



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

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| (51) International Patent Classification <sup>7</sup> :<br><b>G11C 11/24, 11/34</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>A1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | (11) International Publication Number: <b>WO 00/48196</b><br>(43) International Publication Date: 17 August 2000 (17.08.00) |
| <p>(21) International Application Number: PCT/US00/03571</p> <p>(22) International Filing Date: 11 February 2000 (11.02.00)</p> <p>(30) Priority Data:<br/>60/119,757 11 February 1999 (11.02.99) US</p> <p>(71) Applicant (for all designated States except US): ARIZONA BOARD OF REGENTS [US/US]; 2020 North Central Avenue #230, Phoenix, AZ 85004 (US).</p> <p>(72) Inventor; and<br/>(75) Inventor/Applicant (for US only): KOZICKI, Michael, N. [US/US]; 14624 South 23rd Street, Phoenix, AZ 85048 (US).</p> <p>(74) Agent: PILLOTE, Cynthia, L.; Snell &amp; Wilmer LLP., One Arizona Center, 400 East Van Buren, Phoenix, AZ 85004 (US).</p> | <p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, 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, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published<br/>With international search report.</p> |                                                                                                                             |
| (54) Title: PROGRAMMABLE MICROELECTRONIC DEVICES AND METHODS OF FORMING AND PROGRAMMING SAME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                             |
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| <p>(57) Abstract</p> <p>A microelectronic programmable structure (300) and methods of forming and programming the structure (300) are disclosed. The programmable structure (300) generally includes an ion conductor (340) and a plurality of electrodes (320, 330). Electrical properties of the structure (300) may be altered by applying a bias across the electrodes (320, 330), and thus information may be stored using the structure (300).</p>                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                             |