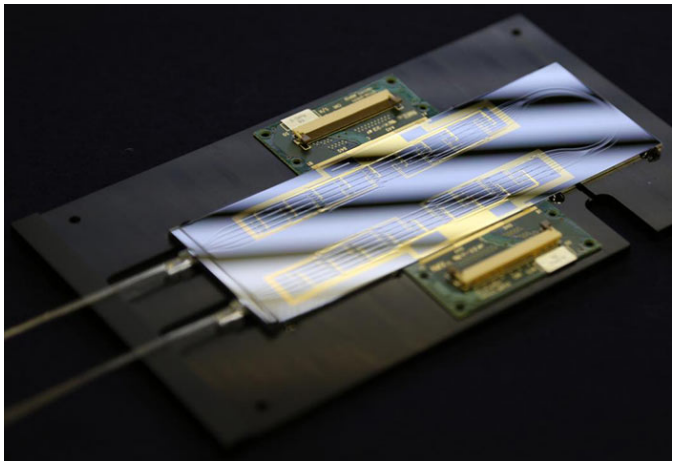
Written by Marco Attard
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Researchers from the University of Bristol and Nippon Telegraph and Telephone (NTT) announce a light-based breakthrough in quantum computing-- an optical chip able to "process photons in infinite number of ways."



The optical chip brings together a number of quantum experiments, and will even "realise a plethora of future protocols that have not even been conceived yet." It also allows for faster and easier testing of quantum science theories and quantum computing experiments.

How so? Typical quantum science experiments involve working with "notoriously fragile" systems demanding months to build. The optical chip simplifies such work by being easily reprogrammable, allowing scientists to perform nothing less than "a year's worth of experiments in a matter of hours."

"A whole field of research has essentially been put onto a single optical chip that is easily controlled. The implications of the work go beyond the huge resource savings," project leader Dr Anthony Lang says. "Now anybody can run their own experiments with photons, much like they operate any other piece of software on a computer. They no longer need to convince a physicist to devote many months of their life to painstakingly build and conduct a new experiment."

The researchers say the chip is still in early days, and more work is required before it sees less experimental applications. However it represents an important step in quantum computing, and should eventually find use in "Quantum in the Cloud"-- a University of Bristol initiative in building a publicly accessible quantum processor.

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