

Nicolas Vargas

Title: STRUCTURED DETECTORS AND DETECTOR SYSTEMS FOR RADIATION IMAGING

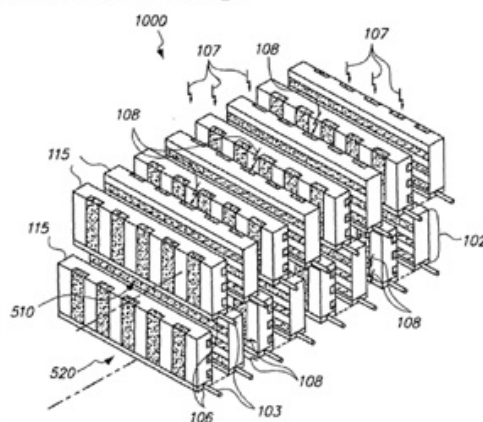
Abstract: Detector module designs for radiographic imaging include first and second layers of scintillator rods or pixel arrays oriented in first and second directions. The first and second directions are transversely oriented to define a light sharing region between the first and second layers. Encoding features may be disposed in, on or between the first and second layers, and configured to modulate propagation of optical signals therealong or therebetween.

Classifications:

International (IPC 8-9): A61B6/00 A61B6/02 A61B6/03 G01N23/046 G01N23/2255 G01T1/161 G01T1/164 G01T1/20 G01T1/22 G01T1/24 (Advanced/Invention)

CPC: G01T1/1644 G01T1/2002 G01T1/1611 A61B6/4028 A61B6/4233 G01T1/247 G01T1/2018 G01N23/046 G01N2223/419 G01N2223/505 A61B6/032 G01N23/2255 G01T1/22 A61B6/035 A61B6/025 G01N2223/108 A61B6/4417 A61B6/4258 A61B6/4085 A61B6/037 A61B8/4416

PatBase - US2018136340_AA



Family:

Publication number	Publication date	Application number	Application date
US2018136340 AA	20180517	US20170699458	20170908
US2018136344 AA	20180517	US20170701088	20170911
US2018172847 AA	20180621	US20180886371	20180201
US2018172848 AA	20180621	US20180888637	20180205
US2018172849 AA	20180621	US20180888692	20180205

Priority:

US20160385466P 20160909	US20170699458 20170908	US20170701088 20170911
US20180886371 20180201	US20180888637 20180205	US20180888692 20180205

Probable Assignee: MINNESOTA IMAGING AND ENG LLC

Assignee(s): (std): MINNESOTA IMAGING AND ENG LLC

Assignee(s): MINNESOTA IMAGING AND ENGINEERING LLC

Inventor(s): (std): NELSON ROBERT SIGURD ; NELSON WILLIAM BERT

Title: APPARATUS FOR DIGITAL IMAGING PHOTODETECTOR USING GAS ELECTRON MULTIPLIER

Abstract: The present invention provides a digital imaging photodetector with a gas electron multiplier. The digital imaging photodetector comprises a gas electron multiplier detector. The gas electron multiplier detector includes a photoelectric converter for converting incident light into photoelectrons or Compton electrons; a gas electron multiplier (GEM) for receiving the photoelectrons or Compton electrons from the photoelectric converter and multiplying them; and a readout unit for receiving an electrical signal indicating a position where an electron cloud multiplied in the gas electron multiplier arrives on an anode, recognizing coordinates of the electron cloud based on the received signal, and outputting the coordinates of the electron cloud. According to the digital imaging photodetector of the present invention, real-time imaging of **image** information can be achieved by multiplying photoelectrons or Compton electrons, which are discharged due to a photoelectric effect or a Compton effect induced by visible rays, ultraviolet rays or X-rays, using the gas electron multiplier.

