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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
11 August 2005 (11.08.2005)

PCT

(10) International Publication Number
WO 2005/073703 A1

(51) International Patent Classification[7]: G01N 27/12, 33/50

(21) International Application Number: PCT/SG2005/000024

(22) International Filing Date: 28 January 2005 (28.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/540,069 30 January 2004 (30.01.2004) US

(71) Applicants *(for all designated States except US)*: **NANYANG TECHNOLOGICAL UNIVERSITY** [SG/SG]; 50 Nanyang Avenue, Singapore 639798 (SG). **QIU, Wei** [CN/SG]; Jurong West Street 71, Blk 710, #07-20, Singapore 640710 (SG).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **TAN, Ooi Kiang** [SG/SG]; 32 Nanyang Crescent, Blk 64, #07-1289 Hall 13 NTU, Singapore 637658 (SG). **GAN, Yik Yuen** [MY/SG]; 39 Hindhede Walk #06-03, Singapore 587971 (SG). **YAO, Xi** [CN/CN]; 151 - 302 Tongji Xinchun, Zhangwu Road, Shanghai 200092 (CN). **TJIN, Swee Chuan** [SG/SG]; Woodlands Street 83, Blk 835, #08-129, Singapore 730835 (SG).

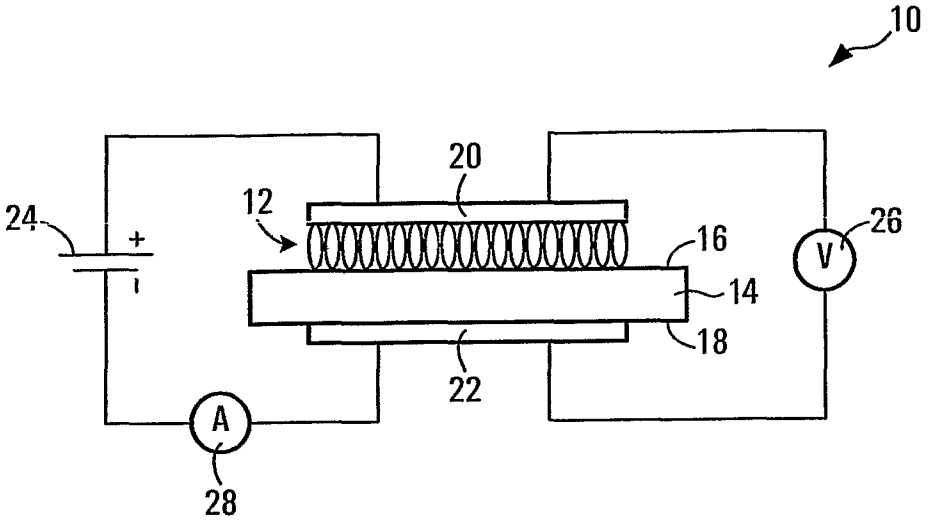
(74) Agent: **ALBAN TAY MAHTANI & DE SILVA**; 39 Robinson Road, #07-01 Robinson Point, Singapore 068911 (SG).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, 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: SENSING BIOLOGICAL ANALYTES ON A FERROELECTRIC TRANSDUCER



(57) Abstract: A method of detecting a biological analyte within a sample (12) is provided. The analyte is one that can be electrically charged or polarized in the presence of an electric field. The sample is place in proximity with a ferroelectric transducer (14). An electric field is established to polarize the analyte in the sample. An electric response of the ferroelectric transducer resulting from the electric field and indicative of the presence of the analyte in the sample is then sensed. Also provided is a sensor for detecting the analyte within the sample. The sensor has a ferroelectric transducer and first (20) and second electrodes (22) for establishing a potential difference across a sample disposed adjacent to the transducer to generate an electric field in the sample. The sensor may also have an electric signal detector (26) for sensing the electric response.

WO 2005/073703 A1

European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.