Quantum Physics

Quantum Imaging beyond the Diffraction Limit by Optical Centroid Measurements

Mankei Tsang (Massachusetts Institute of Technology)

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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]
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