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Exploring the connections between quantum search algorithms and ghost imaging

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Quantum ghost imaging is a non-invasive imaging technique that involves non-local photon pairs. One photon from an entangled pair interacts with the object while the other non-integrating photon is directed to a spatially resolved imaging detector. In this context, the analysis of the spatial correlations of these two spatially separated photons enables the reconstruction of the image of an object. We show that by looking at quantum ghost imaging from a quantum computation perspective, a remarkable link between the ghost imaging and quantum search algorithms can be found. In this talk, I will present the main results showing the close relation between the quantum operators that connects both process, as well as the discuss how this link allows us to explore quantum computation tasks from the quantum optics perspective.

Apply to be considered for a student ; award (Yes / No)?

No

Level for award;(Hons, MSc, PhD, N/A)?

N/A

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