

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 July 2011 (14.07.2011)

(10) International Publication Number
WO 2011/084107 A1

PCT

(51) International Patent Classification:

C01B 25/45 (2006.01) **C01B 25/00** (2006.01)
H01M 4/04 (2006.01) **H01M 4/58** (2010.01)

(21) International Application Number:

PCT/SG2011/000010

(22) International Filing Date:

10 January 2011 (10.01.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/335,688 11 January 2010 (11.01.2010) US

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(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 (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, 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: **LiMPO₄-BASED COMPOSITIONS OF MATTER FOR CATHODES FOR HIGH-PERFORMANCE Li BATTERIES**

(57) Abstract: A LiMPO₄-based composition of matter suitable for use to form cathodes to form high-performance Li-based batteries is disclosed. The composition of matter is defined by the formula LiMPO₄, where M is at least one transition metal, and wherein the composition of matter has a general lattice structure. The composition of matter includes Ru ions that substitute for at least one of Li ions and at least one of the ions of the at least one transition metal M. Methods of forming the composition of matter are also disclosed.



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