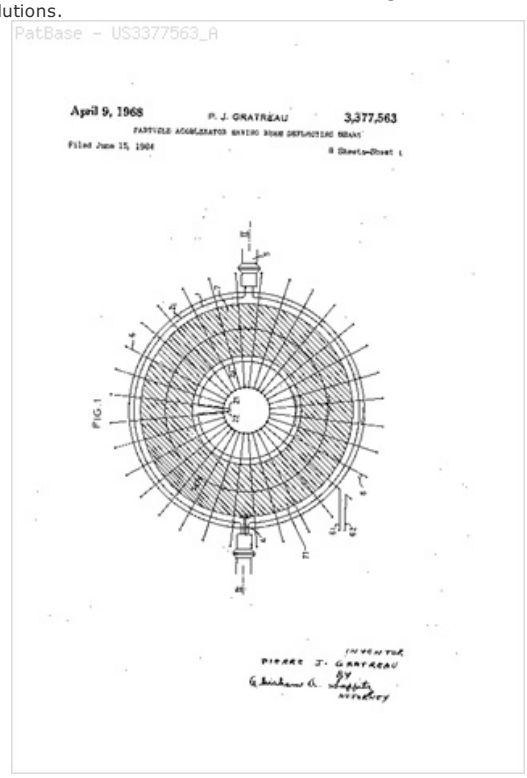
Nicolas Vargas

1) Family number: 208780 (US3377563A)

Title: Particle **accelerator** having beam deflecting means

Abstract: Source: US3377563A ABSTRACT OF THE DISCLOSURE
The invention provides means for increasing the beam current in a circular particle **accelerator** such as a betatron having an annular vacuum chamber, an electron gun and a conventional beam guiding field, said means comprising a toroidal azimuth field winding wound around the vacuum chamber for focusing the beam and means for producing an electric field substantially perpendicular to the central plane of the chamber in the whole circumference thereof for deflecting the focused beam so that it misses the gun during a number of consecutive revolutions.

Classifications:
International (IPC 8-9): H05H11/00 (Advanced/Invention);
H05H11/00 (Core/Invention)
International (IPC 1-7): H05H11/00
CPC: H05H11/00
European: H05H11/00
US: 315/501 315/504 328/237



Family:

Publication number	Publication date	Application number	Application date
CH422178 A	19661015	CH19640007724	19640613
DE1464845 A1	19681031	DE19641464845	19640613
FR1371239 A	19640904	FR19630938177	19630614
GB1033597 A	19660622	GB19640024329	19640611
NL6406683 A	19641215	NL19640006683	19640612
US3377563 A	19680409	US19640375132	19640615

Priority:
FR19630938177 19630614

Probable Assignee: CENTRE NAT RECH SCIENT
Assignee(s): (std): CENTRE NAT RECH SCIENT ; GRATREAU PIERRE ; PIERRE J GRATREAU
Assignee(s): CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE
Inventor(s): (std): GRATREAU PIERRE J ; PIERRE GRATREAU ; GRATREAU PIERRE

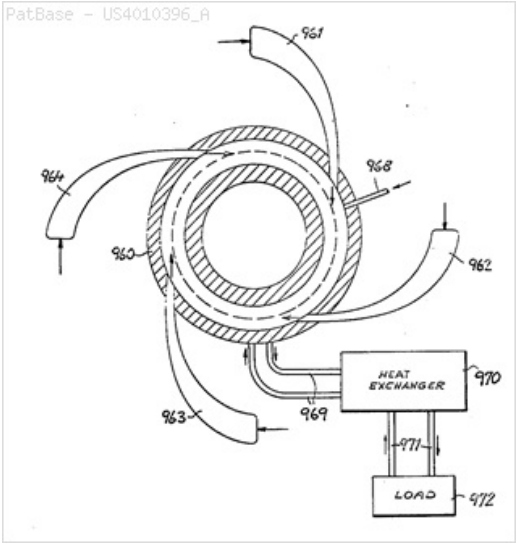
2) Family number: 1373396 (US4010396A)

