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Patent Number	Patent Title	Abstract
US10890783B2	Method of forming a film with a lenticular lens array	According to one aspect of the invention, there is provided a method of forming a film with a lenticular lens array, the method comprising providing a substrate; providing a mold having a plurality of nano-scale to micro-scale cavities that form the lenticular lens array on the substrate; having the mold contact the substrate; and forming the lenticular lens array by allowing portions of the substrate to partially fill the plurality of cavities.
US10881677B2	Composition for modulating IRAK1	The present invention relates to the treatment of breast cancer, more particularly triple negative breast cancer (TNBC), with the use of an inhibitor of Interleukin 1 Receptor Associated Kinase 1 (IRAK1) such as ginsenosides. It also relates to a method for aiding in categorising or determining prognosis in a breast cancer patient or in selecting a therapeutic strategy comprising assessing the level of IRAK1 nucleic acid, protein or activity in a sample and, in some aspects, further assessing the paclitaxel resistance status of the patient and if the patient is resistant to paclitaxel therapy, treating the patient with an inhibitor of IRAK1 activity. In addition, a screening method for identifying a compound useful for treating breast cancer comprises determining the effect of a test compound on IRAK1 nucleic acid, protein or activity level and selecting a compound that reduces said level.
US10882737B2	Through silicon interposer wafer and method of manufacturing the same	A through silicon interposer wafer and method of manufacturing the same. A through silicon interposer wafer having at least one cavity formed therein for MEMS applications and a method of manufacturing the same are provided. The through silicon interposer wafer includes one or more filled silicon vias formed sufficiently proximate to the at least one cavity to provide support for walls of the at least one cavity during subsequent processing of the interposer wafer.
US10870653B2	WNT pathway modulators	The present invention relates to compounds of formula (I), combinations and uses thereof for disease therapy, or a pharmaceutically acceptable salt, solvate or polymorph thereof, including all tautomers and stereoisomers thereof wherein each of R1, R2, R3, R4, R5, W, X, Y, Z, and n is as defined herein.
US10869804B2	Method and system for using haptic device and brain-computer interface for rehabilitation	A method for calibrating and executing a rehabilitation exercise for a stroke-affected limb of a stroke patient is disclosed, the method comprising the steps of providing a haptic device for an able limb of the stroke patient to manipulate to perform a calibration action to result in a first position of the haptic device, and providing the haptic device for the stroke-affected limb to manipulate to perform the calibration action to result in a second position of the haptic device. The method further comprises the steps of moving the haptic device coupled with the stroke-affected limb from the second position towards the first position until a predetermined counterforce is detected, indicating an extreme position for the stroke-affected limb using the haptic device, and calibrating the haptic device with the extreme position such that during the rehabilitation exercise, the haptic device is prevented from moving beyond the extreme position.
US10873135B2	Antenna, assembly, and methods of forming the same	Various embodiments may relate to an antenna. The antenna may include a ridge reflector arranged along a plane. The ridge reflector may be configured to enhance an emission of at least one electromagnetic wave source providing an electromagnetic wave signal to the antenna and further configured to direct the electromagnetic wave signal in a direction at least substantially perpendicular to the plane. The ridge reflector may define a space along the plane for allowing the electromagnetic wave signal to be directed in the direction at least substantially perpendicular to the plane. The ridge reflector may include at least one of a dielectric material and a semiconductor material.
US10873218B2	Synchronized time-division wireless power transfer for multiple voltage applications	A wirelessly powered implantable medical device, a system for synchronized time-division wireless power transfer, and a method for closed-loop carrier waveform adaption for wireless power control are provided. The system for synchronized time-division wireless power transfer includes a wireless transmitter for generating and transmitting time-division wireless power transfer signals and a wirelessly powered device. The wirelessly powered device includes a wireless receiver for receiving the time-division wireless power transfer signals and a time division switching module. The time division switching module is coupled to the wireless receiver and generates multiple supply voltages synchronized to the time-division wireless power transfer signals for powering different circuitry of the wirelessly powered device.
