

## India plans national mission on quantum technology to get super-secure communication networks

Kalyan Ray, DHNS, New Delhi, JAN 24 2020, 23:52



India has begun working on a national mission that may eventually lead to the creation of a super-secure communication network to make online financial transactions hacking-proof besides ensuring full-proof safety of every bit of digital communication.

Such an unconditional level of information security would come from the frontier area of quantum technology that Indian scientists would explore under the planned mission.

“The detailed project report on the national mission on quantum technology and application is being written. The mission will have components on basic research, product development and applications,” Urbasi Sinha, a scientist at Raman Research Institute one of members of the panel preparing the report told DH

While the national mission would come under the Department of Science and Technology, the Indian Space Research Organisation is on-board and may provide satellites at a later date for experiments, for which the RRI making a payload. The initiative is catalyzed by the Principal Scientific Advisor to the government.

Fundamental bedrock of modern physics, quantum mechanics deals with the behavior of matter and light at the atomic and subatomic scales

Quantum technology exploits some of the spooky properties of quantum mechanics – such as quantum entanglement, superposition and tunneling – in developing practical applications like computing and cryptography.

Early generation quantum computers are a reality though they are not commercially available. In

October, Google reported developing a 53 qubit chip (Sycamore) that in 3.20 minutes would finish a task, which a 200 petaflop super-computer would take about 10,000 years.

Such powerful computers put a question mark on the security of commonplace modern communication systems that are secured by classical encryption codes. That's where the proposed Indian mission intends to chip in. With China making rapid progress, one of the focus areas in the proposed Indian mission is quantum cryptography.

“Existing communication networks are secured by classical encryption techniques (like the RSA code) that can be broken by powerful computers. With quantum computers around, the classical cryptography is at risk. Quantum cryptography, on the other hand is unbreakable,” said a scientist, who is aware of the mission but didn't wish to be identified.

Last week RRI hosted a scientific conference, in which leading experts from all over the world came to Bengaluru to discuss the challenges ahead. Scientists associated with Chinese satellite Micius, the world's only quantum satellite was also attended the conference.

“The scientific inputs will help us better prepare the detailed project report that would be submitted to the DST for funding,” Sinha said. As a prelude, the DST since 2017 has started funding projects under its Quantum Science and Technology Programme but the scales are likely to expand further under the national mission.

Read more at: <https://www.deccanherald.com/national/india-plans-national-mission-on-quantum-technology-to-get-super-secure-communication-networks-797940.html>