

# Quantum communication experiments lead China's sci-tech innovation

As the first to achieve quantum key distribution from a satellite to the ground, China is confident in making more scientific and technological breakthroughs.

The achievement, based on experiments conducted with the world's first quantum satellite – Quantum Experiments at Space Scale (QUESS), lays a foundation for building a hack-proof global quantum communication network.

QUESS, nicknamed “Micius” after a fifth century B.C. Chinese philosopher and scientist, was launched on Aug. 16, 2016.

Published in Nature magazine, the achievement was described by reviewers as “impressive” and “constitutes a milestone in the field.”

Traditional public key cryptography has the risk of being hacked, while quantum key technology, used in quantum communication, rules out the possibility of wiretapping and secures the communication.

Over the past two years, in addition to QUESS, China has also launched a series of space science satellites, including the Dark Matter Particle Explorer, the recoverable satellite SJ-10, and the Hard X-ray Modulation Telescope.

Since the start of this year, Chinese have been inspired by landmark achievements in science and technology which contribute to an easier life.

A new railway line, linking Baoji in northwest China's Shaanxi Province with Lanzhou, capital of neighboring Gansu Province, began operation in early July.

The route was a result of China's continuous efforts to improve the construction of high-speed railways, enabling the western provinces to be connected to the national high-speed rail network.

It is also part of China's efforts to boost connectivity along the Belt and Road, where transportation demand is high.

Also in early July, China made breakthroughs in the search for alternative clean energy sources by completing a 60-day trial of mining gas hydrates, commonly known as combustible ice, in the South China Sea.

Starting on May 10, a mining operation in waters near the Pearl River estuary has beaten previous expectations and set world records in both the length and total amount of extraction, according to China Geological Survey Bureau.

China has set innovation as the core of its 13th five-year plan (2016-2020), with the aim to become an “innovation nation” by 2020, an international

leader in innovation by 2030, and a world powerhouse in scientific and technological innovation by 2050.

Such efforts will help the country improve the convenience of transport, raise living standards, resolve energy resource shortages, and boost economic development.

Inspired by their country, the Chinese public have also stepped up efforts in scientific and technological innovation.

In 2016, China had over 1.1 million patents for inventions, ranking third after the United States and Japan.