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(54) Title: COMPUTATIONAL ADAPTIVE OPTICS FOR INTERFEROMETRIC SYNTHETIC APERTURE MICROSCOPY AND OTHER INTERFEROMETRIC IMAGING

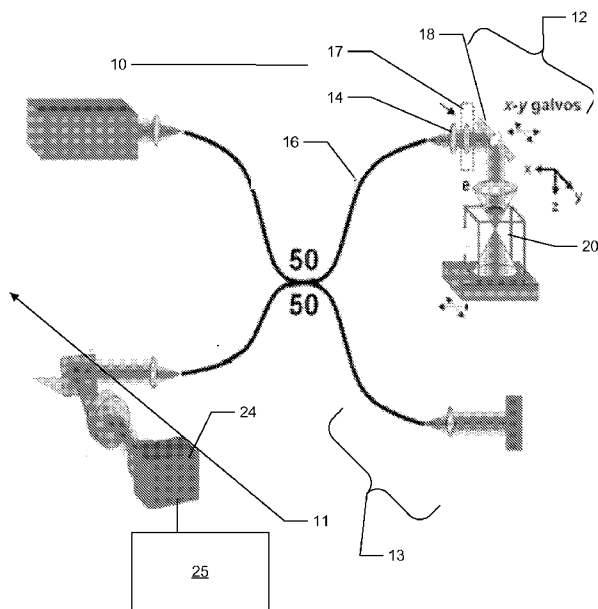


Fig. 1

(57) Abstract: Methods for correcting for aberrations in the image or three-dimensional reconstruction of a sampled region obtained by broadband interferometry. The sampled region is illuminated with a broadband beam of light, and light returned from the sample is detected, along with a reference beam, in order to derive an interference signal for pixels of a volume spanned by wavenumber and axes transverse to the beam propagation direction. An optimization procedure is performed with respect to a specified criterion so as to obtain an aberration-corrected image of at least one plane of the sampled region, either in a plane-specific manner or in a space-invariant manner throughout the sampled region. A filter function, which may be derived from the interference signal attendant to irradiating a sparsely distributed plurality of point scatterers, or otherwise, corrects for a detected aberrated point spread function. Methods of the present invention may be used for aberration correction in reading information from an optical data storage medium.





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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: optics, aperture, interferometric, microscopy

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004-0227950 A1 (HENRY ALLEN HILL) 18 November 2004 See paragraph [0031] - paragraph [0086]; abstract and figures 1a-1e.	1-18
A	US 7643155 B2 (DANIEL L. MARKS et al.) 05 January 2010 See column 5, line 1 - column 6, line 48; abstract and figures 1-4.	1-18
A	US 7602501 B2 (TYLER S. RALSTON et al.) 13 October 2009 See abstract and figures 1-6.	1-18

 Further documents are listed in the continuation of Box C. See patent family annex.

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