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Improved quantum light generation in optical fibres through incoherent nonlinear optics

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Entangled photons are a very useful resource for quantum optics experiments. Entanglement is usually obtained through nonlinear parametric effects, such as modulation instabilities in optical fibres. We show that the coherence properties of the pump laser greatly affects the efficiency of third-order parametric effects. We present a model for incoherent nonlinear processes in optical fibres and demonstrate how the use of an incoherent pump leads to improved quantum sources.

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