Chinese Scientists Set New Quantum Computing Record

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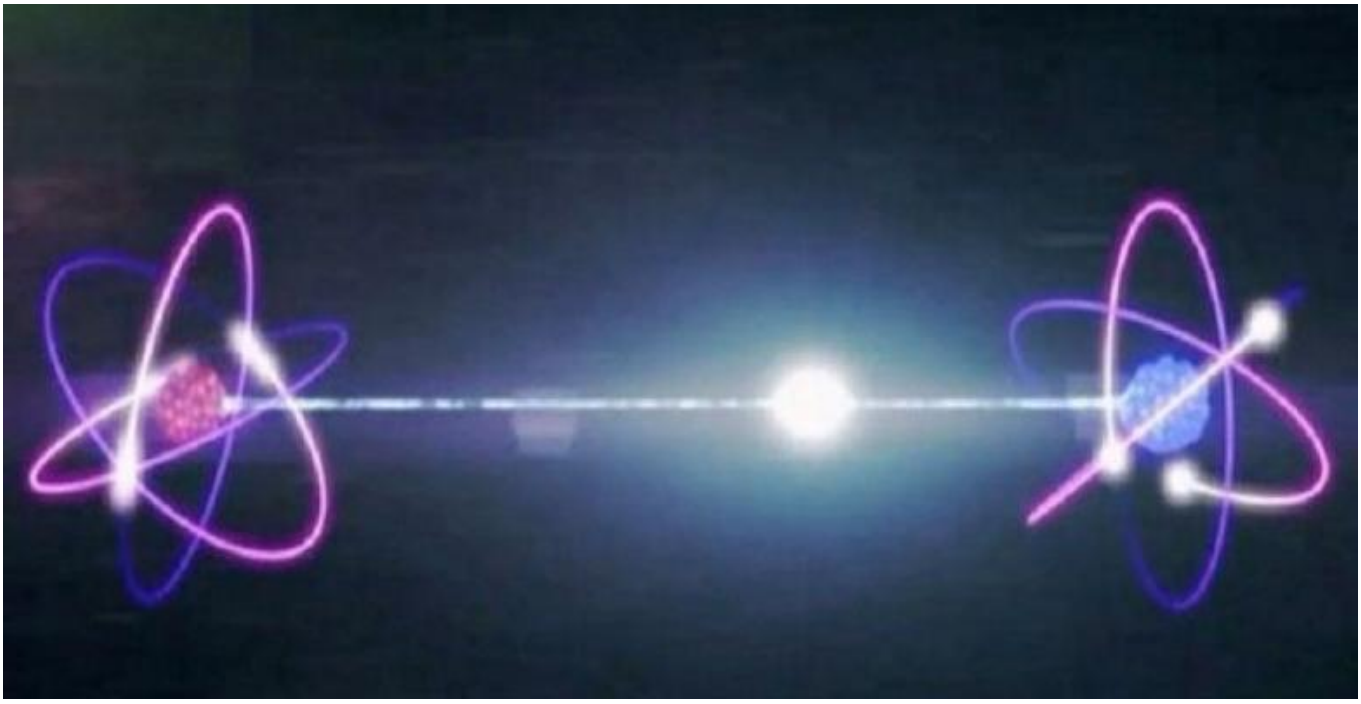

Chinese physicists have managed to break the quantum computing world record, achieving quantum entanglement of 18 qubits, surpassing the previous record of 10.

Large-scale quantum computing is considered the next major leap in computing technology, and could potentially surpass the physical limits imposed on current computers.

Quantum entanglement is a phenomenon in which two or more entangled sub atomic particles, or qubits, can affect each other simultaneously regardless of distance. The counter-intuitive concept breaks both classical physical laws and common sense, but in the weird world of quantum mechanics such interactions have the possibility to revolutionize technology.

Quantum entangled particles demonstrate dependent physical properties despite distance. For example, the position, momentum or polarization of a quantum entangled particle could be correlated to that of other particles regardless of the distance between them.

It has been known at least since 1935, when several physicists – including Albert Einstein and Erwin Schrodinger – published papers describing the paradoxes encountered at the small particle or 'quantum' level.

Such a phenomenon is believed by some to have potential in constructing network technology.

The field of research has a long way to go, however, as the quantum entanglement effect is extremely unstable and must overcome decoherence caused by outside interference.

Physicist Pan Jianwei, at the University of Science and Technology of China, was able to achieve a stable 18-qubit state, a major step toward being able to do quantum processing. Pan is also the previous record holder, having previously achieved a 10 qubit state in 2017.

China has also announced it is launching a new space science program that will include the launch of four new research satellites to research the origin of the universe, black holes and gravitational waves.

The program will include a satellite named the Einstein Probe, which will detect X-ray emitters, something useful in detecting high energy distant objects such as quasars and black holes.

The Gravitational Wave Electromagnetic Counterpart All-Sky Monitor satellite will research gravitational waves, a burgeoning field of research in physics. Although gravitational waves were predicted by Einstein and early 20th century physicists researching General Relativity, only recently have we been able to detect them.

The Solar Wind Magnetosphere Ionosphere Link Explorer, or Smile, is a joint effort between Chinese and European scientists and will study the interactions between solar wind and Earth's magnetosphere.

Similarly, the Advanced Space-Borne Solar Observatory will study the relationship between solar magnetic fields, solar flares and coronal mass ejections, which pose a danger to communications systems.

In recent years, China has launched several notable satellites, including projects to investigate dark matter and experimental quantum physics.