



(51) International Patent Classification:

A61B 17/94 (2006.01) *G06F 19/00* (2011.01)
G01B 9/02 (2006.01)

(21) International Application Number:

PCT/US2011/046290

(22) International Filing Date:

2 August 2011 (02.08.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/370,020 2 August 2010 (02.08.2010) 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, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

[Continued on next page]

(54) Title: AUTOMATIC CALIBRATION OF FOURIER-DOMAIN OPTICAL COHERENCE TOMOGRAPHY SYSTEMS

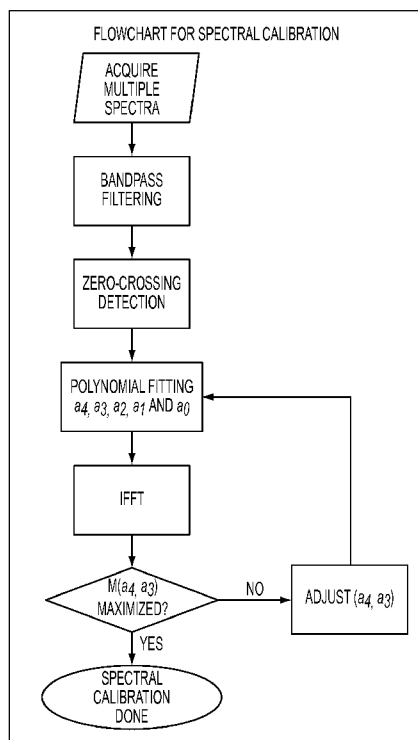


FIG. 1B

(57) Abstract: A method for calibrating a Fourier domain optical coherence tomography system includes receiving spectral data from an optical detector comprising a linear array of detector elements, each detector element having a position labeled n , wherein detected light was wavelength-dispersed across the linear array of detector elements; determining parameters of a preselected functional relationship between wave number, kn , corresponding to detector element n as a function of optical detector element n based on the spectral data; further receiving subsequent spectral data subsequent to the first-mentioned receiving, wherein detected light was wavelength-dispersed across the linear array of detector elements; converting the subsequent spectral data using the preselected functional relationship between wave number kn and optical detector element n to obtain converted spectral data; and performing an inverse Fourier transform of the converted spectral data to obtain a depth profile.



EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,
LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, 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))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

(88) Date of publication of the international search report:

24 May 2012

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/046290**A. CLASSIFICATION OF SUBJECT MATTER****A61B 17/94(2006.01)i, G01B 9/02(2006.01)i, G06F 19/00(2011.01)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)

A61B 17/94; G01B 11/02; G06K 9/00; G01N 21/00; 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

Chinese 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)

KOMPASS(KIPO internal) & keywords: calibrating, fourier domain, optical coherence tomography, spectral, and depth

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DING, CHAO et al., 'A new spectral calibration Method for Fourier domain optical coherence tomography', Optik, 2010.05.06., Vol.121, issue 11, pp. 965-970.	1-27
A	DUAN, LIAN et al., 'A Novel Spectral Calibration Method in Spectral Domain Optical Coherence Tomography', Proc. of SPIE, 2009.10.28., Vol.7519, pages. 751905-1 ~ 751905-6.	1-27
A	WOJTKOWSKI, MACIEJ et al., 'Ultrahigh-resolution, high-speed, Fourier domain optical coherence tomography and methods for dispersion compensation', OPTICS EXPRESS, 2004.05.31., Vol.12, No.11, pp.2404-2422.	1-27
A	US 2008-0181477 A1 (IZATT, JOSEP A. et al.) 31 July 2008 See abstract; paragraph [54] - paragraph [134]; Figures. 1-22.	1-27
A	US 2009-0015842 A1 (LEITGEB, RAINER et al.) 15 January 2009 See abstract; paragraph [64] - paragraph [161]; Figures. 1A-5.	1-27
A	US 7480058 B2 (ZHAO, YONGHUA et al.) 20 January 2009 See abstract; column 1 line 17 - column 12 line 17; Figures. 1-13.	1-27

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

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Date of the actual completion of the international search

27 MARCH 2012 (27.03.2012)

Date of mailing of the international search report

28 MARCH 2012 (28.03.2012)

Name and mailing address of the ISA/KR

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Government Complex-Daejeon, 189 Cheongsu-ro,
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Facsimile No. 82-42-472-7140

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2011/046290

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2008-0170219 A1 (SARUNIC MARINKO V. et al.) 17 July 2008 See paragraph [22] – paragraph [41]; Figures. 1-9.	1-27
A	XU, ZHIQIANG et al., 'A zero-crossing detection method applied to Doppler OCT', OPTICS EXPRESS, 2008.03.31., Vol.17, No.7, pp.4394-4412.	1-27
PX	LIU, XUAN et al., 'Towards automatic calibration of Fourier-Domain OCT for robotassisted vitreoretinal surgery', OPTICS EXPRESS. 2010.11.08., Vol.18, No.23, pp.24331-24343.	1-27

INTERNATIONAL SEARCH REPORT

Information on patent family members

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