

Title (en)

DIRECT-TO-DIGITAL OFF-AXIS HOLOGRAPHY WITH OFF-AXIS ILLUMINATED OBJECT

Title (de)

AUSSERAXIALE DIREKT-DIGITALE HOLOGRAPHIE MIT AUSSERAXIALEM BELEUCHTETEM OBJEKT

Title (fr)

HOLOGRAPHIE DIRECTE-NUMERIQUE A ECLAIRAGE INDIRECT

Publication

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Application

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- US 23404302 A 20020903
- US 23404202 A 20020903

Abstract (en)

[origin: WO2004023217A2] Systems and methods are described for off-axis object illuminated direct-to-digital holography. A method of recording an off-axis illuminated spatially heterodyne hologram including spatially heterodyne fringes for Fourier analysis, includes: reflecting a reference beam (135) from a reference mirror (140) at a non-normal angle; reflecting an object beam (215) from an object (130) at an off-axis angle with respect to an optical axis defined by a focusing lens (145); focusing the reference beam and the object beam at a focal plane of a digital recorder to form the off-axis illuminated spatially heterodyne hologram including spatially heterodyne fringes for Fourier analysis; digitally recording the off-axis illuminated spatially heterodyne hologram including spatially heterodyne fringes for Fourier analysis; Fourier analyzing the recorded off-axis illuminated spatially heterodyne hologram including spatially heterodyne fringes by transforming axes of the recorded off-axis illuminated spatially heterodyne hologram including spatially heterodyne fringes in Fourier space to sit on top of a heterodyne carrier frequency defined as an angle between the reference beam and the object beam; applying a digital filter to cut off signals around an original origin; and then performing an inverse Fourier transform.

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G03H 1/00

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