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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

[Continued on next page]

(54) Title: OPTIMAL ENERGY WINDOWING OF SCATTERED EVENTS IN RADIONUCLIDE IMAGING

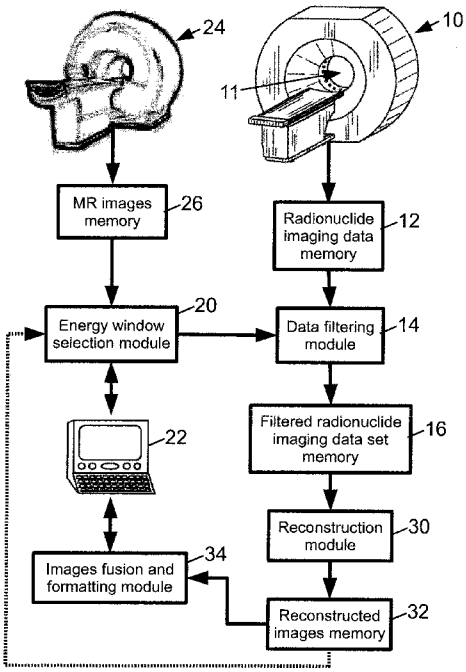

Fig. 1

(57) Abstract: An imaging system includes storage (12) for storing radionuclide imaging data including quantitative radiation detection event energy values, the radionuclide imaging data having been acquired of a subject by a radionuclide imaging device (10); an energy window selection module (20) selecting an energy window and a data filtering module (14) configured to filter the stored radionuclide imaging data respective to the stored quantitative radiation detection event energy values using the selected energy window to generate a filtered radionuclide imaging data set; and a reconstruction module (30) configured to reconstruct the filtered radionuclide imaging data set to generate a reconstructed image of the subject.

WO 2010/146480 A3

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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))*

(88) Date of publication of the international search report:
15 December 2011

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2010/052122

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01T1/164
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)
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, 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	MCELROY D P ET AL: "Singles list mode data processing for MADPET-II", 2004 IEEE NUCLEAR SCIENCE SYMPOSIUM CONFERENCE RECORD 16-22 OCT. 2004 ROME, ITALY, 2004 IEEE NUCLEAR SCIENCE SYMPOSIUM CONFERENCE RECORD (IEEE CAT. NO. 04CH37604) IEEE PISCATAWAY, NJ, USA, vol. 5, 16 October 2004 (2004-10-16), pages 3325-3329, XP010819397, DOI: DOI:10.1109/NSSMIC.2004.1466403 ISBN: 978-0-7803-8700-3 abstract; figures page 3325, left-hand column, line 3 - line 9 page 3325, right-hand column, line 12 - line 20 page 3326, left-hand column, line 1 - line 26 page 3326, left-hand column, line 41 - -/--	1-3,10, 12,14, 15,17, 21,22

[X] Further documents are listed in the continuation of Box C.

[X] 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	Date of mailing of the international search report
3 August 2011	14/10/2011

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Eberle, Katja

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2010/052122

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	line 44 page 3327, left-hand column, line 29 - right-hand column, line 8 -----	
A	WELLS K ET AL: "Optimal Energy Window Selection for Scintigraphy and Emission Computed Tomography", NUCLEAR SCIENCE SYMPOSIUM CONFERENCE RECORD, 2005 IEEE WYNDHAM EL CONQUISTADOR RESORT, PUERTO RICO OCTOBER 23 - 29, 2005, PISCATAWAY, NJ, USA,IEEE, vol. 4, 23 October 2005 (2005-10-23), pages 2049-2053, XP010895997, DOI: DOI:10.1109/NSSMIC.2005.1596736 ISBN: 978-0-7803-9221-2 cited in the application abstract; figures -----	1,2
A	EP 0 589 467 A2 (SHIMADZU CORP [JP]) 30 March 1994 (1994-03-30) page 4, line 48 - page 6, line 26; figures -----	1,2

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2010/052122

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0589467 A2	30-03-1994	DE 69323257 D1	11-03-1999
		DE 69323257 T2	24-06-1999
		EP 0589467 A2	30-03-1994
		US 5466939 A	14-11-1995

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-4, 10, 12-17(completely); 21, 22(partially)

An imaging system and a method comprising storing radionuclide imaging data including quantitative radiation detection event energy values; filtering the stored radionuclide imaging data respective to the stored quantitative radiation detection event energy values to generate a filtered radionuclide imaging data set; and reconstructing the filtered radionuclide imaging data set to generate a reconstructed image of the subject, the filtering and reconstructing comprising filtering using a first and second energy window and reconstructing the respective first and second images, wherein the method further comprises displaying the fused image

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2. claims: 5-9, 11, 18-20(completely); 21, 22(partially)

A method comprising storing radionuclide imaging data including quantitative radiation detection event energy values; filtering the stored radionuclide imaging data respective to the stored quantitative radiation detection event energy values to generate a filtered radionuclide imaging data set; and reconstructing the filtered radionuclide imaging data set to generate a reconstructed image of the subject wherein the method further comprises acquiring a non-radionuclide image of the subject; and generating an energy window used in the filtering based on the non-radionuclide image of the subject.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2010/052122

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.:

1-4, 10, 12-17(completely); 21, 22(partially)

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.