

(43) International Publication Date
13 November 2014 (13.11.2014)

(51) International Patent Classification:

D01D 5/00 (2006.01) *D01F 9/12* (2006.01)
C01B 31/00 (2006.01) *D01F 9/14* (2006.01)
C01B 31/02 (2006.01) *D01F 9/24* (2006.01)
C01B 31/08 (2006.01) *D01F 9/26* (2006.01)
D01D 10/02 (2006.01) *H01M 4/133* (2010.01)
D01F 9/10 (2006.01)

(21) International Application Number:

PCT/SG2014/000207

(22) International Filing Date:

12 May 2014 (12.05.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

201303649-6 10 May 2013 (10.05.2013) SG

(71) Applicant: AGENCY FOR SCIENCE, TECHNOLOGY
AND RESEARCH [SG/SG]; 1 Fusionopolis Way, #20-10
Connexis, Singapore 138632 (SG).

(72) Inventors: **LI, Xu**; c/o Institute of Materials Research And
Engineering, 3 Research Link, Singapore 117602 (SG).
HE, Chao Bin; c/o Institute of Materials Research And
Engineering, 3 Research Link, Singapore 117602 (SG).
WANG, Suxi; c/o Institute of Materials Research And En-
gineering, 3 Research Link, Singapore 117602 (SG).
WONG, Siew Yee; c/o Institute of Materials Research
And Engineering, 3 Research Link, Singapore 117602
(SG). **CHEN, Shilin**; c/o Institute of Materials Research
And Engineering, 3 Research Link, Singapore 117602
(SG).

(74) Agent: SPRUSON & FERGUSON (ASIA) PTE LTD;
P.O. Box 1531, Robinson Road Post Office, Singapore
903031 (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, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
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, 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).

Declarations under Rule 4.17:

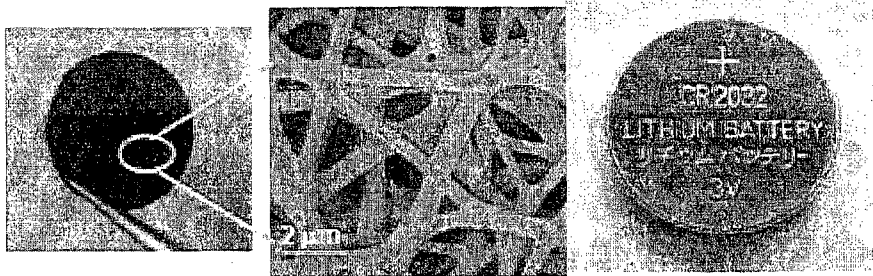
— of inventorship (Rule 4.17(iv))

Published:

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

(54) Title: CONDUCTIVE FIBROUS MATERIALS

FIG. 3



(57) Abstract: There is provided a conductive fibrous material comprising a plurality of carbonaceous fibers, wherein each carbonaceous fiber is fused to at least one other fiber. The carbonaceous fibers may be fused at fiber-to-fiber contact points by a polymer. The process of making the conductive fibrous material comprises mixing a phenolic polymer with a second polymer to form a polymer solution, preparing phenolic fibers having nano- or micro-scale diameters by electrospinning the polymer solution, and subsequent carbonization of the obtained phenolic fibers, thereby generating carbonaceous fibers, wherein each carbonaceous fiber is fused to at least one other fiber. The conductive fibrous material may be useful in electrode materials for energy storage devices.



WO 2014/182250 A1