

Quantum Physics

Quantum Imaging beyond the Diffraction Limit by Optical Centroid Measurements

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(Submitted on 30 Jan 2009 (v1), last revised 22 Jun 2009 (this version, v2))

I propose a quantum imaging method that can beat the Rayleigh-Abbe diffraction limit and achieve de Broglie resolution without requiring a multiphoton absorber as the detector. Using the same non-classical states of light as those for quantum lithography, the proposed method requires only intensity measurements, followed by image post-processing, to produce the same complex image patterns as those in quantum lithography. The method is expected to be experimentally realizable using current technology.

Comments: 4 pages, 2 figures; v2: accepted by PRL, see also the accompanying Viewpoint commentary by Anisimov and Dowling [Physics 2, 52 (2009), [this http URL](#)]

Subjects: **Quantum Physics (quant-ph)**

Journal reference: Physical Review Letters (Editors' Suggestion) 102, 253601 (2009)

DOI: [10.1103/PhysRevLett.102.253601](https://doi.org/10.1103/PhysRevLett.102.253601)

Cite as: [arXiv:0901.4817v2](#) [quant-ph]

Submission history

From: Mankei Tsang [[view email](#)]

[v1] Fri, 30 Jan 2009 02:15:54 GMT (25kb)

[v2] Mon, 22 Jun 2009 18:31:08 GMT (28kb)

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