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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
18 June 2009 (18.06.2009)

PCT

(10) International Publication Number
WO 2009/075885 A3

(51) International Patent Classification:
C23C 18/31 (2006.01) *C25D 21/12* (2006.01)

(21) International Application Number:
PCT/US2008/013660

(22) International Filing Date:
12 December 2008 (12.12.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/012,998 12 December 2007 (12.12.2007) US

(71) Applicant *(for all designated States except US)*: **LAM RESEARCH CORPORATION** [US/US]; 4650 Cushing Parkway, Fremont, California 94538 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LI, Nanhai** [CN/US]; 1829 Mandel Court, San Jose, California 95131 (US). **KOLICS, Artur** [HU/US]; Dublin, California (US). **JAIN, Aman** [IN/US]; 20800 Homestead Road #39C, Cupertino, California 95014 (US). **RULKENS, Ron** [US/US]; 2219 Pinard Street, Milpitas, California 95035 (US). **BIRTWHISTLE, Darin** [US/US]; 800 28th Avenue, San Francisco, California 95121 (US). **CHAN, Chee** [US/US]; 10220 Peninsula Avenue, Cupertino, California 95014 (US).

(74) Agents: **STEFFEY, Charles, E.** et al.; Schwegman, Lundberg & Woessner, P.A., P.O. Box 2938, Minneapolis, Minnesota 55402 (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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, 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, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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))*

(88) Date of publication of the international search report:
11 September 2009

(54) Title: METHOD AND APPARATUS FOR PLATING SOLUTION ANALYSIS AND CONTROL

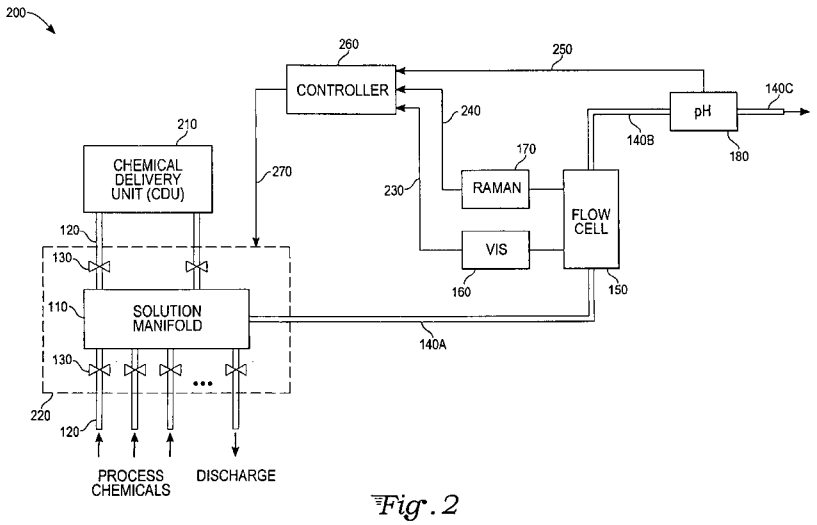

Fig. 2

(57) Abstract: A plating system comprises a plating solution and an apparatus for control of the plating solution, the apparatus including a Raman spectrometer for measurement of organic components, a visible light spectrometer for measurement of metallic components, and a pH probe. The plating solution can be sampled continuously or at intervals. Dosing of the plating solution adjusts for components consumed or lost in the plating process. The method of dosing is based on maintaining a desired composition of the plating solution.

WO 2009/075885 A3