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US IS PLANNING A NATIONWIDE QUANTUM INTERNET

Relevant for: Science & Technology | Topic: IT, Internet and Communications

Scientists use crystals like these in quantum experiments. | Photo Credit: University of Geneva

The US is working towards a national quantum internet that will rely on the movement and interaction of sub-atomic particles to control and transmit information.

“The Department of Energy is proud to play an instrumental role in the development of the national quantum internet,” Dan Brouillette, US Secretary of Energy, said at a press conference at the University of Chicago on Thursday.

The DoE claims scientists can make virtually unhackable networks using this technology as quantum transmissions are difficult to eavesdrop on as information passes between different locations. It can become a more secured communications network and have a deep impact on areas critical to science, industry and national security, the DoE said.

Once developed, quantum networking will be used in banking, health services, aircraft communications, and other applications for national security before gradually rolling it out for use in mobile phones. Scientists are working on how to use it better during the transmission of huge amount of data.

Other potential areas where quantum technology can be deployed include image processing, searching for oil, gas and mineral deposits, and also earthquake prediction using ultra-sensitive quantum sensors.

Other quantum advances

DoE’s 17 national laboratories will serve as the backbone for the upcoming technology. Scientists from DoE and the University of Chicago have already created a quantum network in the Chicago Suburbs in February this year. DoE claims that it is one of the longest land-based quantum networks in US and will soon connect it to its Fermilab in Batavia, Illinois, creating an 80-mile testbed.

Other national laboratories are also testing quantum networking and other related technologies. Stony Brook University and Brookhaven National Laboratory, along with DoE have tested an 80-mile quantum network. They are now expanding the network in New York State and at Oak Ridge and Los Alamos National Laboratories.

Some of the research groups are developing a quantum cryptography system with highly secured information, a method of hiding data which only certain people for whom it is meant can view.

Creating a full-fledged prototype of a quantum internet will require intense coordination among U.S. Federal agencies—including DOE, the National Science Foundation, the Department of Defense, the National Institute for Standards and Technology, the National Security Agency, and NASA—along with National Laboratories, academic institutions, and industry, the DoE said in a statement.

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