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Quantum Computing: a tool for simulating physical systems in photonics

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Quantum computing offers capabilities for simulating complex physical systems. In photonics, it plays a crucial role in modelling the behaviour of both bright laser beams and single-photons that are propagated through the atmosphere, turbid, and other complex media. This can be crucial for applications in fields such as biological imaging, LiDAR, laser light communication and surveillance systems. In this talk, I will demonstrate how quantum computers can assist in modelling laser beam propagation through complex media, address inference problems in optics, and enable for the classification and characterization of optical fields.

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