



- (51) **International Patent Classification:**
G01N 21/64 (2006.01) *B01L 3/00* (2006.01)
- (21) **International Application Number:**
PCT/US2022/070928
- (22) **International Filing Date:**
02 March 2022 (02.03.2022)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/200,383 03 March 2021 (03.03.2021) US
- (71) **Applicant:** **ILLUMINA, INC.** [US/US]; 5200 Illumina Way, San Diego, California 92122 (US).
- (72) **Inventors:** **REZAEI, Mohsen;** c/o ILLUMINA, INC., 5200 Illumina Way, San Diego, California 92122 (US). **BU-REK, Michael;** c/o ILLUMINA WAY, 5200 Illumina Way, San Diego, California 92122 (US). **EMADI, Arvin;** c/o ILLUMINA WAY, 5200 Illumina Way, San Diego, California 92122 (US). **VINCENT, Ludovic;** c/o ILLUMINA, INC., 5200 Illumina Way, San Diego, California 92122 (US).
- (74) **Agent:** **BLASIAK, George S.;** HESLIN ROTHENBERG FARLEY & MESITI P.C., 5 Columbia Circle, Albany, New York 12203 (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, BN, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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, ST, 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).

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

- (54) **Title:** SENSOR WITH MULTIPLE REACTION SITES PER PIXEL

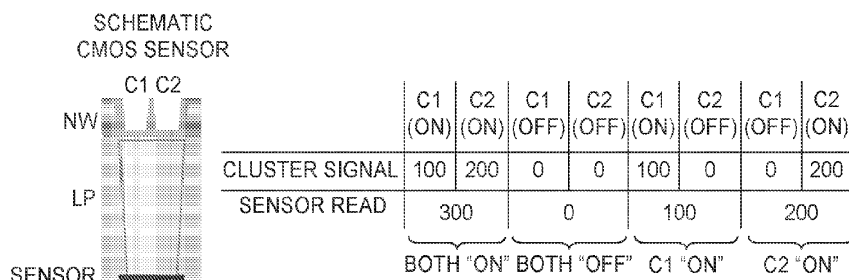


FIG. 3

- (57) **Abstract:** There is set forth herein, in one example, an apparatus. The apparatus can comprise, for example: a first reaction site and a second reaction site over a single pixel. There is set forth herein, in one example, a method. The method can include, for example: detecting a signal emitted from a first reaction site and a second reaction site; determining the identity of a first analyte of interest in a first reaction site using an amplitude of the detected signal; and determining the identity of a second analyte of interest in a second reaction site using the amplitude of the detected signal.