Title: DIRECT ACTING PLASMA **ACCELERATOR**

Abstract: Source: US4010396A Charged particles are entrained on a straight or curved path by a traveling **magnetic** field moving along that path with its **magnetic** flux vector transverse thereto. The general direction of entrainment is the same for particles of either polarity. The initial relative velocity between the traveling field and the particle drives the latter into motions along a quasi-cycloidal trajectory in the direction of field travel at an average particle speed nearly equal to the field velocity. Streams of charged particles may be accelerated into streams separated from any material objects such as vessel walls, **magnetic** structures, electrodes, etc. This confinement is achieved predominantly by the balanced interaction of the forces exerted on the particles by the traveling **magnetic** field and their inertial forces. Auxiliary confining fields may be applied for redirecting to the main stream any particles scattered by secondary effects. The traveling field may be generated by a group of electromagnets, with or without cores, spaced along the path and excited in staggered phase relationship; by

an angular offsetting of the polar axes of adjoining electromagnets, the quasi-cycloidal trajectories may be twisted into spacial curves designed to keep the particle stream within preselected boundaries without the need for separate **magnetic** focussing fields. Periodic reversals of the travel direction of the **magnetic** field result in reciprocation of the particle streams for inducing **collisions** between oppositely moving particle streams in adjoining sections. Laminar particle flow is produced by providing a concentrated charged particle source emitting bursts of sail particles in a preselected phase relationship to the traveling **magnetic** field. The quasi-cycloidal trajectories may be substantially straightened or otherwise modified by the application of specially shaped pole pieces.

Classifications:
International (IPC 8-9): G21B1/00 G21K1/08 H01F7/20 H05H1/12 H05H1/54 H05H13/00 H05H7/04 (Advanced/Invention); G21B1/00 H01F7/20 H05H1/00 H05H1/02 H05H13/00 H05H7/00 (Core/Invention)
International (IPC 1-7): F03H1/00 G21B1/02 G21G1/10 G21K1/08 H01J27/00 H01J3/12 H01J3/34 H05H1/10 H05H1/12 H05H1/24 H05H11/00 H05H11/04 H05H13/00 H05H7/04 H05H9/02
CPC: G21B1/00 H01F7/202 H05H1/12 H05H1/54 H05H7/04 H05H13/00 Y02E30/126 Y02E30/14
European: G21B1/00 H01F7/20B H05H1/12 H05H1/54 H05H13/00 H05H7/04 Y02E30/12F Y02E30/14
US: 310/11 313/161 313/231.3 313/231.31 313/359 313/359.1 315/501 315/503 376/107 376/108 376/120 376/123 376/127 376/128 376/133 376/146 976/DIG.1



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Publication number	Publication date	Application number	Application date
CA1050175 A1	19790306	CA19740214543	19741125
CH593000 A	19771115	CH19740015550	19741122
DE2455396 A1	19750911	DE19742455396	19741122
FR2252726 A1	19750620	FR19740038637	19741125
FR2252726 B1	19790406	FR19740038637	19741125
GB1487641 A	19771005	GB19740051118	19741126
IT1025971 A	19780830	IT19740029786	19741125
JP50106098 A2	19750821	JP19740136131	19741126
NL7415429 A	19750528	NL19740015429	19741126
SE399799 B	19780227	SE19740014761	19741125
SE399799 C	19780608	SE19740014761	19741125
SE7414761 A	19750527	SE19740014761D	19741125
US4010396 A	19770301	US19730418857	19731126
US4047068 A	19770906	US19760658729	19760217

Priority:
US19730418857 19731126 US19760658729 19760217

Probable Assignee: KREIDL CHEMICO PHYSICAL KG

Assignee(s): (std): KREIDL CHEMICO PHYSICAL KG

Assignee(s): KREIDL CHEMICO PHYSICAL KG FL ; KREIDL CHEMICO PHYSICAL KOMMANDITGESELLSCHAFT THE ; KREIDL CHEMICO PHYSICAL THE KG ; THE KREIDL CHEMICO PHYSICAL KG ; THE KREIDL CHEMICO PHYSICAL KOMMANDITGESELLSCHAFT ; THE KREIDL CHEMICO PHYSICAL KOMMANDITGESELLSCHAFT TE SCHAAN LIECHTENSTEIN ; RESS THOMAS I ; NOLDE GEORGE V ; KREIDL CHEM PHYSICAL KG ; KREIDL CHEMICO PHYSICAL K G

