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Title:	A versatile quantum walk resonator with bright classical light
Authors:	Goyal, S.K. (/jspui/browse?type=author&value=Goyal%2C+S.K.)
Keywords:	Quantum Walk Quantum superposition Experimental platform
Issue Date:	2019
Publisher:	PLoS One
Citation:	PLoS ONE, 14(4).
Abstract:	In a Quantum Walk (QW) the "walker" follows all possible paths at once through the principle of quantum superposition, differentiating itself from classical random walks where one random path is taken at a time. This facilitates the searching of problem solution spaces faster than with classical random walks, and holds promise for advances in dynamical quantum simulation, biological process modelling and quantum computation. Here we employ a versatile and scalable resonator configuration to realise quantum walks with bright classical light. We experimentally demonstrate the versatility of our approach by implementing a variety of QWs, all with the same experimental platform, while the use of a resonator allows for an arbitrary number of steps without scaling the number of optics. This paves the way for future QW implementations with spatial modes of light in free-space that are both versatile and scalable.
Description:	Only IISERM authors are available in the record.
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