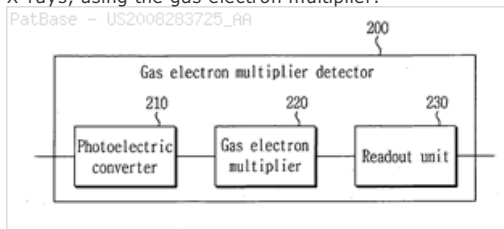
Classifications:

International (IPC 8-9): G01J1/42 G01J1/44 G01T1/18
H01J40/14 (Advanced/Invention);
G01J1/42 G01J1/44 G01T1/00 H01J40/00 (Core/Invention)

CPC: H01J47/02

European: H01J47/02

US: 250/207 250/374



Family:

Publication number	Publication date	Application number	Application date
KR100716495 B1	20070510	KR20050112400	20051123
US2008283725 AA	20081120	US20060094985	20061123
US7663081 BB	20100216	US20060094985	20061123
WO07061235 A1	20070531	WO2006KR04949	20061123

Priority:

KR20050112400 20051123 WO2006KR04949 20061123

Probable Assignee: HAHN CHANG HIE

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Assignee(s): CHANGWON NATIONAL UNIVERSITY INDUSTRY ACADEMY COOP ; CHANGWON NATIONAL UNIVERSITY INDUSTRY ACADEMY COOPERATION CORPS ; CHANGWON NATIONAL UNIV IND ACADEMY COOPERATION COR

Inventor(s): (std): HAHN CHANG HIE ; KIM IL GON ; KIM WON JEONG ; YU JAEHOON ; YU JAE HOON

Agent(s): THE RAFFERTY PATENT LAW FIRM; RAFFERTY PATENT LAW FIRM

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KZ LA LC LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: APPARATUS AND METHOD FOR ARRAY GEM DIGITAL IMAGING RADIATION DETECTOR

Abstract: An array gas electron multiplier (GEM) digital imaging radiation detector and a control method thereof are disclosed. The array gas electron multiplier (GEM) digital imaging radiation detector includes an array GEM detector. The array GEM detector includes: an ionized electron generation unit for generating ionized electrons in internal filling gas by incident X-rays or gamma rays or by incident charged particles; a gas electron multiplication unit for multiplying the ionized electrons of the ionized electron generation unit in filling gas inside hole of a gas electron multiplier (GEM), through electron avalanche effect, using the GEM, to form electron clouds; a readout for detecting and outputting coordinates of the electron clouds as the readout receives positions through electrical signals, in which the positions of the electron clouds, being multiplied and formed in the gas electron multiplication unit, reach output electrodes. Therefore, the present invention can multiply ionized electrons of internal filling gas as a gas electron multiplier (GEM) generates an electron avalanche effect in the hole thereof, in which the ionized electrons are generated as a photo-electron effect or a Compton effect is induced by high energy incident light, such as X-rays or gamma rays, or which are directly generated by incident charged particles, and can convert **image** information of the inside or outside of an target object into **images** of two-dimensions, in real time, such that the detector can be properly used as a security search apparatus in a harbor or an airport, or can be adapted as a core part of industrial nondestructive testing apparatus.

Classifications:

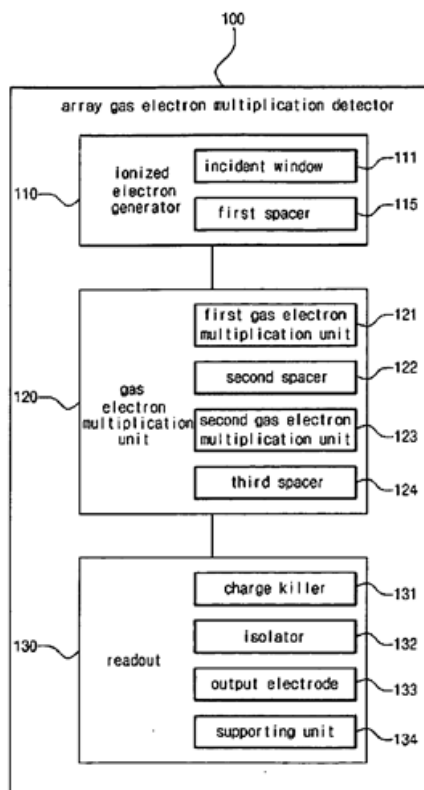
International (IPC 8-9): G01N23/04 G01V5/00 G21K4/00
H01J47/00 (Advanced/Invention);
G01N23/04 G01V5/00 G21K4/00 (Advanced/Non-invention);
G01N23/02 G01V5/00 G21K4/00 H01J47/00 (Core/Invention)