Inventor(s): (std): NOLDE G V ; NOLDE GEORGE V ; RESS T I ; RESS THOMAS I

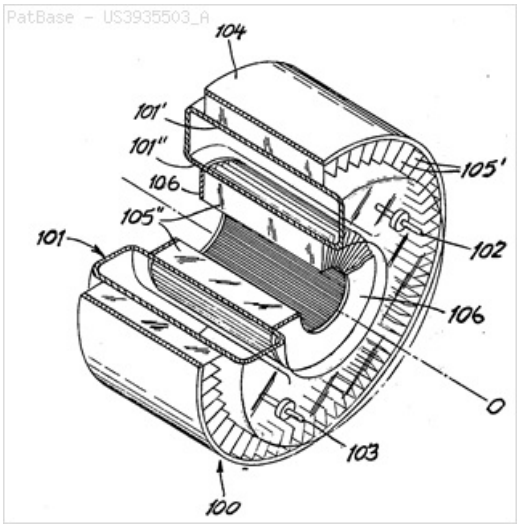
Inventor(s): T I RESS ; V NOLDE GEORGE ; G V NOLDE ; I RESS THOMAS

3) Family number: 1229709 (US3935503A)

Title: Particle **accelerator**

Abstract: Source: US3935503A Charged particles are entrained in a predetermined direction, independent of their polarity, in a circular orbit by a **magnetic** field rotating at high speed about an axis in a closed cylindrical or toroidal vessel. The field may be generated by a cylindrical laser structure, whose beam is polygonally reflected from the walls of an excited cavity centered on the axis, or by high-frequency energization of a set of electromagnets perpendicular to the axis. In the latter case, a separate **magnetostatic** axial field limits the orbital radius of the particles. These rotating and stationary **magnetic** fields may be generated centrally or by individual **magnets** peripherally spaced along its circular orbit. Chemical or nuclear reactions can be induced by **collisions** between the orbiting particles and an injected reactant, or by diverting high-speed particles from one doughnut into the path of counterrotating particles in an adjoining doughnut.

Classifications:
International (IPC 8-9): H01F7/20 H01S3/03 H01S3/08 H05H1/12 H05H1/54 H05H13/00 H05H7/04 (Advanced/Invention); H01F7/20 H01S3/03 H01S3/08 H05H1/00 H05H1/02 H05H13/00 H05H7/00 (Core/Invention)
International (IPC 1-7): A61K31/78 G21B1/02 G21G1/10 G21G4/02 H01F7/20 H01J3/12 H01S3/00 H05H1/00 H05H1/02 H05H1/10 H05H1/12 H05H1/24 H05H11/00 H05H11/04 H05H13/00 H05H7/00 H05H7/04
CPC: H01F7/202 H01S3/03 H01S3/08 H05H1/12 H05H1/54 H05H7/04 Y02E30/122 Y02E30/126
European: H01F7/20B H01S3/03 H01S3/08 H05H1/12 H05H1/54 H05H7/04 Y02E30/12B Y02E30/12F
US: 315/111.6 315/111.61 315/501 315/507 376/107



Family:

Publication number	Publication date	Application number	Application date
CA1030667 A1	19780502	CA19740214544	19741125
CH586990 A	19770415	CH19740015501	19741121
DE2455460 A1	19750528	DE19742455460	19741122
FR2252727 A1	19750620	FR19740038638	19741125
FR2252727 B1	19790406	FR19740038638	19741125
GB1487642 A	19771005	GB19740051119	19741126
IT1025346 A	19780810	IT19740028988	19741030
JP50106099 A2	19750821	JP19740135439	19741125
NL7415428 A	19750528	NL19740015428	19741126
SE400014 B	19780306	SE19740014762	19741125
SE400014 C	19780615	SE19740014762	19741125
SE7414762 A	19750527	SE19740014762D	19741125
US3935503 A	19760127	US19730418858	19731126

Priority:

US19730418858 19731126

Probable Assignee: KREIDL CHEMICO PHYSICAL KG

Assignee(s): (std)**:** KREIDL CHEMICO PHYSICAL KG

Assignee(s): KREIDL CHEMICO PHYSICAL KG FL ; KREIDL CHEMICO PHYSICAL KOMMANDITGESELLSCHAFT THE ; KREIDL CHEMICO PHYSICAL THE KG ; RESS THOMAS I ; THE KREIDL CHEMICO PHYSICAL K G ; THE KREIDL CHEMICO PHYSICAL KG ; THE KREIDL CHEMICO PHYSICAL KOMMANDITGESELLSCHAFT ; THE KREIDL CHEMICO PHYSICAL KOMMANDITGESELLSCHAFT TE SCHAAN LIECHTENSTEIN ; KREIDL CHEM PHYSICAL KG

