

(19) World Intellectual Property Organization
International Bureau



(10) International Publication Number
WO 2010/107652 A3

(43) International Publication Date
23 September 2010 (23.09.2010)

- (51) **International Patent Classification:**
G01N 21/45 (2006.01) G01B 9/02 (2006.01)
- (21) **International Application Number:**
PCT/US2010/026921
- (22) **International Filing Date:**
11 March 2010 (11.03.2010)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
12/408,121 20 March 2009 (20.03.2009) US
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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report (Art. 21(3))
(88) **Date of publication of the international search report:**
13 January 2011

WO 2010/107652 A3

(54) **Title:** ERROR COMPENSATION IN PHASE SHIFTING INTERFEROMETRY

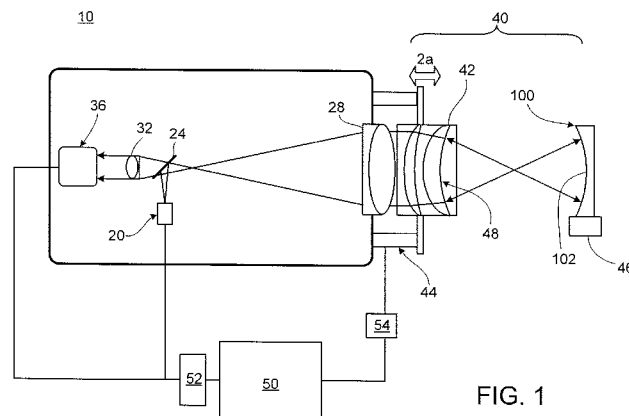




FIG. 1

(57) **Abstract:** In certain aspects, disclosed methods include combining reference light reflected from a reference surface with test light reflected from a test surface to form combined light, the test and reference light being derived from a common source, sinusoidally varying a phase between the test light and reference light, where the sinusoidal phase variation has an amplitude u , recording at least one interference signal related to changes in an intensity of the combined light in response to the sinusoidal variation of the phase, determining information related to the phase using a phase shifting algorithm that has a sensitivity that varies as a function of the sinusoidal phase shift amplitude, where the sensitivity of the algorithm at $2u$ is 10% or less of the sensitivity of the algorithm at u .

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/026921

A. CLASSIFICATION OF SUBJECT MATTER		
<i>G01N 21/45(2006.01)i, G01B 9/02(2006.01)i</i>		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) G01N 21/45; G01B 9/02		
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: "error", "compensation", "phase", "shifting", "interferometry", "reference" and similar terms.		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KENICHI HIBINO et al., `Suppression of Multiple-Beam Interference Noise in Testing an Optical-Parallel Plate by Wavelength-Scanning Interferometry` , OPTICAL REVIEW, 2002, Vol. 9, No. 2, pp. 60-65.	1-55
A	YUKIHIRO ISHII et al., `Phase-Shifting Fizeau Interference Microscope with a Wavelength-Shifted Laser Diode`, Opt. Eng., JANUARY 2003, Vol. 42, No. 1 , pp. 60-67.	1-55
A	US 6359692 B1 (PETER DE GROOT) 19 MARCH 2002 See abstract; figures 1-5; claims 1-18.	1-55
A	US 5473434 A (PETER DE GROOT) 05 DECEMBER 1995 See abstract; figures 1-4; claims 1-8.	1-55
A	US 2008-0266571 A1 (LESLIE L. DECK) 30 OCTOBER 2008 See abstract; figures 1-4; claims 1-14.	1-55
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 29 SEPTEMBER 2010 (29.09.2010)		Date of mailing of the international search report 29 SEPTEMBER 2010 (29.09.2010)
Name and mailing address of the ISA/KR  Korean Intellectual Property Office Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer KIM, MYOUNG-CHAN Telephone No. 82-42-481-5499 

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2010/026921

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