US10865384B2	2,4,5-tri-substituted azole-based casein kinase 1 inhibitors as inducers for cardiomyogenesis	This invention relates to a method for inducing or enhancing the differentiation of pluripotent stem cells into cardiomyocyte via casein kinase 1 inhibition said method comprising culturing the stem cells in the presence of a medium comprising a casein kinase 1 inhibitor of the formula (I) or (II) or a stereoisomer, tautomer, or a salt thereof wherein R1, R2 and R3 independently from another represent hydrogen, optionally substituted alkyl, alkenyl, alkynyl, heterocyclyl, heteroaryl or aryl; X represents NR4, O or S; and R4 represents hydrogen, optionally substituted alkyl, alkenyl, alkynyl, heterocyclyl, heteroaryl or aryl. The method can be used in the late phase of stem cell differentiation and in the compounds of formula (I) or (II) in combination with other small molecules can lead to especially high differentiation of stem cells into cardiomyocytes. The invention further relates to novel compounds which can be used in the method of the invention and kits for stem cell differentiation.

US10856799B2	Three-dimensional representation of skin structure	The present disclosure generally relates to an automated method and system for generating a three-dimensional (3D) representation of a skin structure of a subject. The method comprises: acquiring a plurality of two-dimensional (2D) cross-sectional images of the skin structure, specifically, using optical coherence tomography (OCT) technique; computing a cost for each 2D cross-sectional image based on a cost function, the cost function comprising an edge-based parameter and a non-edge-based parameter; constructing a 3D graph from the 2D cross-sectional images; and determining a minimum-cost closed set from the 3D graph based on the computed costs for the 2D cross-sectional images, wherein the 3D representation of the skin structure is generated from the minimum-cost closed set.
US10851260B2	Anti-scratch coating	This invention relates to a hybrid composite polymer matrix, assembled by integrating two polymer networks, as an anti-scratch coating for automobiles. The two types of particulate silane cross-liners are utilized to construct two respective hybrid polymer networks with a unique chain-from-particle structure. At least one hybrid network is a covalently bound network that is interlocked with at least one physically bound hybrid network.
US10844063B2	Purine diones as Wnt pathway modulators	The invention relates to the use of compounds of general structure (I) in modulation of the Wnt pathway [Formula should be inserted here] wherein R1, R2, R3, R4 and R5 are each, independently, H or an alkyl group; D is selected from the group consisting of H, halogen, alkyl, cycloalkyl, aryl, and dialkylamino, each (other than H and halogen) being optionally substituted; Ar is an aryl or heteroaryl group, optionally substituted; Cy is an aryl, heteroaryl or a saturated ring containing at least one heteroatom, each being optionally substituted; and n is an integer from 1 to 3.
US10844113B2	Anti-dengue virus antibodies, polypeptides containing variant Fc regions, and methods of use	The disclosure provides anti-DENV antibodies and methods of making and using the same. Nucleic acids encoding anti-DENV antibodies and host cells comprising the nucleic acids are also provided. The anti-DENV antibodies have uses that include treating DENV infection. The disclosure also provided polypeptides containing a variant Fc region and methods of making the same. Nucleic acids encoding polypeptides and host cells comprising the nucleic acids are also provided. The polypeptides have uses that include treating a viral infection. Also claimed is a polypeptide comprising a Fc variant comprising at least one amino acid alteration in a parent Fc region, wherein the variant Fc region has a substantially decreased FcYR-binding activity and does not have a substantially decreased C1 q-binding activity when compared to the parent Fc region.
US10843273B2	Methods of purifying nanostructures	The present invention relates to methods of purifying nanostructures. The nanostructures may be silver nanowires.
US10836864B2	Chemical compositions with antimicrobial functionality	Techniques regarding killing of a pathogen with one or more ionene compositions having antimicrobial functionality are provided. For example, one or more embodiments can comprise a method, which can comprise contacting a Mycobacterium tuberculosis microbe with a chemical compound. The chemical compound can comprise an ionene unit. Also, the ionene unit can comprise a cation distributed along a molecular backbone. The ionene unit can have antimicrobial functionality. The method can further comprise electrostatically disrupting a membrane of the Mycobacterium tuberculosis microbe in response to the contacting.