Inventor(s): (std)**:** RESS T I ; REUSS THOMAS I ; RESS THOMAS I

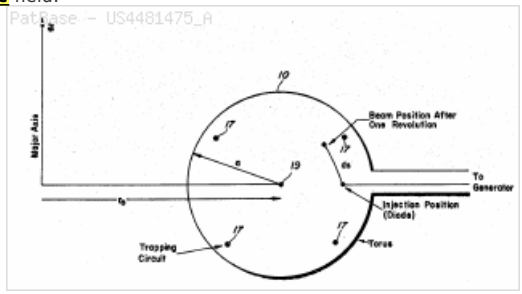
Inventor(s): I REUSS THOMAS ; T I RESS

4) Family number: 4550313 (US4481475A)

Title: Betatron **accelerator** having high ratio of Budker parameter to relativistic factor

Abstract: Source: US4481475A A betatron for accelerating charged particles in a toroidal vacuum chamber comprising a betatron **magnetic** field generator; a toroidal **magnetic** field generator; a generating circuit for generating a charged particle beam into the toroidal chamber with an energy and current such that the ratio of the Budker parameter nu to the relativistic factor gamma of the beam in the range nu / gamma =0.005 to 0.25 so that the toroidal field effects are significant and act to stabilize the beam, with the beam generation initiated at a point in the betatron **magnetic** field cycle where the betatron field is slightly less than the field equilibrium value for the beam; a circuit disposed in the toroidal chamber for reducing the local betatron field in the toroidal chamber only during the beam trapping stage while maintaining the average flux constant inside the beam orbit to prevent **collision** with the beam generation circuit after the first bounce; and a coil circuit disposed such that its axis is approximately coincident with the major axis of the toroid for generating a time varying **magnetic** field in a direction approximately perpendicular to the plane of the toroid to thereby induce an electric field to oppose the electric field induced by the diffusion of the self **magnetic** field.

Classifications:
International (IPC 8-9): H05H11/00 (Advanced/Invention);
H05H11/00 (Core/Invention)
International (IPC 1-7): H05H11/00
CPC: H05H11/00
European: H05H11/00
US: 315/504 315/507



Family:

Publication number	Publication date	Application number	Application date
US4481475 A	19841106	US19820405465	19820805

Priority:

US19820405465 19820805

Probable Assignee: US NAVY

Assignee(s): (std): US NAVY

Assignee(s): SECRETARY OF NAVY AS US GOV ; SECRETARY OF NAVY US ; THE UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY OF THE NAVY

Inventor(s): (std): KAPETANAKOS CHRISTOS A ; SPRANGLE PHILLIP

5) Family number: 33603632 (US2006249685A)

Title: ELECTROMAGNETIC WAVE GENERATOR

Abstract: Source: US2006249685A A compact and low-cost electromagnetic wave generator in which X-rays having high intensity can be generated and the energy of generated X-rays can rapidly be switched. In an electromagnetic wave generator including a circular **accelerator**, a deflection electromagnet incorporated in the circular **accelerator** focuses injected and accelerated electrons, The circular **accelerator** produces stable electron closed orbits in a region with a predetermined width in the radial direction of the **accelerator** that are stable during injection and acceleration of electron. A target is arranged across the stable electron closed orbits and a **collision** region, where a circulating electron beam collides with the target and a non-**collision** region where a circulating electron beam does not collide with the target produced. Through control of respective patterns of changes with time in the deflection **magnetic** field, a given electron closed orbit is shifted between the **collision** and the non-**collision** regions, thereby generating X-rays.

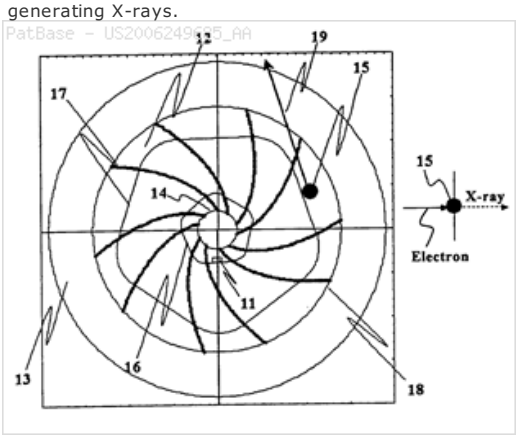
Classifications:

International (IPC 8-9): G01K1/08 G21K5/08 H01J35/30 H05G1/52 H05G2/00 H05H11/00 H05H13/00 H05H13/08 H05H7/04 (Advanced/Invention);
G01K1/08 G21K5/00 H01J35/00 H05G1/00 H05G2/00 H05H11/00 H05H13/00 H05H7/00 (Core/Invention)

CPC: H01J2235/08 H05G2/00 H05H6/00 H05H11/00

European: H05G2/00 H05H11/00 H05H6/00 T01J235/08

US: 250/397 378/137 378/138



Family:

