

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 November 2010 (04.11.2010)

PCT

(10) International Publication Number
WO 2010/126767 A8

(51) International Patent Classification:
H01M 12/06 (2006.01) **B82B 3/00** (2006.01)
H01M 8/02 (2006.01)

(21) International Application Number:
PCT/US2010/031995

(22) International Filing Date:
22 April 2010 (22.04.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/174,122 30 April 2009 (30.04.2009) US

(71) Applicant (for all designated States except US): **UNIVERSITY OF FLORIDA RESEARCH FOUNDATION INC.** [US/US]; 223 Grinter Hall, Gainesville, FL 32611 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **RINZLER, Andrew, Gabriel** [US/US]; 1713 S.W. 186th Street, Newberry, FL 32669 (US). **DAS, Rajib, Kumar** [IN/US]; 281 Corry Village, Apt.1, Gainesville, FL 32603 (US). **REYNOLDS, John, R.** [US/US]; 3645 N.W. 24th Place, Gainesville, FL 32605 (US). **WALCZAK, Ryan, M.** [US/US]; 2330 S.W. Williston Road Apt. 1021, Gainesville, FL 32608 (US).

(74) Agents: **BUESE, Mark, A.** et al.; Saliwanchik, Lloyd & Saliwanchik, P.O. Box 142950, Gainesville, FL 32614-2950 (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, 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, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report (Rule 48.2(g))

(48) Date of publication of this corrected version:

6 January 2011

(15) Information about Correction:

see Notice of 6 January 2011

(54) Title: SINGLE WALL CARBON NANOTUBE BASED AIR CATHODES

(57) Abstract: An embodiment of the invention is an air cathode having a porous membrane with at least one hydrophobic surface that contacts a conductive catalytic film that comprises single walled carbon nanotubes (SWNTs) where the nanotubes are in intimate electrical contact. The conductive film can include fullerenes, metals, metal alloys, metal oxides, or electroactive polymers in addition to the SWNTs. In other embodiments of the invention the air cathode is a component of a metal-air battery or a fuel cell.



WO 2010/126767 A8