CPC: G01N23/227 G01T1/2935

European: G01N23/227 G01T1/29D1D

US: 250/375 250/375P 250/382 250/382S

PatBase - US2009261265_AA

**Family:**

Publication number	Publication date	Application number	Application date
KR100784196 B1	20071210	KR20050124266	20051216
KR20070063916 A	20070620	KR20050124266	20051216
US2009261265 AA	20091022	US20060097755	20060224
WO07083859 A1	20070726	WO2006KR00662	20060224

Priority:

KR20050124266 20051216 WO2006KR00662 20060224

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Inventor(s): (std): HAHN CHANG HIE ; KIM IL GON ; PARK SEONG TAE ; PARK SEONGTAE ; YU JAE HOON ; YU JAEHOON ; KIM II GON

Agent(s): LRK PATENT FIRM

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KN KP KZ LC LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Title: DEVICE AND TECHNIQUE FOR TWO DIMENSIONAL SOFT X-RAY IMAGING WITH HIGH TIME RESOLUTION AND ENERGY RESOLUTION

Abstract: This device allows the acquisition and visualization of two-dimensional x-ray **images** at high time resolution and with energy resolution. It has a broad range of applications, particularly in science (physics, material engineering, biology) and medicine. The invention includes also the method for the **image** acquisition and visualization.

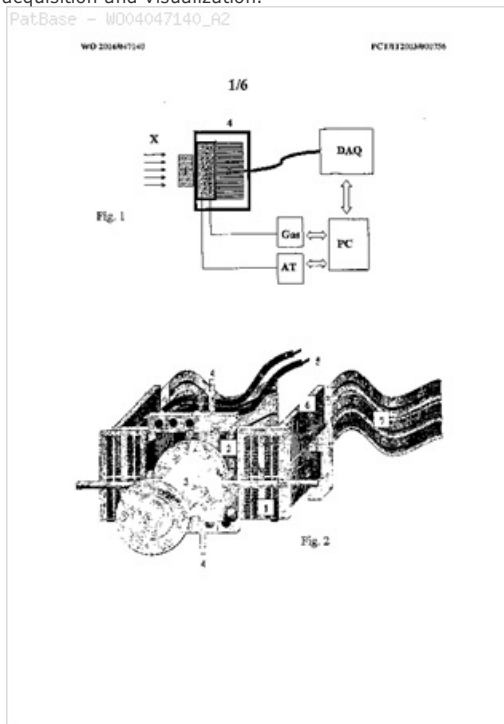
Classifications:

International (IPC 8-9): G01T1/185 H01J47/02 (Advanced/Invention);
G01T1/00 H01J47/00 (Core/Invention)

International (IPC 1-7): G01T1/185 G01T1/29 H01J47/02

CPC: G01T1/185 H01J47/02

European: G01T1/185 H01J47/02



Family:

Publication number	Publication date	Application number	Application date
AU2003288738 AA	20040615	AU20030288738	20031120
AU2003288738 AH	20040615	AU20030288738	20031120
ITPI20020071 A1	20030219	IT2002PI00071	20021121
WO04047140 A2	20040603	WO2003IT00756	20031120
WO04047140 A3	20040812	WO2003IT00756	20031120

Priority:

IT2002PI00071 20021121 WO2003IT00756 20031120

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Inventor(s): RONALDO BELLAZZINI ; ALESSANDRO BREZ ; DANILO PACELLA ; GIUSEPPE PIZZICAROLI

