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

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 October 2013 (03.10.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/144674 A8

(51) International Patent Classification:
G01N 31/22 (2006.01)

(21) International Application Number:
PCT/IB2012/001543

(22) International Filing Date:
10 August 2012 (10.08.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1273/CHE/2012 30 March 2012 (30.03.2012) IN

(71) Applicant *(for all designated States except US)*: **INDIAN INSTITUTE OF TECHNOLOGY MADRAS** [IN/IN]; Chennai - 600 036, Tamil Nadu (IN).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **THALAPPIL, Pradeep** [IN/IN]; C-4, IIT Campus, Chennai 600036, Tamilnadu, India (IN). **MATHEW, Ammu** [IN/IN]; Kallarackal Konthiamadom, T.C. 13/1827 (27), Koyickal Lane, Medical College, P.O. Trivandrum 695011, Kerala (IN). **SAJANLAL, Panikkanvalappil, Ravindranathan** [IN/IN]; Panikkanvalappil, P.O. Mupliyam, Thrissur, Kerala - 680312 (IN).

(74) Agent: **NAIR, Manoj, Vasudevan**; M/s Lex Orbis, 709/710, Tolstoy House, 15-17 Tolstoy Marg, New Delhi - 110 001 (IN).

(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, 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, QA, RO, RS, RU, RW, 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.

[Continued on next page]

(54) Title: VISUAL DETECTION OF MERCURY IONS

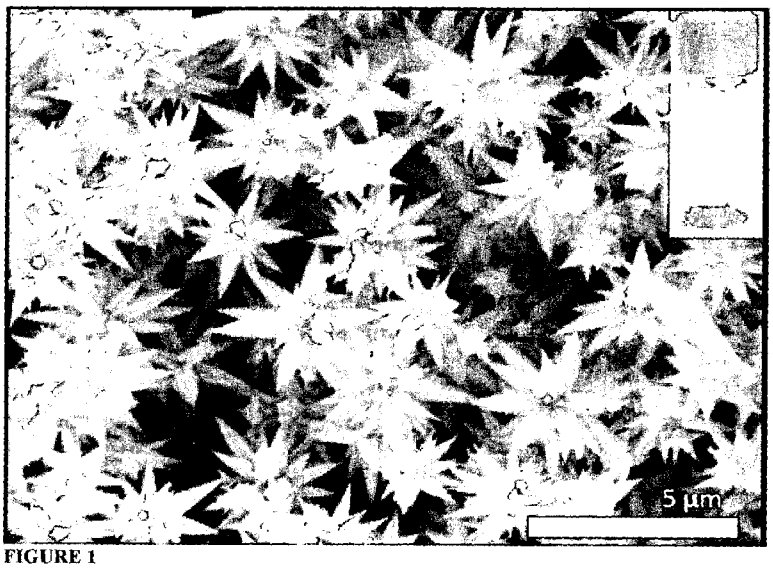

FIGURE 1

(57) Abstract: Composite materials comprising a mesoflower structure, methods of preparing the composite material, and methods of detecting heavy metal ion using the composite material are described herein. In some embodiments, a silica-coated gold mesoflower with a layer of silver quantum clusters may be capable of detecting Hg^{2+} ions in a sample at zeptomolar concentrations.

WO 2013/144674 A8

(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, 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:
12 December 2013

(15) Information about Correction:
see Notice of 12 December 2013