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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
23 March 2006 (23.03.2006)

PCT

(10) International Publication Number
WO 2006/031010 A1

(51) International Patent Classification[7]: H01L 21/3065

(21) International Application Number:
PCT/KR2005/001585

(22) International Filing Date: 27 May 2005 (27.05.2005)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2004-0073519
14 September 2004 (14.09.2004) KR
10-2005-0042644 20 May 2005 (20.05.2005) KR

(71) Applicant *(for all designated States except US)*: **ADAPTIVE PLASMA TECHNOLOGY CORPORATION** [KR/KR]; I Yeongtong-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do 443-808 (KR).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **KIM, Nam-hun** [KR/KR]; 804-302 Byeokjeokgol Dusan Apt., 973-3 Yeongtong-dong, Yeongyong-gu, Suwon-si, Gyeonggi-do 442-470 (KR).

(74) Agent: **AJU INTERNATIONAL LAW & PATENT GROUP**; 12th Floor, Poonglim Builing, 823-1, Yeoksam-dong, Gangnam-gu, Seoul 135-784 (KR).

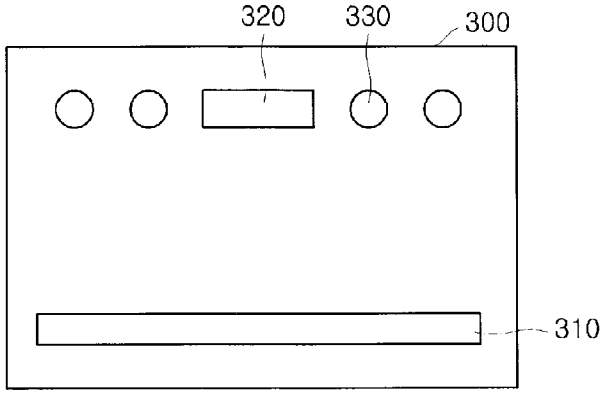
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, 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, HU, IE, IS, IT, LT, LU, MC, NL, 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*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** ADAPTIVELY PLASMA SOURCE AND METHOD OF PROCESSING SEMICONDUCTOR WAFER USING THE SAME



(57) **Abstract:** An adaptive plasma source, and a method for processing a semiconductor wafer using the same are disclosed. The adaptive plasma source comprises a first planar hushing equipped at an upper center of a reaction chamber defining a reaction space for processing a semiconductor wafer so as to face a planar electrode equipped at a lower portion of the reaction chamber, and a coil assembly spirally extending from the first bushing at an upper portion of the reaction chamber and surrounding the first bushing. The adaptive plasma source allows an etching process to be performed by freely controlling etching characteristics of a coupled plasma source and an inductively coupled plasma source according to a method for processing a semiconductor wafer which will be performed, thereby enabling the etching process having different conditions to be performed in a single apparatus.

WO 2006/031010 A1