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- (72) **Inventor; and**
- (71) **Applicant :** HARTSOUGH, Larry, Dowd [US/US];  
3007 Benvenue Avenue, Berkeley, CA 94705 (US).
- (74) **Agent:** MICHAELSON, Peter, L.; Michaelson & Associates, P.O.Box 8489, Red Bank, NJ 07701-8489 (US).
- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,

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, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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**Published:**

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

[Continued on next page]

(54) **Title:** SENSOR SYSTEM WITH REDUCED SENSITIVITY TO SAMPLE PLACEMENT

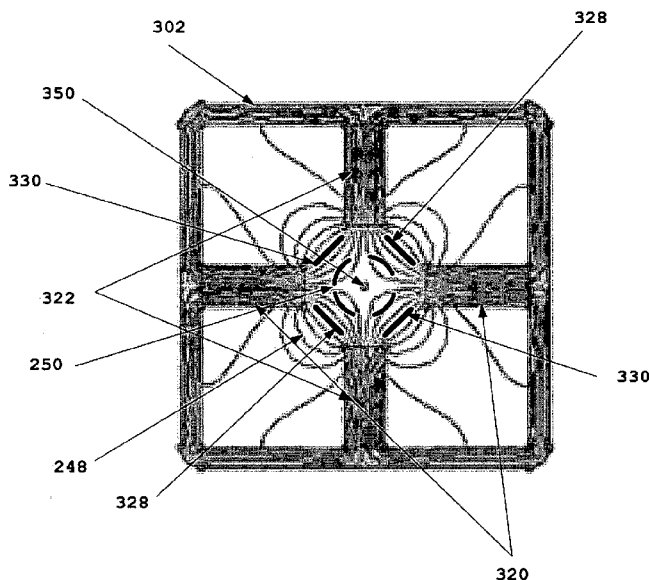


FIG. 5

(57) **Abstract:** The present invention relates to the non-invasive analysis of materials in both in-vivo and ex-vivo configurations that show reduced sensitivity to sample placement within the sample measurement location. Embodiments of the apparatus make use of paired magnetic configurations and/or paired electrode configurations. Methods are described that compensate for the variation in sample size, and volume to give accurate and repeatable results.



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**(88) Date of publication of the international search report:**

17 June 2010

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2009/005611

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. A61B5/05 G01N27/00

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)  
A61B 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

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 723 048 B2 (FULLER MILTON E [US]) 20 April 2004 (2004-04-20) cited in the application the whole document	1-15
A	US 2003/032892 A1 (ERLACH JULIAN VAN [US] ET AL VAN ERLACH JULIAN [US] ET AL) 13 February 2003 (2003-02-13) abstract; claims 19, 24	1-15
A	EP 1 378 920 A1 (SUMITOMO SPEC METALS [JP]; NAT INST RADIOLOG [JP]) 7 January 2004 (2004-01-07) abstract; figures 1-3 paragraph [0001]	1-15

☐ 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

29 December 2009

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20/04/2010

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

Daniel, Christian

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2009/005611

### 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.:

1-15

#### 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: 1-15

Detecting change in an RF signal by using two pairs of magnets and two pairs of electrodes positioned adjacent a sample cavity.

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2. claims: 16-17

Determining a characteristic of a sample in a cavity by comparing electromagnetically measured and stored data.

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No

PCT/US2009/005611

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 6723048	B2	20-04-2004	US	2002193673 A1		19-12-2002
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