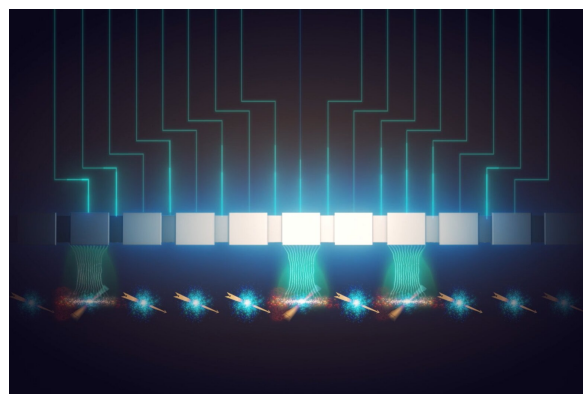


NTU Q

NEW SPIN CONTROL METHOD BRINGS BILLION-QUBIT QUANTUM CHIPS CLOSER

Researchers at the University of New South Wales (UNSW) have developed a new way of controlling single electrons in quantum dots that run logic gates, which is less bulky and requires fewer parts. The discovery, made by engineers at the quantum computing start-up Diraq and UNSW, uses electric fields, rather than magnetic fields, to manipulate the quantum state of a single qubit. The new technique, known as 'intrinsic spin-orbit EDSR', could help building a large-scale silicon quantum computers.



Credit: Tony Melov

[READMORE](#)

NO SECOND LAW OF ENTANGLEMENT MANIPULATION AFTER ALL

The theories of quantum entanglement and thermodynamics have similarities that have led to efforts to find a similar set of laws for entanglement as there are for thermodynamics. One open question has been to find a "second law of entanglement" that governs all changes in entangled systems, similar to how entropy does in thermodynamics. However, this study shows that it is not possible to establish such a law. By using basic principles of entanglement manipulation, the researchers have shown that changes in entanglement are irreversible and that making them reversible would require a significant amount of additional entanglement. These findings reveal important differences between quantum entanglement and thermodynamics, and also highlight a unique aspect of entanglement.

[READMORE](#)

THE QHACK HACKATHON 2023

Every year, QHack brings together people from all over the world to celebrate quantum computing. QHack 2023 will feature world-class live stream talks, coding challenges, an open-hackathon, a design competition, a meme contest, and life-changing prizes.

The event will take place February 13-28, 2023. The participations is free for everyone, and encourages all quantum enthusiasts from complete beginners to seasoned experts to attend!

[READMORE](#)



Source: [QHACK](#)

計畫補助單位：



IBM Quantum Computer Hub at National Taiwan University

Rm.711, Dept. of Physics /Center for Condensed Building

No. 1, Sec.4 Roosevelt Rd., Da'an Dist. Taipei City 106319, Taiwan

✉ ntuq2018@gmail.com

☎ :+886 2-33669928

🌐 <http://quantum.ntu.edu.tw/>