mechanics. I will explain the basic concepts behind the exponential power of this technology and how to build a quantum computer using superconductors. I will show recent experimental data on a "quantum supremacy" experiment with 53 qubits: the Sycamore processor takes about 200 seconds to run a quantum circuit a million times - the equivalent task for a state-of-the-art classical supercomputer would take approximately 10,000 years. Finally, I will explain some of the future uses of quantum algorithms and what may be in store for the field in the next 10 years.