(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 April 2014 (17.04.2014)

WIPO | PCT

(10) International Publication Number
WO 2014/058392 A1

(51) International Patent Classification:
G01N 21/17 (2006.01)

(21) International Application Number:
PCT/SG2013/000432

(22) International Filing Date:
8 October 2013 (08.10.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
201207483-7 8 October 2012 (08.10.2012) SG

(71) Applicant: **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 1 Fusionopolis Way, #20-10 Connexis, Singapore 138632 (SG).

(72) Inventors: **LIU, Qing**; c/o Industry Development, Institute of Microelectronics, 11 Science Park Road, Singapore Science Park 2, Singapore 117685 (SG). **KEE, Jack Sheng**; c/o Industry Development, Institute of Microelectronics, 11 Science Park Road, Singapore Science Park 2, Singapore 117685 (SG). **PARK, Mi Kyoung**; c/o Industry Development, Institute of Microelectronics, 11 Science Park Road, Singapore Science Park 2, Singapore 117685 (SG).

(74) Agent: **SPRUSON & FERGUSON (ASIA) PTE LTD**; P.O. Box 1531, Robinson Road Post Office, Singapore 903031 (SG).

(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, BN, 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, IR, IS, JP, KE, KG, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: REFRACTIVE INDEX SENSOR FOR ANALYZING AN ANALYTE, AND METHOD OF FABRICATION THEREOF

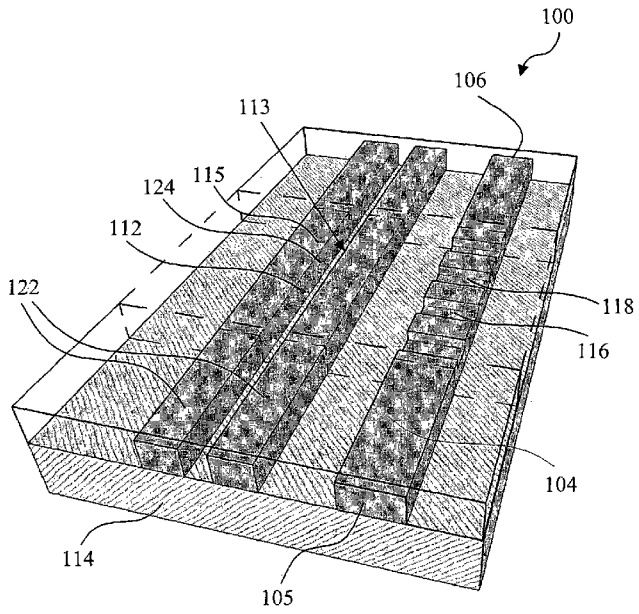


FIG. 1A

(57) Abstract: A refractive index sensor is provided for analysing an analyte, the sensor including: a strip waveguide for receiving an input light signal therein and transmitting the light signal, subject to manipulation as it propagates through the strip waveguide, to a detector for analysis with respect to the analyte; and a slot waveguide for sensing the analyte disposed thereon and for receiving a sensing signal, corresponding to said manipulation of the light signal, from the strip waveguide, wherein a grating is formed on a surface of the strip waveguide to enable coupling of the sensing signal from the strip waveguide to the slot waveguide, and the sensor is configured with enhanced sensitivity based on a sensitivity difference between the slot waveguide and the strip waveguide, and/or a group index difference between the slot waveguide and the strip waveguide

WO 2014/058392 A1

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*