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW

Title: GAS ELECTRON MULTIPLIER AND MANUFACTURING METHOD FOR GAS ELECTRON MULTIPLICATION FOIL USED FOR SAME AS WELL AS RADIATION DETECTOR USING GAS ELECTRON MULTIPLIER

Abstract: To attain objects to reduce the spread of electrons as compared with a conventional one without degrading the multiplication factor of electrons; to provide a large electron multiplication factor; and to improve positional resolution, there is provided a gas electron multiplier using interaction between radiation and gas through photoelectric effects including: a chamber filled with gas and a single gas electron multiplication foil arranged in the chamber wherein the gas electron multiplication foil is made of a plate-like multilayer body composed by having a plate-like insulation layer made of a macromolecular polymer material having a thickness of around 100 μm to 300 μm and flat metal layers overlaid on both surfaces of the insulation layer, and the plate-like multilayer body is provided with a through-hole structure.

Classifications:

International (IPC 8-9): C23F1/00 G01T1/18 G01T1/185 G01T1/205 H01J43/20 H01J47/00 H01J47/06 H01J47/14 H01J9/02

H01J9/12 (Advanced/Invention);

C23F1/00 G01T1/00 H01J47/00 H01J9/02 (Core/Invention)

CPC: G01T1/18 H01J3/025 H01J47/02

European: G01T1/18 H01J3/02E H01J47/02

US: 216/65 216/65S 250/374 250/374P 250/388

JP F-Term: 2G088 2G088/FF02 2G088/FF04 2G088/FF05

2G088/FF06 2G088/FF09 2G088/FF14 2G088/GG03 2G088/JJ05

2G088/JJ09 2G088/JJ31 2G088/JJ37 2G188 2G188/AA02

2G188/AA03 2G188/AA25 2G188/AA27 2G188/BB01 2G188/BB02

2G188/BB04 2G188/BB05 2G188/BB06 2G188/BB09 2G188/BB14

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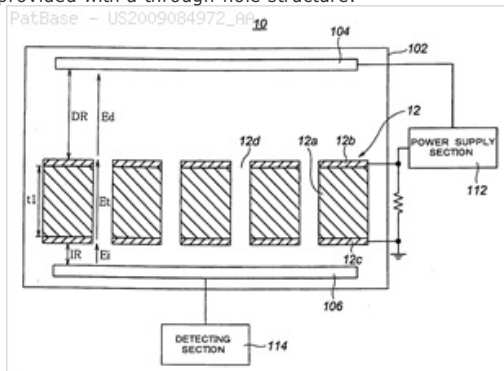
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2G188/FF18 5C027 5C038 5C038/DD01

JP F-Index: G01T1/18/A G01T1/18/C H01J47/06 H01J47/14

H01J9/02/Z H01J9/12/Z



Family:

Publication number	Publication date	Application number	Application date
JP2007234485 A2	20070913	JP20060056997	20060302
JP5022611 B2	20120912	JP20060056997	20060302
US2009084972 AA	20090402	US20070224228	20070301
US7994483 BB	20110809	US20070224228	20070301
WO07100029 A1	20070907	WO2007JP53875	20070301

Priority:

JP20060056997 20060302 WO2007JP53875 20070301

Probable Assignee: OF TOKYO UNIV

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Assignee(s): INSTITUTE OF PHYSICAL AND CHEMICAL RESEARCH ; SCIENERGY CO ; UNIV OF TOKYO ; OF PHYSICAL AND CHEMICAL RESEARCH INST ; OF TOKYO UNIV ; TOKYO UNIV ; THE UNIVERSITY OF TOKYO

