



(51) International Patent Classification:

H01M 4/04 (2006.01) H01M 10/04 (2006.01)  
H01M 4/70 (2006.01) H01M 10/52 (2010.01)  
H01M 4/80 (2006.01)

(21) International Application Number:

PCT/SG2022/050719

(22) International Filing Date:

07 October 2022 (07.10.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10202111213Y 08 October 2021 (08.10.2021) SG

(71) Applicant: NATIONAL UNIVERSITY OF SINGAPORE [SG/SG]; 21 Lower Kent Ridge Road, Singapore 119077 (SG).

(72) Inventors: GRANIERO ECHEVERRIGARAY, Sergio; c/o National University of Singapore, Centre for Advanced 2D Materials, 21 Lower Kent Ridge Road, Singapore 119077 (SG). NAIR, Vivek; c/o National University of Sin-

gapore, Centre for Advanced 2D Materials, 21 Lower Kent Ridge Road, Singapore 119077 (SG). CASTRO NETO, Antonio Helio de; c/o National University of Singapore, Centre for Advanced 2D Materials, 21 Lower Kent Ridge Road, Singapore 119077 (SG).

(74) Agent: DAVIES COLLISON CAVE ASIA PTE. LTD.; 10 Collyer Quay #07-01, Ocean Financial Centre, Singapore 049315 (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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, 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.

(54) Title: ELECTRODES, JOINTS AND METHODS OF FABRICATION THEREOF

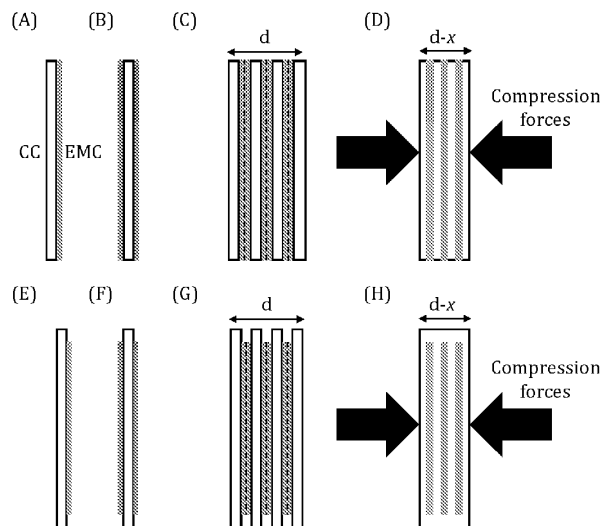


Figure 1

(57) Abstract: The present disclosure concerns an electrode comprising a plurality of porous conductive substrates and at least one layer of an electrode composite material, the at least one layer of electrode composite material is sandwiched between the plurality of porous conductive substrates, the at least one layer of electrode composite material in electrical communication with the plurality of porous conductive substrates. The electrode composite material at least partially impregnates the plurality of porous conductive substrates. The present disclosure also concerns joints and methods of fabricating the electrodes and joints.

[Continued on next page]

**(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, ME, 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).

**Declarations under Rule 4.17:**

— *of inventorship (Rule 4.17(iv))*

**Published:**

— *with international search report (Art. 21(3))*  
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

**(88) Date of publication of the international search report:**

15 June 2023 (15.06.2023)