

## Quantum Physics

# Nonclassical 2-photon interference with separate intrinsically narrowband fibre sources

Matthaeus Halder, Jeremie Fulconis, Ben Cemlyn, Alex Clark, Chunle Xiong, William J. Wadsworth, John G. Rarity

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In this paper, we demonstrate a source of photon pairs based on four-wave-mixing in photonic crystal fibres. Careful engineering of the phase matching conditions in the fibres enables us to create photon pairs at 597 nm and 860 nm in an intrinsically factorable state showing no spectral correlations. This allows for heralding one photon in a pure state and hence renders narrow band filtering obsolete. The source is narrow band, bright and achieves an overall detection efficiency of up to 21% per photon. For the first time, a Hong-Ou-Mandel interference with unfiltered photons from separate fibre sources is presented.

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