Inventor(s): (std): TAMAGAWA TORU ; KOSHIMUTA SATOSHI ; HAMAGAKI HIDEKI

Agent(s): OLIFF AND BERRIDGE PLC

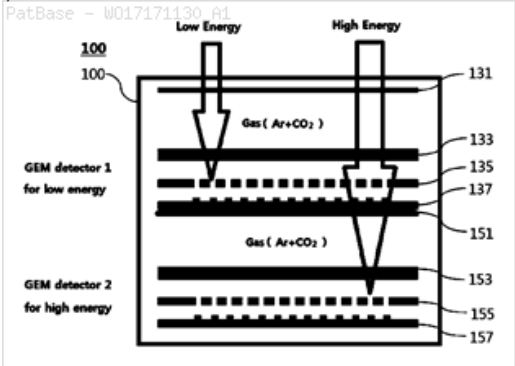
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Title: DUAL ENERGY X-RAY DETECTOR USING MULTIPLE GAS ELECTRON MULTIPLIER DETECTOR, AND X-RAY **IMAGE** CAPTURING SYSTEM

Abstract: The present invention relates to a dual energy X-ray detector using a multiple gas electron multiplier (GEM) detector, and an X-ray **image** capturing system. The present invention comprises: a GEM chamber; a cathode; a first detector for low energy X-ray detection having arranged in parallel a first scintillator reacting with a low energy x-ray, a **GEM foil** and a first anode; and a second detector for high energy X-ray detection having arranged in parallel a second scintillator reacting with a high energy x-ray, a **GEM foil** and a second anode, wherein the first detector and the second detector are arranged in series inside the GEM chamber in the direction of the X-rays.

Classifications:

International (IPC 8-9): A61B6/00 G01N23/207
G01N23/225 (Advanced/Invention)
CPC: A61B6/4014 A61B6/482 G01N23/2076 G01N23/2252 A61B6/00
G01N23/207 G01N23/225



Family:

Publication number	Publication date	Application number	Application date
KR101825558 B1	20180205	KR20160039147	20160331
KR20170112291 A	20171012	KR20160039147	20160331
WO17171130 A1	20171005	WO2016KR04342	20160426

Priority:

KR20160039147 20160331

Probable Assignee: EWHA UNIV IND COLLABORATION FOUND

Assignee(s): (std): EWHA UNIV IND COLLABORATION FOUND ; EWHA WOMANS UNIV IND UNIV COOPERATION FOUNDATION

Assignee(s): EWHA UNIVERSITY INDUSTRY COLLABORATION FOUNDATION ; EWHA UNIV IND COLLABORATION FOUNDATION

Inventor(s): (std): JUNG JAE HOON ; LEE RE NA ; LEE SOON HYOUK

Agent(s): KIM IN CHEOL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: APPARATUS, METHOD AND SYSTEM FOR MEASURING PROMPT GAMMA AND OTHER BEAM-INDUCED RADIATION DURING HADRON THERAPY TREATMENTS FOR DOSE AND RANGE VERIFICATION PURPOSES USING IONIZATION RADIATION DETECTION

Abstract: An apparatus, method and system for measurement of radiation during or directly following hadron therapy treatment for dose and range verification purposes accomplished through measurement of prompt gamma and other beam-induced radiation. One example includes the measurement of secondary prompt gamma radiation during proton and carbon ion beam irradiation. The measurement can also be made of other beam-induced radiation results. The measurement of gamma radiation or other beam-induced radiation allows for optimization of radiation dose disposition to the target tissue, with improved sparing of surrounding critical structures and normal tissue. Adjustments to a radiation treatment may be made as needed based on actual and measured applied dosages.

