

## Quantum computing with photonic networks

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The aim of this PhD project is to develop highly efficient protocols for processing quantum information in photonic networks [1] for applications ranging from quantum metrology [2] and quantum computing to quantum neural networks [3]. Sources for single photons on demand, which are based on atom-cavity systems, have already become available in the laboratory and have recently been combined with linear optics networks [4]. The isolated photons used in Ref. [4] are the result of a complete conversion of one atomic excitation into an excitation of the electromagnetic field.

This theoretical PhD project will be carried out in close collaboration with other members of the Oxford Quantum Technology Hub NQIT, especially Axel Kuhn and Elham Kashefi.

### References.

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