

# China and South Africa Establish World's Longest Quantum Communications Link

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**A groundbreaking collaboration between the University of Science and Technology of China (USTC) and Stellenbosch University in South Africa has resulted in the establishment of the world's longest intercontinental quantum communications link, spanning 12,900 kilometers. This achievement marks a significant advancement in secure global communications technology.**

The project utilized China's Jinan-1 quantum microsatellite, operating in low Earth orbit, to facilitate the quantum communication link, notably the first of its kind in the Southern Hemisphere. Scientists successfully transmitted images of the Great Wall of China and the Stellenbosch University campus between Beijing and South Africa, showcasing the viability of long-distance quantum communication.

Professor Juan Yin, a key figure in the development of China's Micius quantum satellite, led the Chinese research team at USTC. Dr. Yaseera Ismail oversaw the South African research team at Stellenbosch University's Department of Physics, acting as the principal experimentalist for the quantum satellite link. Professor Francesco Petruccione, Director of the National Institute for Theoretical and Computational Sciences (NITheCS) at Stellenbosch University, played a crucial role in advancing South Africa's quantum communication infrastructure.

"This achievement lays a solid foundation for future deployments involving multiple microsatellites and a network of optical ground stations, bringing us closer to a practical quantum constellation," stated a project scientist.

The findings, published in *Nature*, highlight the successful collaboration and the potential for secure, long-

distance quantum communication networks. This partnership underscores the growing international interest and investment in quantum technology.