Classifications:

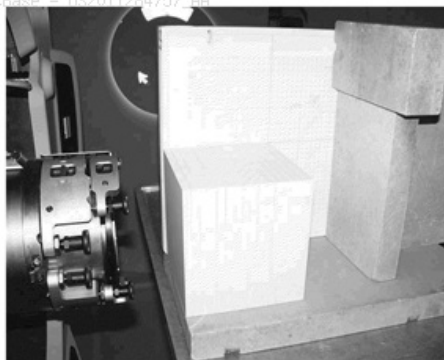
International (IPC 8-9): A61N5/10 G01T1/161 G01T1/185
G01T1/28 (Advanced/Invention)

CPC: A61N5/1048 A61N2005/1052 A61N2005/1072 A61N2005/1087
G01T1/161 G01T1/185

European: A61N5/10E G01T1/161 G01T1/185 K61N5/10E1N
K61N5/10E4M K61N5/10P2

US: 250/336.1 250/336.100S 250/389 250/389P 250/395 250/395S

PatBase - US2011284757_00



Family:

Publication number	Publication date	Application number	Application date
EP2569054 A2	20130320	EP20110781244	20110511
EP2569054 A4	20131002	EP20110781244	20110511
US2011284757 AA	20111124	US20110105867	20110511
WO11143367 A2	20111117	WO2011US36150	20110511
WO11143367 A3	20120301	WO2011US36150	20110511

Priority:

US20100333597P 20100511 US20110105867 20110511 WO2011US36150 20110511

Probable Assignee: HAMPTON UNIV

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Inventor(s): (std): KEPPEL CYNTHIA E ; BUTUCEANU CORNEL ; BAILLIE NATHAN

Agent(s): SMEE ANTHONY JAMES MICHAEL; GROSS CHARLES J

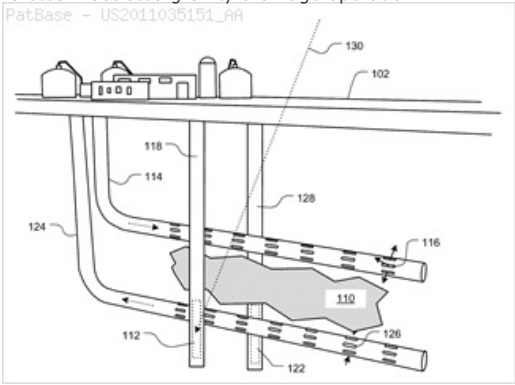
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Title: SUBSURFACE NUCLEAR MEASUREMENT SYSTEMS, METHODS AND APPARATUS

Abstract: Methods and related systems are described for use for making subterranean nuclear measurements. The system can include a plurality of elongated scintillator members each generating optical signals in response to ionizing radiation. Optical detector units can be optically coupled to at least one end of each elongated scintillator member so as to detect optical signals from each elongated scintillator member. The system can be suitable for permanent or semi-permanent deployment downhole. For example, the system can operate for more than six months in a subterranean deployment measuring cosmic radiation. The system can be suited to monitor density changes in subterranean regions of interest, for example, density changes brought about by steam injection as part of a steam assisted gravity drainage operation.

Classifications:

International (IPC 8-9): G01T1/20 G01T3/06 G01V5/00 G01V5/04 G01V5/12 G06F19/00 (Advanced/Invention); E21B43/00 (Advanced/Non-invention)
CPC: G01V5/04 G01V5/06 G01V5/107
European: G01V5/04 G01V5/06 G01V5/10D
US: 250/256 250/256S 250/265 250/265S 250/266 250/269.1 250/269.100S 702/2 702/2P



Family:

Publication number	Publication date	Application number	Application date
CA2712121 AA	20110206	CA20102712121	20100804
CA2712121 C	20130514	CA20102712121	20100804
US2011035151 AA	20110210	US20090536845	20090806
US8384017 BB	20130226	US20090536845	20090806

Priority:

US20090536845 20090806 CA20102712121 20100804

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): BOTTO TANCREDI ; SCHLUMBERGER CA LTD ; SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): SCHLUMBERGER CANADA LTD

Inventor(s): (std): BOTTO TANCREDI

Agent(s): SMART AND BIGGAR; SCHLUMBERGER DOLL RESEARCH ATTN INTELLECTUAL PROPERTY LAW DEPARTMENT; JAKUB M; RACHEL E; BRIGID M