

(51) International Patent Classification:
H01L 21/8256 (2006.01)(21) International Application Number:
PCT/SG2011/000361(22) International Filing Date:
17 October 2011 (17.10.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/393,523 15 October 2010 (15.10.2010) US(71) Applicant (for all designated States except US):
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(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, QA, RO, RS, RU, RW, 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, 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).

Published:

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

(54) Title: A MEMRISTOR COMPRISING A PROTEIN AND A METHOD OF MANUFACTURING THEREOF

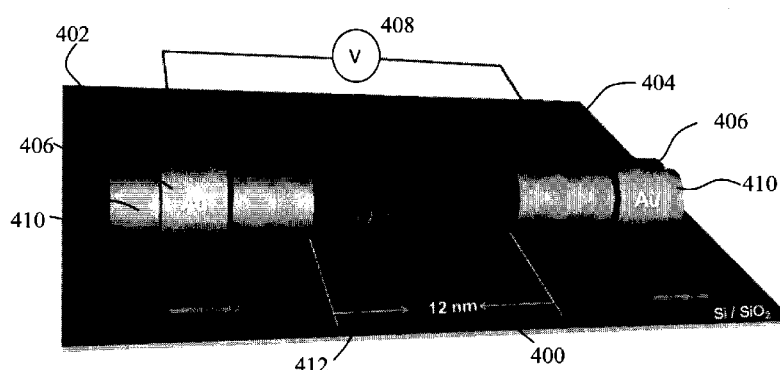


Figure 4c

(57) Abstract: The present invention is directed to a memristor comprising two electrically conducting terminals arranged with a nanometer-scaled gap therebetween, and a protein disposed in the gap to form a protein-based transport junction between the two electrically conducting terminals, wherein the protein is reversibly switchable between two electronic states such that the protein-based transport junction is configured to switch between a high resistance state and a low resistance state in response to a change in bias voltage applied across the two electrically conducting terminals. A method of fabricating a memristor is also disclosed. The method comprises preparing a nanometer-scaled gap between two electrically conducting terminals, and disposing a protein in the gap to form a protein-based transport junction between the two electrically conducting terminals, wherein the protein is reversibly switchable between two electronic states such that the protein-based transport junction is configured to switch between a high resistance state and a low resistance state in response to a change in bias voltage applied across the two electrically conducting terminals.