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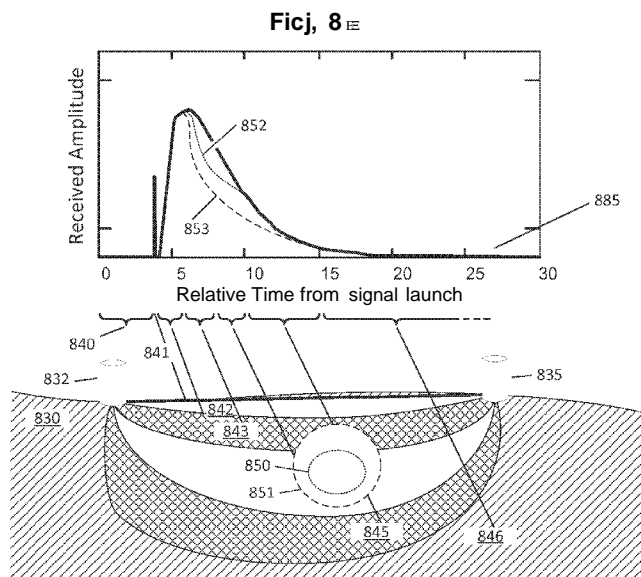
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[Continued on nextpage]

(54) Title: SPECTROMETRIC APPARATUS AND METHODS FOR IMPROVED FOCUS LOCALIZATION OF TIME-VARYING MEASUREMENTS



(57) Abstract: Apparatus and methods of dynamically localizing a measurement of parameter characterizing tissue sample with waves produced by spectrometric system at multiple wavelengths and detected at a fixed location of the detector of the system. The parameter is calculated based on impulse response of the sample, reference data representing characteristics of material components of the sample, and path lengths through the sample corresponding to different wavelengths. Dynamic localization is effectuated by considering different portions of a curve representing the determined parameter, and provides for the formation of a spatial map of distribution of the parameter across the sample. Additional measurement of impulse response at multiple detectors facilitates determination of change of the measured parameter across the sample as a function of time.



Published:

- with international search report (Art. 21(3))
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27 December 2013

INTERNATIONAL SEARCH REPORT

International application No PCT/US2013/038623
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A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N21/49 A61B5/00 A61B5/145 A61B5/1455
 ADD.

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 A61B

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)
EPO-Internal , WPI Data, COMPENDEX, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 475 234 A (XU KEXIN [JP] ET AL) 12 December 1995 (1995-12-12)	1-5 ,8,9 , 11
Y	figures 1-3 , 5, 9 -----	6,7
Y	US 5 119 815 A (CHANCE BRITTON [US]) 9 June 1992 (1992-06-09) figures 5-8, 11 -----	6,7
A	US 5 582 169 A (ODA MOTOKI [JP] ET AL) 10 December 1996 (1996-12-10) figures 3-5 -----	1-10
A	JP 2002 116140 A (YOKOGAWA ELECTRIC CORP) 19 April 2002 (2002-04-19) figures 1-2 -----	1-10
	----- -/- .	

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) on which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 12 August 2013	Date of mailing of the international search report 23/10/2013
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Mason , William
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/038623

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP H06 98890 A (CANON KK) 12 April 1994 (1994-04-12) figures 1-3 -----	1-10
A	US 5 899 865 A (CHANCE BRITTON [US]) 4 May 1999 (1999-05-04) figure 3b -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2013/038623
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Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/038623

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos. :

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos. :

1-10

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10

An apparatus and method for determining the characteristic of a biological sample by measuring the impulse response as a function of time and at a plurality of wavelengths of a pulse of light transmitted into a sample which is collected and detected at a site remote for the entry point of the transmitted radiation wherein the determined values of the material parameter at different times are weighted depending on their variance (from the mean) in order to determine a more representative measure of the material parameter.

2. claims: 11-18

An optical-path adjustment apparatus for modifying an optical path between a source of light and a receiver of light at at least one wavelength comprising a first and second plurality of selectively re-orientable reflectors which can be oriented to different positions in order to permit scanning of a beam of light.
