



China Gaining Momentum in Quantum Technologies That Can be Used in Military Applications

OE Watch Commentary: China is determined to lead the world in quantum-based technologies that can contribute to military superiority. Pan Jianwei, executive vice president of the University of Science and Technology of China, member of the Chinese Academy of Sciences, and the one of the country's leading experts and researchers on quantum communication, claims that China is already leading the world in encrypted quantum communications. According to the accompanying excerpted article published by *Taikong Media*, Pan sees China as already being firmly established in the international academic community in quantum computing.

The excerpted transcript from a program broadcast on *CCTV News* gives an overview on some of China's most recent developments. After China launched its quantum-enabled satellite Micius in 2016, the country began to expand its quantum network. A quantum network is meant to allow the transmission of secure communications without the threat of an eavesdropper setting in undetected. In 2017 China achieved the first 1000-km-level Beijing-Shanghai quantum fiber link and the world's first intercontinental quantum communication. A ground-based network of optical fiber quantum communication works in tandem with Micius and, according to the report, has contributed to China taking the leading position in quantum communication research and development.

Finally, in support of its continued plan to remain at the forefront of research and development of quantum related technologies, China is reportedly building the world's largest quantum research facility. According to the article published in *China Morning Post*, the facility will be located in Hefei, Anhui province and will be used to develop a quantum computer and other revolutionary forms of technology, which can be used by the military. Along with encrypted communications, other quantum-based technologies of value to the military include quantum computing, which will be able to break today's encryption systems, and "quantum metrology," which could improve submarine stealth operations. **End OE Watch Commentary (Hurst)**

“China is now in an all-round leading position in the world of encrypted quantum communications and is firmly established in the international academic community in quantum computing.”

Source: “潘建伟委员：我国量子保密通信技术在国际处于全面领先地位 (Pan Jianwei: China Takes the Lead in Developing Encrypted Quantum Communication Technology),” *Zhongguo Taikong Wang*, 20 March 2018. <http://www.taikongmedia.com/Item/Show.asp?m=1&d=25348>

Pan Jianwei, executive vice president of the University of Science and Technology of China and a member of the Chinese Academy of Sciences, said that (under the state's great attention and strong support,) China is now in an all-round leading position in the world of encrypted quantum communications and is firmly established in the international academic community in quantum computing.

Source: “未来已来·量子通信时代来临 (The Future is Coming – the Advent of the Era of Quantum Communication),” *CCTV News*, 26 December 2017. <http://m.news.cctv.com/2017/12/26/ARTI04gypqG4PANjuEWWr78171226.shtml>

Quantum-enabled satellite “Micius” had achieved three main goals one year earlier; the world's first 1000-km-level Beijing-Shanghai quantum fiber link has been in operation and the world's first intercontinental quantum communication has been successfully achieved. At the end of 2017, a research group led by Jianwei Pan made a series of important developments in the field of quantum communication, enabling China to take the lead in this area.

On June 16th 2017, the internationally authoritative academic journal Science published “Satellite-based entanglement distribution over 1200 kilometers” as the cover essay.

On August 10th 2017, the internationally authoritative academic journal Nature published another two important achievements of “Micius”: satellite-to-ground quantum key distribution and ground-to-satellite quantum teleportation. So far, “Micius” has accomplished all three goals set for it successfully.

On September 29th 2017, the world's first 1000 km-level quantum private communication trunk---Beijing to Shanghai trunk officially opened. Supported by the satellite-ground chain, Beijing and Vienna successfully implemented the first intercontinental quantum private communication ever in history.

Quantum Satellite Head Scientist, Chinese Academy of Sciences Scholar, Weijian Pan says, “We hope in the future, there are high-track satellite and earth-based satellite constructed constellations in the sky, connecting with the internet on the land, constructing a worldwide, practical, and general quantum communication web. As the quantum information technology times comes, we believe it is highly possible that a quantum revolution featured by quantum information is happening right now.”

Source: Stephen Chen, “China Building World's Biggest Quantum Research Facility,” *South China Morning Post*, 11 September 2017. <http://www.scmp.com/news/china/society/article/2110563/china-building-worlds-biggest-quantum-research-facility>

China is building the world's largest quantum research facility to develop a quantum computer and other “revolutionary” forms of technology that can be used by the military for code-breaking or on stealth submarines, according to scientists and authorities involved in the project.

The National Laboratory for Quantum Information Science will be located on a 37-hectare site next to a small lake in Hefei, Anhui province. Sometime this month developers will be invited to bid for a contract to construct the site, according to an article in Hefei Evening News, a daily newspaper run by the city government on Thursday.

Pan Jianwei, China's lead quantum scientist who was playing a key role in the project, told local officials at a briefing in May that technology developed in the facility would be of immediate use to the armed forces, according to Anhui Business Daily newspaper.