World's shortest single photon pulse created

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A light beam split through a prism

The world's shortest light pulse containing just one photon has been produced by Oxford University scientists.

The Oxford team can create individual photons that are 65 femtoseconds in duration: that's approximately fifty times shorter than any single photon previously produced.

And every photon this source produces is identical to the previous one. Such photons could be a major breakthrough in quantum computing: the harnessing of quantum effects to perform calculations that would take conventional computers thousands of years to resolve.

'Creating single photons even under controlled conditions is extremely challenging,' said Peter Mosley of Oxford's Department of Physics.

‘Even the purest laser light beam consists of many photons all bunched together. Our approach enables us to generate individual photon replicas, identical packets of light of very short duration that are ideal for quantum computing.’

Peter Mosley, a member of Oxford’s Ultrafast Group, is a co-author of a report of the research in this week’s *Physical Review Letters*.

Source: Oxford University