

Insert the photon into the empty space inside the diamond

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A team of scientists from Yokohama National University recently became the first researchers in the world to successfully teleport a photon into the empty space inside a natural diamond. It can be said that scientists have invented a new concept: Quantum Jewelry.

Imagine you see light from a torch reflecting inside a diamond. After that, keep on imagining that you moved the diamond to another room, leaving the torch there, but it continues to reflect light - that's basically what the researchers did. do, just on a much smaller scale.

1. Quantum computing - a marathon, not a sprint contest!



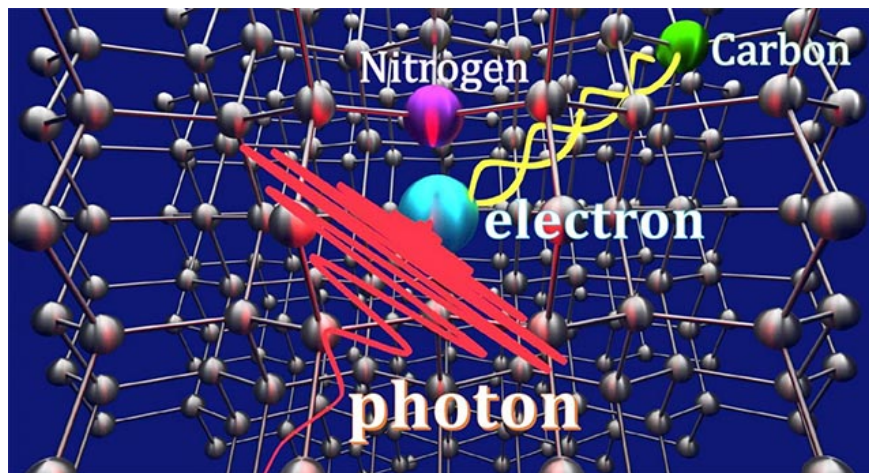
How did they do this?

To control an electron and carbon isotope in the void, the team attached a wire just one quarter of the diameter of a human hair to the surface of a diamond. Later, scientists used microwaves and radio waves to impact the fiber to create a magnetic field that vibrates around the diamond. In particular, they shaped microwaves to create optimal and controllable conditions to transmit quantum information to the gap in the diamond.

Basically, the 'gap' that Japanese scientists Kazuya Tsurumoto, Ryota Kuroiwa, Hiroki Kano, Yuhei Sekiguchi and Hideo Kosaka have to deal with is the chemical gap inside the diamond.

The abnormal space inside the diamond is rooted in what scientists call nitrogen-vacancy center. This phenomenon stems from the areas that should have the presence of carbon but are missing this component. However, due to this abnormality, scientists had a place to squeeze a photon into the diamond.

1. Successful fabrication of quantum compass to atomic level, replacing GPS in the future



Put Photon in the gap in the diamond crystal structure

Photons are basic light units that can be used to exploit a hilarious phenomenon called 'quantum entanglement', to facilitate a type of communication called 'teleportation'. quantum teleportation '.

In the process of quantum teleportation, all information of a qubit (the basic unit of quantum information) can be transmitted accurately from one location to another without having to be accompanied by displacement. in the space of the object contains that qubit - like the science fiction version of instantaneous movement, in which matter is transported in space without having to travel through that space.

1. Google announced the most powerful 72-qubit Bristlecone quantum chip at the moment

This is a great achievement of Yokohama University. The sending of photons into an inaccessible space using quantum teleportation could lay the foundation for the formation of an absolutely safe dispersed quantum computer network.

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