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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
13 May 2004 (13.05.2004)

PCT

(10) International Publication Number
WO 2004/040717 A3

(51) International Patent Classification[7]: G01N 21/55

(21) International Application Number:
PCT/US2003/034265

(22) International Filing Date: 28 October 2003 (28.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/421,917 28 October 2002 (28.10.2002) US

(71) Applicant *(for all designated States except US)*: **UNIVERSITY OF WASHINGTON** [US/US]; Suite 500, 4311 11th Avenue NE, Seattle, WA 98105-4608 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **YAGER, Paul** [US/US]; 3719 NE 50th St., Seattle, WA 98105 (US). **FU, Elain, S.** [US/US]; 11314 35th Ave. NE, Seattle, WA 98125 (US).

(74) Agents: **BARONE, Stephen, B.** et al.; Greenlee, Winner and Sullivan, P.C., Suite 201, 5370 Manhattan Circle, Boulder, CO 80303 (US).

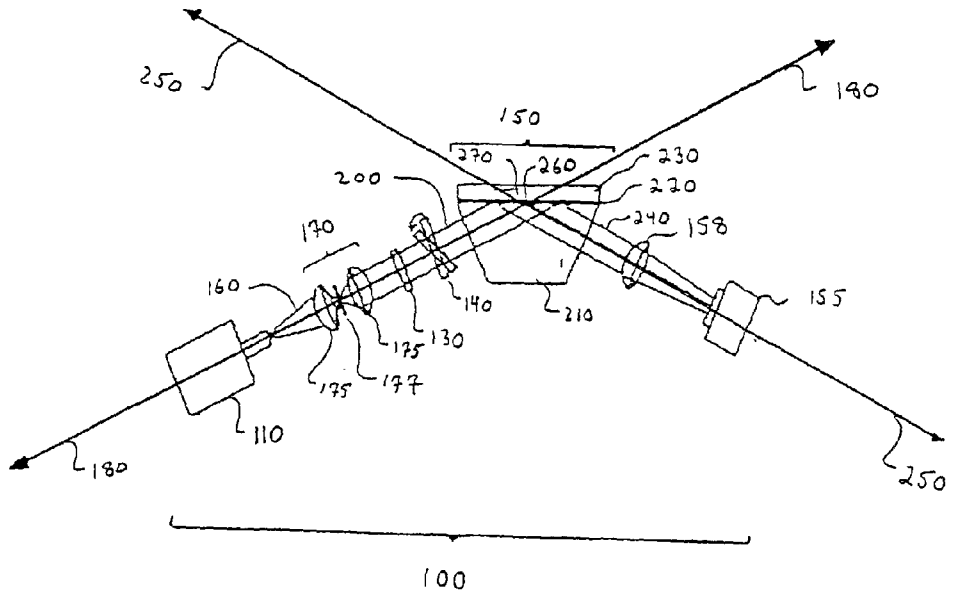
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG,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

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

[Continued on next page]

(54) Title: WAVELENGTH TUNABLE SURFACE PLASMON RESONANCE SENSOR



(57) Abstract: This invention provides methods, devices and device components for sensing, imaging and characterizing changes in the composition of a probe region. More particularly, the present invention provides methods and devices for detecting changes in the refractive index of a probe region positioned adjacent to a sensing surface, preferably a sensing surface comprising a thin conducting film supporting surface plasmon formation. In addition, the present invention provides methods and device for generating surface plasmons in a probe region and characterizing the composition of the probe region by generating one or more surface plasmon resonances curves and/or surface plasmon resonance images of the probe region.

WO 2004/040717 A3

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
25 November 2004

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.