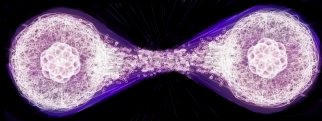
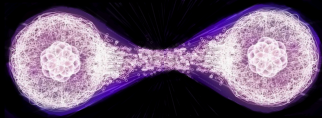


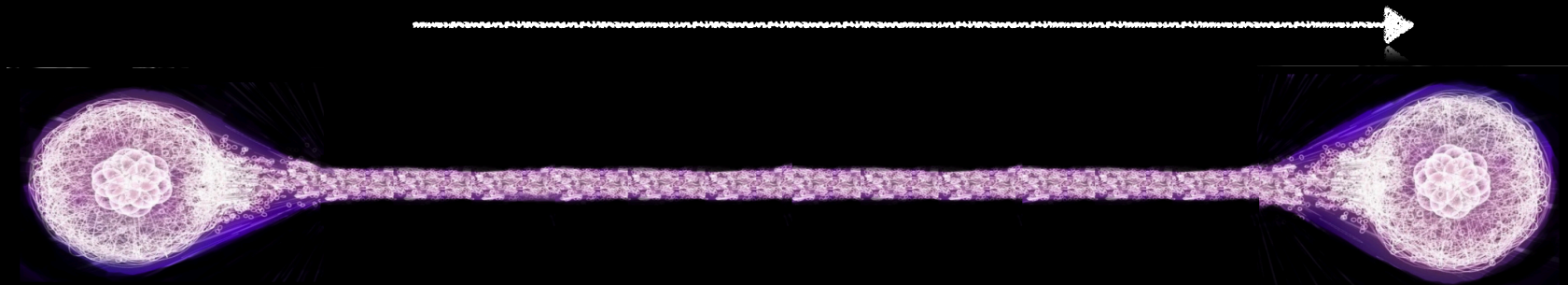
What is Quantum Teleportation ?



When a state of entanglement is achieved between two Qubits changes induced in one Qubit are reflected in the other instantaneously.



If one of the entangled Qubits is transported to another location they remain part of one entangled system, irrespective of the distance between them. This phenomenon has been termed **Quantum Teleportation**



As change is instantaneous irrespective of the distance. The Qubits are not communicating in the traditional sense, which would require faster than light travel. They are simply remaining part of one entangled system which we can imagine as 'stretched'.

The potential to instantly change the state of an entangled pair over any distance without the need for network infrastructure is game changing, but the challenge facing researchers is how to initially transport one of the pair. Interaction with the real world interferes with Qubit causing decoherence.

What been achieved so far ?



Current maximum range via Fibre Optic (100 km) before photon loss and decoherence occurs.



Satellite up to 1,200 km achieved by China's Micius satellite.

The Future ?

Researchers are already looking at ways to protect against decoherence to extend the range over fibre optic infrastructure, but its is likely that a combination of satellite (inter continental) and fibre (in geography) would be used to distribute the entangled Qubits in the future.

