

(51) International Patent Classification:
H01L 31/11 (2006.01) *G01J 1/44* (2006.01)(21) International Application Number:
PCT/SG2011/000141(22) International Filing Date:
12 April 2011 (12.04.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/323,333 12 April 2010 (12.04.2010) US(71) Applicant (for all designated States except US): **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 1 Fusionopolis Way, #20-10 Connexis, Singapore 117 602 (SG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **YAO, Kui** [CN/SG]; c/o Institute of Materials Research and Engineering, 3 Research Link, Singapore 117602 (SG). **GAN, Bee Keen** [CN/SG]; c/o Institute of Materials Research and Engineering, 3 Research Link, Singapore 117602 (SG). **LAI, Szu, Cheng** [SG/SG]; c/o Institute of Materials Research and Engineering, 3 Research Link, Singapore 117602 (SG).(74) Agent: **ONG, Kheng Lu, Lucille Frances**; Marks & Clerk Singapore LLP, Tanjong Pagar, P.O. Box 636, Singapore 910816 (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, 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, 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).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

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

(54) Title: A PHOTOVOLTAIC UV DETECTOR

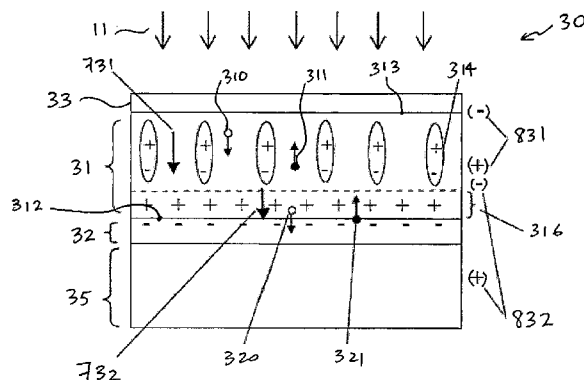


FIG. 3

(57) Abstract: A photovoltaic UV detector configured to generate an electrical output under UV irradiation. The photovoltaic UV detector comprises a first layer comprising an electrically polarized dielectric thin layer configured to generate a first electrical output under the UV irradiation; and a second, layer configured to form an electrical energy barrier at an interface between the second layer and the first layer so as to generate a second electrical output under the UV irradiation, the second electrical output having a same polarity as the first electrical output, the electrical output of the photovoltaic UV detector being a sum of at least the first electrical output and the second electrical output. The electrically polarized dielectric thin layer may be a ferroelectric thin film, which may comprise PZT or PZLT. The second layer may be a metal and the electrical energy barrier may be a Schottky barrier.