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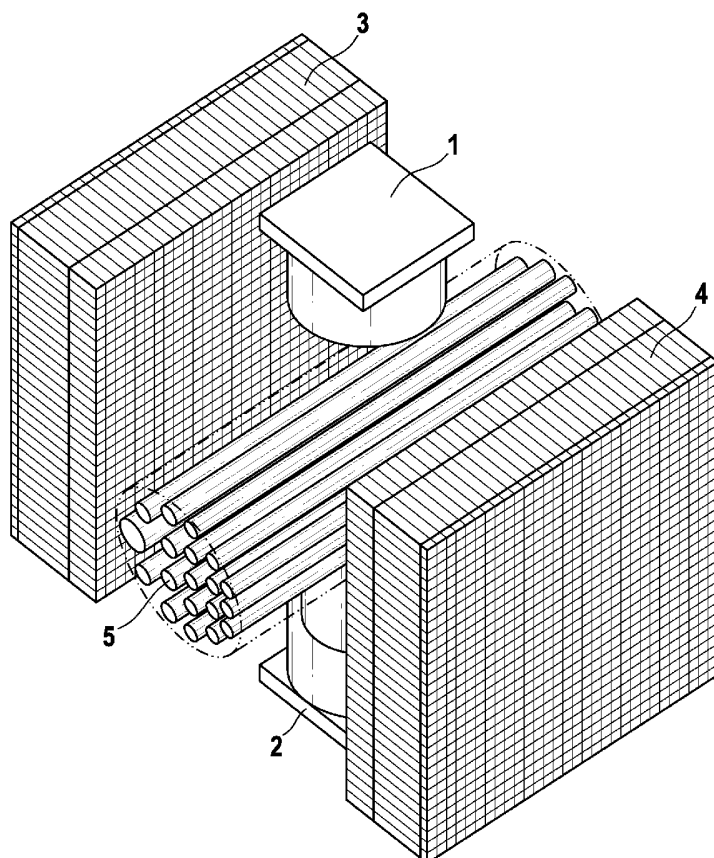
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[Continued on next page]

(54) Title: DUAL-MODALITY IMAGING USING A PET SCANNER AND AN OPTICAL DETECTOR



(57) Abstract: The invention relates to a dual-modality imaging system and a method for dual-modality imaging, wherein a positron emission tomography (PET) scanner for acquiring PET imaging data and at least one optical imaging detector for acquiring optical imaging data are arranged to acquire the PET imaging data and the optical imaging data of an imaged object (5) simultaneously (i.e. at the same time and at superimposed fields-of-view). The at least one optical imaging detector is a non-contact optical imaging detector.



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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2006/061474

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01T1/29

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)
G01T

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, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	PROUT D ET AL: "Detector concept for OPET, a combined PET and optical imaging system" 2003 IEEE NUCLEAR SCIENCE SYMPOSIUM CONFERENCE RECORD. / 2003 IEEE NUCLEAR SCIENCE SYMPOSIUM AND MEDICAL IMAGING CONFERENCE. PORTLAND, OR, OCT. 19 - 25, 2003, IEEE NUCLEAR SCIENCE SYMPOSIUM CONFERENCE RECORD, NEW YORK, NY : IEEE, US, vol. VOL. 5 OF 5, 19 October 2003 (2003-10-19), pages 2252-2256, XP010737502 ISBN: 0-7803-8257-9 page 2252, column 2, line 21 - page 2253, column 2, line 7; figures 1,3,4 ----- -/--	1-3, 5-10, 13-15, 25,26

☒ 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

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"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

6 July 2006

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2006/061474

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/195417 A1 (WAKE ROBERT H ET AL) 16 October 2003 (2003-10-16) paragraphs [0007], [0010], [0029], [0031], [0033], [0039]; figures 1,2 -----	1-3, 5-10, 13-15, 25,26
Y	RANNOU F R ET AL: "Fully 3D System Model Estimation of OPET by Monte Carlo Simulation" NUCLEAR SCIENCE SYMPOSIUM CONFERENCE RECORD, 2004 IEEE ROME, ITALY 16-22 OCT. 2004, PISCATAWAY, NJ, USA, IEEE, 16 October 2004 (2004-10-16), pages 3433-3436, XP010818678 ISBN: 0-7803-8700-7 abstract -----	2
A	RANNOU F ET AL: "Investigation of OPET performance using GATE, a Geant4-based simulation software" 2003 IEEE NUCLEAR SCIENCE SYMPOSIUM CONFERENCE RECORD. / 2003 IEEE NUCLEAR SCIENCE SYMPOSIUM AND MEDICAL IMAGING CONFERENCE. PORTLAND, OR, OCT. 19 - 25, 2003, IEEE NUCLEAR SCIENCE SYMPOSIUM CONFERENCE RECORD, NEW YORK, NY : IEEE, US, vol. VOL. 5 OF 5, 19 October 2003 (2003-10-19), pages 2048-2052Vol3, XP010736016 ISBN: 0-7803-8257-9 abstract; figure 1 -----	1
A	US 5 825 031 A (WONG ET AL) 20 October 1998 (1998-10-20) abstract -----	4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2006/061474

Box 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 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 fee, this Authority did not invite payment of any additional fee.
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, 25, 26

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ 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: 1-15,25,26

A dual-modality imaging system with a PET scanner and an optical imaging detector, wherein the PET detector is tilted about a first angle, and the optical imaging detector is tilted about a second angle

2. claims: 16-24

A dual-modality imaging system with a PET scanner and an optical imaging detector, wherein the optical imaging detector comprises at least one micro-lens array

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2006/061474

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003195417 A1	16-10-2003	US 2002045833 A1	18-04-2002
US 5825031 A	20-10-1998	NONE	