

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
05 March 2020 (05.03.2020)



(10) International Publication Number
WO 2020/047500 A1

(51) International Patent Classification:

B82B 3/00 (2006.01) **C22C 26/00** (2006.01)
C22C 19/03 (2006.01)

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))

(21) International Application Number:

PCT/US2019/049199

(22) International Filing Date:

30 August 2019 (30.08.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/725,154 30 August 2018 (30.08.2018) US

(71) Applicant: **THE RESEARCH FOUNDATION FOR THE STATE UNIVERSITY OF NEW YORK** [US/US];

Technology Transfer, University at Buffalo, UB Commons,
520 Lee Entrance, Suite 109, Buffalo, NY 14228-2567
(US).

(72) Inventor: **REN, Shenqiang**; 94 Chapel Woods,
Williamsville, NY 14221 (US).

(74) Agent: **DIMAIO, John T. M.** et al.; Hodgson Russ LLP,
The Guaranty Building, 140 Pearl Street, Suite 100, Buffalo,
NY 14202-4040 (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, 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, 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, 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).

(54) Title: GRAPHENE MATERIAL-METAL NANOCOMPOSITES AND PROCESSES OF MAKING AND USING SAME

(57) Abstract: Graphene material-metal nanocomposites having a metal core with one or more graphene material layers disposed on the metal core. The nanocomposites may be formed by contacting metal nanowires and one or more graphene material and/or graphene material precursor in a dispersion. The nanocomposites may be used for form inks for coating or printing conductive elements or as conductors in various articles of manufacture. An article of manufacture may be an electrical device or an electronic device.

