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Title:	Three-dimensional classical imaging of a pattern localized in a phase space
Authors:	Singh, Mandip (/jspui/browse?type=author&value=Singh%2C+Mandip) Gambhir, Samridhi (/jspui/browse?type=author&value=Gambhir%2C+Samridhi)
Keywords:	Phase space methods Classical imaging Dimensional phase spaces Structural pattern
Issue Date:	2018
Publisher:	American Physical Society
Citation:	Physical Review A, 98(5).
Abstract:	<p>In most imaging experiments, the structure of an object is defined in a position space. Such a structural pattern can be stationary, or for a dynamic object it can be nonstationary with time. An image of such an optically responsive object can be produced with a lens, therefore such an object can be seen with a camera or by the human eye. In this paper, we go beyond the conventional notion of imaging. A structural pattern of objects in our experiment is defined in a phase space, therefore such a pattern cannot be imaged with a lens or a camera, and the human eye cannot visualize it. A pattern in phase space is produced from object transparencies and imprinted onto the phase space of an atomic gaseous medium of a Doppler-broadened absorption profile at room temperature by utilizing velocity-selective hole burning in the absorption profile. The pattern is localized in a unique three-dimensional phase space, which is a subspace of the six-dimensional phase space. Tomographic images of the localized phase-space pattern are captured at different momentum locations by a laser light that has never interacted with actual objects. In addition, imaging of an imprinted phase-space pattern of an object of nonuniform transmittance is presented.</p>
URI:	<a href="https://journals.aps.org/pr/abstract/10.1103/PhysRevA.98.053828">https://journals.aps.org/pr/abstract/10.1103/PhysRevA.98.053828</a> ( <a href="https://journals.aps.org/pr/abstract/10.1103/PhysRevA.98.053828">https://journals.aps.org/pr/abstract/10.1103/PhysRevA.98.053828</a> ) <a href="http://hdl.handle.net/123456789/1696">http://hdl.handle.net/123456789/1696</a> ( <a href="http://hdl.handle.net/123456789/1696">http://hdl.handle.net/123456789/1696</a> )
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