Publication number	Publication date	Application number	Application date
CN1856212 A	20061101	CN200610075404	20060414
CN1856212 B	20120704	CN200610075404	20060414
JP2006309968 A2	20061109	JP20050128120	20050426
JP4639928 B2	20110223	JP20050128120	20050426
US2006249685 AA	20061109	US20060407332	20060420
US7310409 BB	20071218	US20060407332	20060420

Priority:

JP20050128120 20050426

Probable Assignee: MITSUBISHI DENKI KK

Assignee(s): (std): MITSUBISHI ELECTRIC CORP

Assignee(s): MITSUBUSHI DENKI KABUSHIKI KAISHA ; MITSUBUSHI DENKI KK ; MITSUBISHI DENKI KABUSHIKI KAISHA ; MITSUBISHI DENKI KK

Inventor(s): (std): HIROFUMI DENCHU ; TANAKA HIROBUMI ; TANAKA HIROFUMI

Inventor(s): DENCHU HIROFUMI

Agent(s): LEYDIG VOIT AND MAYER LTD

6) Family number: 41667744 (US2008079372A)

Title: CIRCULAR ACCELERATION APPARATUS, ELECTROMAGNETIC WAVE GENERATOR AND ELECTROMAGNETIC-WAVE IMAGING SYSTEM

Abstract: Source: US2008079372A An objective is to provide a circular acceleration apparatus that can accelerate higher currents as well as avoid complex controlling of a deflecting **magnetic** field generated by an electron deflection unit. The circular acceleration apparatus is provided, which comprising a circular **accelerator** 2 including an electron acceleration unit 13 and a deflection-**magnetic**-field generating unit 14; an electron generator 1, to which a pulsed voltage is applied, to generate electrons for injecting to the circular **accelerator** 2; and a circuit element which generates the pulsed voltage for providing to the electron generator 1 by making the pulsed voltage applied to the electron generator 1 have at least one of a slow rising edge and a slow falling edge.

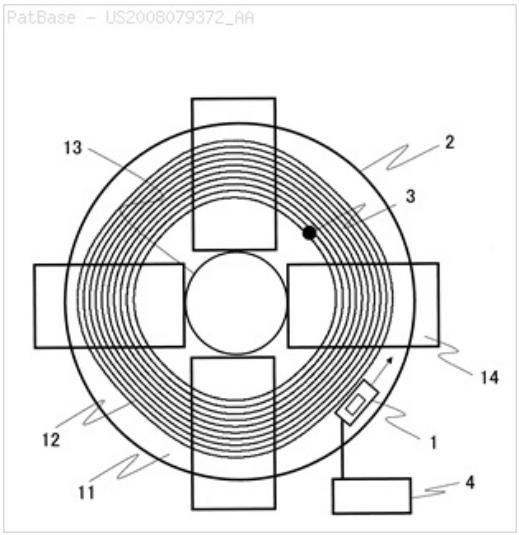
Classifications:

International (IPC 8-9): G21K1/093 H01J23/00 H05B41/24 H05G2/00 H05H11/00 H05H13/04 H05H13/08 H05H7/00 H05H7/04 H05H7/08 (Advanced/Invention);
G21K1/00 H01J23/00 H05B41/24 H05G2/00 H05H11/00 H05H13/00 H05H13/04 H05H7/00 (Core/Invention)

CPC: A61B6/4092 H05H11/00 A61B6/484 H05G2/00 H05H7/06 H05H7/08

European: H05G2/00 H05H11/00 H05H7/06 H05H7/08 K61B6/48H

US: 315/246 315/246S 315/500 315/507 315/507P 378/137



Family:

Publication number	Publication date	Application number	Application date
CN101155464 A	20080402	CN200710161207	20070925
CN101155464 B	20130717	CN200710161207	20070925
DE102007045495 A1	20080403	DE200710045495	20070924
JP2008084572 A2	20080410	JP20060260419	20060926
JP4622977 B2	20110202	JP20060260419	20060926
US2008079372 AA	20080403	US20070860965	20070925
US7634062 BB	20091215	US20070860965	20070925

Priority:

JP20060260419 20060926

Probable Assignee: MITSUBISHI ELECTRIC CORP

Assignee(s): (std)**:** MITSUBISHI ELECTRIC CORP

Assignee(s): MITSUBISHI DENKI KK

Inventor(s): (std)**:** HIROFUMI TANAKA ; NAGAYAMA TAKAHISA ; NOBUYUKI ZUMOTO ; TAKAHISA NAGAYAMA ; TANAKA HIROBUMI ; TANAKA HIROFUMI ; ZUMOTO NOBUYUKI

