FAQs About Quantum Teleportation

You might have some questions regarding the sci-fi aspect of the recent quantum teleportation research. Francesco Marsili of NASA's Jet Propulsion Laboratory's responds:

Q: Has NASA developed Star Trek's 'transporter?'
A: "Unfortunately not. Our experiment is fundamentally different than Star Trek's transporter. The transporter teleports matter by converting matter into a signal for transport, and then converting the signal back to matter at some other location.

We teleported properties of light, so our experiment cannot lead to the transporter in the future. It is not inconceivable that one might teleport the quantum state of macroscopic material objects, but this would require that a clump of matter in the right shape would be waiting to receive the quantum state. Also, the experiment was carried out at the University of Geneva. NASA, in collaboration with the National Institute of Standards and Technology in Colorado, developed an essential part of the experiment: the detectors."

Q: Can NASA transport people through space and time?
A: "Space, but unfortunately not time. Our experiment has no implications for travel through spacetime, which would require creating Einstein-Rosen bridges (aka wormholes)."

Q: What's next?
A: "There are a number of technologies that still need to be developed to implement world-wide quantum networks. For example, next is the implementation of a quantum repeater. Quantum repeaters use entanglement, teleportation and quantum memories to transmit information over long distances. In the future, quantum cryptography may become a widespread technology. Quantum mechanics can make the communication between two users intrinsically secure."

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