

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
24 July 2008 (24.07.2008)

PCT

(10) International Publication Number
WO 2008/089495 A3

- (51) **International Patent Classification:**
GOIB 9/02 (2006.01)
- (21) **International Application Number:**
PCT/US2008/051739
- (22) **International Filing Date:** 22 January 2008 (22.01.2008)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
60/885,698 19 January 2007 (19.01.2007) US
60/916,177 4 May 2007 (04.05.2007) US
- (71) **Applicant (for all designated States except US):** PURDUE RESEARCH FOUNDATION [US/US]; 3000 Kent Avenue, West Lafayette, IN 47906 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** WANG, Xuefeng [CN/US]; 138 Nimitz Dr., Apt. 11, West Lafayette, IN 47906 (US). NOLTE, David, D. [US/US]; 4155 Eisenhower Road, Lafayette, IN 47905 (US). VARMA, Manoj [IN/IN]; Vadakke Maliackal Madhom, House N° : IX/92E, Eroor South P.O., Tripunithura, Kerala 682306

- (IN). WEICHEL, Brian [US/US]; 3205 Tilbury Drive, West Lafayette, IN 47906 (US). NORWOOD, Timothy [US/US]; 759 Essex St., West Lafayette, IN 47906 (US). SAYEGH, Fouad [US/US]; 213 E Pine Avnue, West Lafayette, IN 47906 (US). ZHAO, Ming [CN/US]; 3556 Bethel Drive, West Lafayette, IN 47906 (US).
- (74) **Agent:** FILOMENA, Anthony, P.; Bose Mckinney & Evans LLP, 135 North Pennsylvania Street, Suite 2700, Indianapolis, IN 46204 (US).
- (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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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),

[Continued on next page]

(54) **Title:** SYSTEM WITH EXTENDED RANGE OF MOLECULAR SENSING THROUGH INTEGRATED MULTI-MODAL DATA ACQUISITION

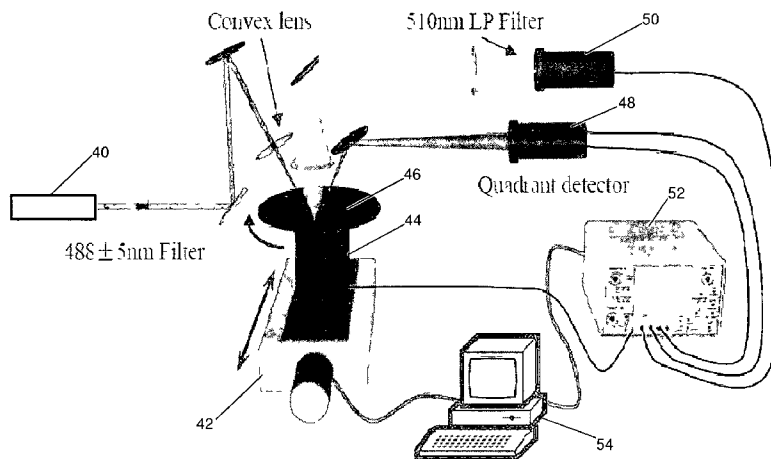


Figure 4

(57) **Abstract:** A multi-modal data acquisition system for detecting target material on a biological reaction surface, the system comprising a radiation source for generating an incoming beam that impinges on the biological reaction surface at an oblique incidence angle and produces a reflected beam, an interferometric detector for detecting an interferometric signal from the illuminated surface, the reflected beam being directed to the interferometric detector, a fluorescence detector for detecting a fluorescence signal from the illuminated surface; the fluorescence detector being positioned to substantially minimize the incidence of the reflected beam; and a processing system for receiving the interferometric and fluorescence signals and determining the presence or absence of target material on the biological reaction surface. A reaction surface conditioned for the simultaneous collection of fluorescence, interferometric and other signals. A multi-modal data acquisition system for collecting and processing additional modes, including multiple interferometric, fluorescence and scattering channels.

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European (AT, BE, BG, CH, CY, CZ, DE, **DK**, EE, ES, FI, FR, GB, GR, **HR**, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) **Date of publication of the international search report:**
9 October 2008

Published:

— *with international search report*

INTERNATIONAL SEARCH REPORT

International application No

PCT/US 08/51739

A CLASSIFICATION OF SUBJECT MATTER IPC(8) - G01B 9/02 (2008.04) USPC - 356/451 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) IPC(8) - G01B 9/02 (2008 04) USPC - 356/451		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC 250/390 04 , 356/26,450 378/45 (Search terms below)		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPTO WEST (PGPB, USPT, EPAB, JPAB), Google Scholar, Search terms biological compact disk, disc, biological reaction surface, interferometric detection, interferometrically, optical detection, detect or detection, identify, interferometer, filter, molecular sensing, illuminate, luminescence, fluorescence, oscilloscope,		
C DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	US 2005/0084422 A1 (Kido et al) 26 July 2004 (26 07 04) (para 10005],[0006],[0007],[0008],[0011],[0012],[0014],[0015] [0095] Fig 6, para [0098] Fig 9 [0101],[0109], [0031], [0110] Fig 10,[0182],[0137],[0139],para [0102] Fig 10, drive motor 162, para [0149],[0232] Fig 38C, para [0164])	1-8
Y	US 2006/0257939 A1 (Demers et al) 16 November 2006 (16 11 06) (para [0002],[0012],[0014],[0023],[0042],[0049],[0047],[0050],[0009],[0018],[0043],[0044])	1- 8
Y	US 2003/0035352 A1 (Worthington et al) 12 July 2002 (12 07 02) (para para [0213],[0217],[0224],[0246],[0301] ,[0264],[0265])	5-7
Y	Musundi et al ,Approaching Real-Time Molecular Diagnostics Single-Pair Fluorescence Resonance Energy Transfer (spFRET) Detection for the Analysis of Low Abundant Point Mutations in K-ras Oncogenes, J AM CHEM SOC 2003, 125, 6937-6945 (pp 6940, Instrumentation para)	8
A	US 2007/0003436 A1 (Nolte et al) 04 January 2007 (04 01 07), entire document	1-8
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Date of the actual completion of the international search 28 June 2008 (28 06 08)		Date of mailing of the international search report 21 JUL 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn ISA/US, Commissioner for Patents P O Box 1450, Alexandria, Virginia 22313-1450 Facsimile No 571-273-3201		Authorized officer Lee W Young PCT H β deslr 571-272-4300 PCTOSP 571-272-7774