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

## (19) World Intellectual Property Organization

International Bureau



## 

(43) International Publication Date 27 January 2005 (27.01.2005)

**PCT** 

# (10) International Publication Number WO 2005/008198 A3

(51) International Patent Classification<sup>7</sup>: G01N 21/64, 21/65

G01J 03/44,

(21) International Application Number:

PCT/US2004/023072

- (22) International Filing Date: 19 July 2004 (19.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:

60/488,246

18 July 2003 (18.07.2003) US

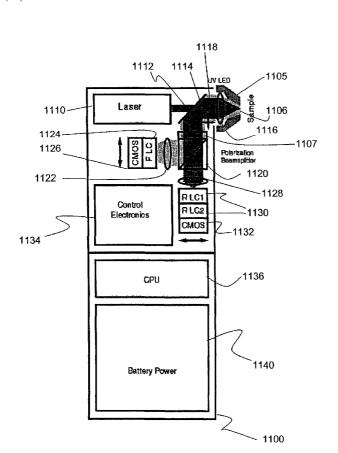
- (71) Applicant (for all designated States except US):

  CHEMIMAGE CORPORATION [US/US]; 7301
  Penn Avenue, Pittsburgh, PA 15208 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): TREADO, Patrick, J. [US/US]; 315 S. Lexington Avenue, Pittsburgh, PA 15208 (US). VANNI, G., Steven [US/US]; 6336 Marchand Street, Apt. 2, Pittsburgh, PA 15206-4312 (US).

- (74) Agent: COMTOIS, Mark, C.; Duane Morris LLP, 1667 K Street, N.W., Suite 700, Washington, DC 20006-1608 (US).
- (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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, 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 (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, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR COMPACT BIREFRINGENT INTERFERENCE IMAGING SPECTROMETER



(57) Abstract: The disclosure relates to a method and apparatus for a compact birefringent interference imaging spectrometer. More specifically, the disclosure relates to a portable system for obtaining a spectrum of a sample. The portable system may include a first photon emission source (1105, 1110) for illuminating the sample with a first plurality of photons to thereby produce photons scattered by the sample; an optical lens (1116) for collecting the scattered photons; a filter (1124, 1130) for receiving the collected scattered photons and providing therefrom filtered photons; a first photon detector (1126, 1132) for receiving the filtered photons and obtaining therefrom a spectrum of the sample; and a rejection filter (1107) for blocking the photons from said first photon emission source from entering said first photon detector. The disclosure additionally relates to methods of using such portable systems.

## WO 2005/008198 A3



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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.

### 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:

15 September 2005

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/23072

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : G01J 03/44; G01N 21/64, 65			
US CL : 356/73			
	International Patent Classification (IPC) or to both na	nonal classification and IPC	
B. FIELDS SEARCHED			
Minimum documentation searched (classification system followed by classification symbols) U.S.: 356/73, 301, 317, 318, 417; 250/458.1. 459.1, 461.1, 461.2			
0.5. : 550/75, 501, 517, 516, 417, 250/456.1. 455.1, 401.1, 401.2			
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 practicable, search terms used)			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where ap	opropriate, of the relevant passages	Relevant to claim No.
A	US 4,200, 801 A (SCHURESKO) 29 April 1980 (29		1-67
Α	US 5,801,828 A (COLLINS) 01 September 1998 (01.09.1998), see the entire document.		1-67
$\mathbf{A}^{'}$	US 6,002,476 A (TREADO) 12 December 1999 (12.12.1999), see the entire document.		1-67
i			·
			****
Further	documents are listed in the continuation of Box C.	See patent family annex.	
* S	pecial categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the	
<ul> <li>"A" document defining the general state of the art which is not considered to be of particular relevance</li> <li>"E" earlier application or patent published on or after the international filing date</li> <li>"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)</li> <li>"O" document referring to an oral disclosure, use, exhibition or other means</li> </ul>		principle or theory underlying the inven	ntion
		"X" document of particular relevance; the considered novel or cannot be consider when the document is taken alone	
		"Y" document of particular relevance; the c 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	
"P" document published prior to the international filing date but later than the priority date claimed		"&" document member of the same patent family	
		Date of mailing of the international search report 2005	
30 March 2005 (30.03.2005)		Authorized officer	<del></del>
Traine and maring address of the 1012 of		Authorized officer DESORAH A. THOMAS	
Mail Stop PCT, Atm: ISA/US		F. L. Evans PARALEGAL SPECIALIST	
Commissioner for Patents P.O. Box 1450		TUAL O	recialist
Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230  Facsimile No. (703) 305-3230  Facsimile No. (703) 305-3230			FOUND AT
Facsimile No. (703) 305-3230			