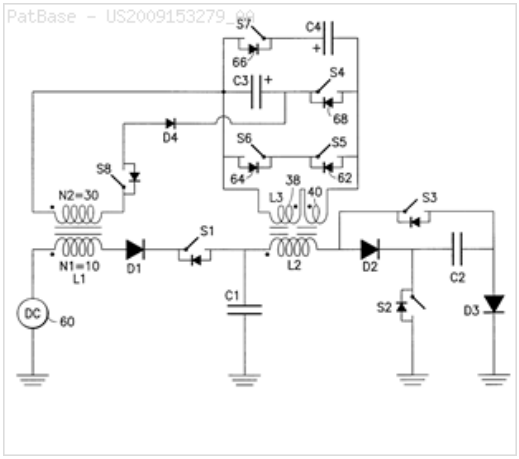
Agent(s): OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT LLP

7) Family number: 43383244 (US2009153279A)

Title: SINGLE DRIVE BETATRON

Abstract: Source: US2009153279A A betatron includes a betatron **magnet** with a first guide **magnet** having a first pole face and a second guide **magnet** having a second pole face. Both the first and the second guide **magnet** have a centrally disposed aperture and the first pole face is separated from the second pole face by a guide **magnet** gap. A core is disposed within the centrally disposed apertures in an abutting relationship with both guide **magnets**. The core has at least one core gap. A drive coil is wound around both guide **magnet** pole faces. An orbit control coil has a contraction coil portion wound around the core gap and a bias control portion wound around the guide **magnet** pole faces. The contraction coil portion and the bias control portion are connected but in opposite polarity. **Magnet** fluxes in the core and guide **magnets** return through peripheral portions of the betatron **magnet**.

Classifications:
International (IPC 8-9)**:** G01V5/12 H01F7/06 H01J35/00 H05H11/00 H05H11/04 H05H7/04 (Advanced/Invention);
H01F7/06 H01J35/00 H05H11/00 H05H7/00 (Core/Invention)
CPC: H05H11/00 H05H11/04
European: H05H11/00 H05H11/04
US: 250/269.3 315/504 335/210 335/296 378/121



Family:

Publication number	Publication date	Application number	Application date
CA2678650 AA	20090625	CA20082678650	20080925
CA2678650 C	20140506	CA20082678650	20080925
DE602008023796 D1	20130606	DE200860023796T	20080925
EP2140740 A1	20100106	EP20080863289	20080925
EP2140740 B1	20130410	EP20080863289	20080925

JP2010521057 T2	20100617	JP20090553847T	20080925
JP5042321 B2	20121003	JP20090553847T	20080925
RU2009130106 A	20110210	RU20090130106	20080925
RU2439865 C2	20120110	RU20090130106	20080925
US2009153279 AA	20090618	US20070957178	20071214
US7638957 BB	20091229	US20070957178	20071214
WO09079063 A1	20090625	WO2008US77738	20080925

Priority:

EP20080863289 20080925 US20070957178 20071214 WO2008US77738 20080925

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std)**:** CHEN FELIX ; PRAD RES AND DEV ; PRAD RES AND DEV LTD ; SCHLUMBERGER TECHNOLOGY CORP ; SCHLUMBERGER SERVICES PETROL ; SCHLUMBERGER HOLDINGS ; SCHLUMBERGER CA LTD ; SCHLUMBERGER TECHNOLOGY BV

Assignee(s): SHLJUMBERGER TEKNOLODZHI BV ; PRAD RESEARCH AND DEVELOPMENT ; PRAD RESEARCH AND DEVELOPMENT LTD ; PRAD RESEARCH AND DEVELOPMENT LTD ROAD TOWN ; SCHLUMBERGER CANADA LTD ; SERVICES PETROLIERS SCHLUMBERGER ; SCHLUMBERGER HOLDINGS LTD

Inventor(s): (std)**:** CHEN FELIKS ; CHEN FELIX

Agent(s): SMART AND BIGGAR; FORD MICHAEL FREDERICK; SCHLUMBERGER DOLL RESEARCH ATTN INTELLECTUAL PROPERTY LAW DEPARTMENT; JODY LYNN; DALE; JAMES M; MCALEENAN JAMES

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI 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 IS IT JP KE KG KM KN KP KR KZ LA LC LI 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 PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW