

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 December 2008 (11.12.2008)

PCT

(10) International Publication Number
WO 2008/151051 A1

(51) International Patent Classification:
H01L 21/3065 (2006.01)

(21) International Application Number:
PCT/US2008/065369

(22) International Filing Date: 30 May 2008 (30.05.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/941,642 1 June 2007 (01.06.2007) 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): **JAFAR-IAN-TEHRANI, Seyed Jafar** [IR/US]; 4650 Cushing Parkway, Fremont, CA 94538 (US). **LU, Ralph Jan-Pin** [US/US]; 4650 Cushing Parkway, Fremont, CA 94538 (US).

(74) Agent: **NGUYEN, Joseph A.**; P.O. Box 700640, San Jose, CA 95170 (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, KH, 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, 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
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(54) Title: PLASMA PROCESSING SYSTEM ESC HIGH VOLTAGE CONTROL

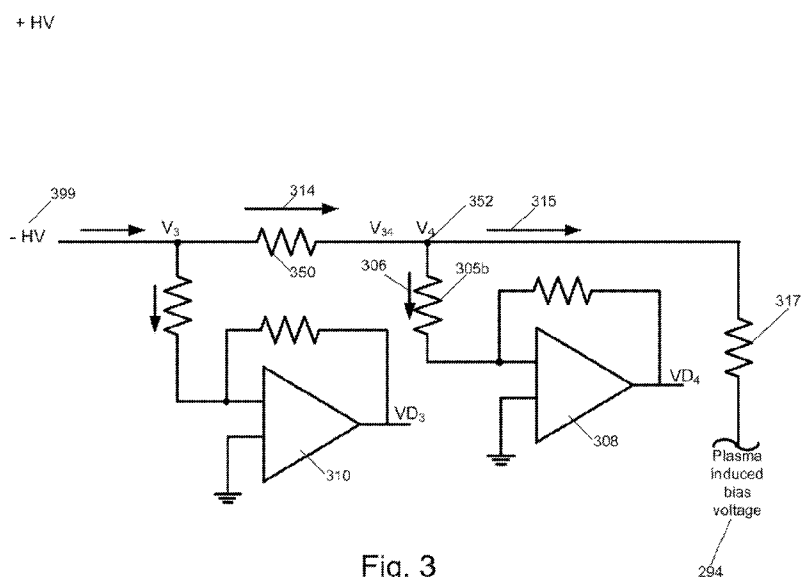


Fig. 3

(57) Abstract: A plasma processing system is disclosed. The plasma processing system may include an electrostatic chuck (ESC) positioned inside a plasma processing chamber and configured to support a wafer. The ESC may include a positive terminal (+ESC) for providing a first force to the wafer and a negative terminal (-ESC) for providing a second force to the wafer. The plasma processing system may also include a first trans-impedance amplifier (TIA) and a second TIA configured to measure a first set of voltages for calculating a value of a positive load current applied to the positive terminal. The plasma processing system may also include a third TIA and a fourth TIA configured to measure a second set of voltages for calculating a value of a negative load current applied to the negative terminal.

WO 2008/151051 A1