

# Physicists study remote quantum networks

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U.S. physicists say the operations of two remote quantum systems can be synchronized so changes in one system are conditional on what occurs in the other.

The research team led by Jeff Kimble of the California Institute of Technology says the synchronization provides a level of real-time control that hasn't previously been achieved.

Quantum networking plays a key role in a series of proposed quantum communication and information schemes that hold promise for secure information exchange, as well as the ability to solve certain tasks faster than any classical computer.

A practical quantum network requires synchronized operations to be performed on states stored in separated nodes. The authors address the specific task of producing a pair of identical photons from two quantum nodes. They make one node ready for emitting a single photon, but, before actually releasing the particle, wait for the other node to be ready.

That method, the researchers said, significantly increases the probability that two photons are fired simultaneously, when compared with a situation without such conditional control.

The physicists say they believe their technique could have important implications for the development of quantum networks.

The research appears in the journal *Nature Physics*.

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