

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 October 2007 (11.10.2007)

PCT

(10) International Publication Number
WO 2007/113566 A3

- (51) International Patent Classification:
G01N 21/65 (2006.01)
- (21) International Application Number:
PCT/GB2007/001249
- (22) International Filing Date: 5 April 2007 (05.04.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0606891.0 5 April 2006 (05.04.2006) GB
- (71) Applicant (for all designated States except US): **THE SCIENCE AND TECHNOLOGY FACILITIES COUNCIL** [GB/GB]; Harwell Innovation Campus, Rutherford Appellton Laboratory, Chilton, Didcot, Oxon, OX11 0QX (GB).

AT, AU, AZ, BA, BB, BG, BH, 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, 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, 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, HU, IE, IS, IT, LT, LU, LV, MC, MT, 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).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

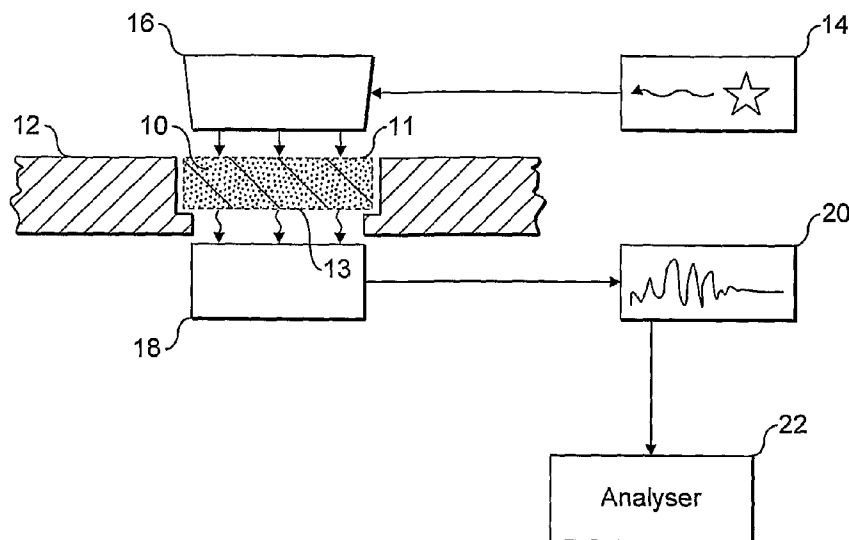
- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
29 November 2007

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.

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **MATOUSEK, Pavel** [GB/GB]; 98 Caldecott Road, Abingdon, Oxfordshire OX14 5HD (GB). **PARKER, Anthony, William** [GB/GB]; 30 Boleyn Close, Swindon, Wiltshire SN5 6JT (GB).
- (74) Agents: **PALMER, Jonathan, Richard** et al.; Boulton Wade Tennant, Verulam Gardens, 70 Gray's Inn Road, London WC1X 8BT (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

(54) Title: RAMAN ANALYSIS



(57) Abstract: Properties of turbid or scattering samples are determined using Raman spectroscopy with probe light delivered to and subsequently collected from the sample using a transmission geometry. The technique may be applied to pharmaceutical products such as tablets, diagnostic tests such as lateral flow diagnostic strips, and elsewhere.

WO 2007/113566 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2007/001249

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N21/65

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97/22872 A (ASTRA AB [SE]; LANGKILDE FRANS [SE]) 26 June 1997 (1997-06-26) cited in the application page 1, line 29 - page 2, line 12 page 6, line 19 - line 28	1, 15, 24, 25
X	US 5 194 913 A (MYRICK MICHAEL L [US] ET AL) 16 March 1993 (1993-03-16) column 5, line 55 - column 6, line 9; figure 1 column 10, line 64 - column 11, line 8	15, 25, 40
X	US 6 289 230 B1 (CHAIKEN JOSEPH [US] ET AL) 11 September 2001 (2001-09-11) figure 7	15, 39
	----- -/--	

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

13 September 2007

Date of mailing of the international search report

28/09/2007

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Plouzenec, Loïg

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2007/001249

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 310 686 B1 (JIANG YANAN [US]) 30 October 2001 (2001-10-30) figure 9	1
A	----- MATOUSEK P ET AL: "SUBSURFACE PROBING IN DIFFUSELY SCATTERING MEDIA USING SPATIALLY OFFSET RAMAN SPECTROSCOPY" APPLIED SPECTROSCOPY, THE SOCIETY FOR APPLIED SPECTROSCOPY. BALTIMORE, US, vol. 59, no. 4, April 2005 (2005-04), pages 393-400, XP008075254 ISSN: 0003-7028 the whole document	1
A	----- EP 1 533 607 A (GROW ANN E [US]) 25 May 2005 (2005-05-25) the whole document	1
A	----- US 4 714 345 A (SCHRADER BERNHARD [DE]) 22 December 1987 (1987-12-22) the whole document	1
X	----- WO 2004/031749 A (INTEL CORP [US]) 15 April 2004 (2004-04-15) figure 2	15,25
X	----- US 2004/063214 A1 (BERLIN ANDREW ARTHUR [US] ET AL) 1 April 2004 (2004-04-01) the whole document	1
A	----- BUTTERFIELD D.: "Through-package applications of Raman spectroscopy for nondestructive identification of product" AMERICAN LABORATORY NEWS, November 1999 (1999-11), XP002450781 the whole document	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2007/001249

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9722872	A	26-06-1997	AU 704582 B2	29-04-1999
			AU 1216497 A	14-07-1997
			CA 2238854 A1	26-06-1997
			EP 0868661 A1	07-10-1998
			JP 2000505192 T	25-04-2000
			SE 513163 C2	17-07-2000
			SE 9504567 A	21-06-1997
			US 5999253 A	07-12-1999
US 5194913	A	16-03-1993	NONE	
US 6289230	B1	11-09-2001	NONE	
US 6310686	B1	30-10-2001	NONE	
EP 1533607	A	25-05-2005	NONE	
US 4714345	A	22-12-1987	DE 3424108 A1	09-01-1986
			FR 2566903 A1	03-01-1986
			GB 2162961 A	12-02-1986
			JP 61020841 A	29-01-1986
WO 2004031749	A	15-04-2004	AU 2003282896 A1	23-04-2004
			CN 1685217 A	19-10-2005
			EP 1546688 A2	29-06-2005
			JP 2006501481 T	12-01-2006
			US 2006183236 A1	17-08-2006
US 2004063214	A1	01-04-2004	US 2004142484 A1	22-07-2004