US10837964B2	DNA aptamer binding to cancer cell	The purpose of the present invention is to provide an aptamer to a cancer cell, said aptamer being superior to conventional aptamers in binding ability, specificity, and/or stability. To solve this problem, provided is a DNA aptamer binding to a cancer cell, said DNA aptamer containing an artificial base(s).
US10835663B2	Subcutaneous implantable device for guiding a vascular access member and method for vascular access	A subcutaneous implantable device for guiding a vascular access member, the device including a channel defined by a through-hole in the device, wherein the channel is configured to guide the vascular access member there-through to a vascular site; and anchoring means adapted for fixedly attaching, in a form of using suture, tissue ingrowth, tissue encapsulation or tissue adhesion, the device to at least one of a dermis or a subcutaneous tissue at a position underneath the dermis to allow repeated access of the vascular access member through the channel to the vascular site, wherein the device is dimensioned to allow the device to be attached through the anchoring means for anchoring the entire device at a distance away from the vascular site, A method of creating scar tissue track for vascular access is also disclosed where the subcutaneous implantable device for guiding vascular access member is first implanted sub-dermally, the dermis is palpated to feel for the device location and orientation, the guiding channel is accessed using the sharp vascular access member and following the angle of the guiding channel to access the vascular site and repeating the steps till scarred tissue track is created and finally, switching the sharp vascular access member to a blunt vascular access member to access the vascular site via the scarred tissue track.
US10831097B2	Process for plasmonic-based high resolution color printing	A process for plasmonic-based high resolution color printing is provided. The process includes a) providing a nanostructured substrate surface having a reverse structure geometry comprised of nanopits and nanoposts on a support, and b) forming a conformal continuous metal coating over the nanostructured substrate surface to generate a continuous metal film, the continuous metal film defining nanostructures for the plasmonic-based high resolution color printing, wherein a periodicity of the nanostructures is equal to or less than a diffraction limit of visible light. A nanostructured metal film or metal-film coated support obtained by the process and a method for generating a color image are also provided.

US10832492B2	Panoramic visualization of coronary arterial tree	The present disclosure generally relates to an automated method and system for generating a panoramic visualization of a coronary arterial tree of a subject. The method comprises: acquiring an image volume of a thoracic cavity of the subject, the image volume providing a three-dimensional (3D) representation of the thoracic cavity; isolating a coronary structure in the 3D representation by abating one or more other anatomical structures in the thoracic cavity; abating one or more portions of the coronary structure in the 3D representation that attenuate visualization of the coronary arterial tree; generating, by maximum intensity projection (MIP), a plurality of MIP images of the coronary structure from the 3D representation; and compositing the MIP images to generate the panoramic visualization of the coronary arterial tree.
US10822723B2	Fusion protein crystal comprising a moiety	A protein crystal comprising a first protein crystal having available space in the lattice, wherein a second protein crystal and a moiety can be accommodated in the available space in the lattice. The first and second proteins are co-expressed from one or more nucleic acid constructs. In a preferred embodiment, the first protein is the p21-activated kinase PAK4, the second protein is the PAK4 kinase inhibitor Inka1, and the moiety comprises a reporter molecule such as fluorescent proteins or tags and is fused to the iBox or iBox-C or Inka1. Preferably the crystal is formed in cellulo. Also provided is a fusion protein comprising the first protein and the second protein, wherein upon crystallisation the second protein fits within the available space in the lattice of the first protein, along with the moiety. Methods for producing the protein crystal are also disclosed.
US10827526B2	Method of controlling data transmission in a wireless mesh network and node thereof	There is provided a method of controlling data transmission in a wireless mesh network including a plurality of nodes capable of transmitting and receiving data packets. The method includes providing a frame comprising a plurality of time slots for data transmission, classifying the plurality of time slots into a plurality of sets of time slots, and determining, at a node of the plurality of nodes, a set of time slots amongst the plurality of sets of time slots for the node to transmit data packets, the set of time slots being determined based on a hop count associated with the node. There is also provided corresponding node(s) in a wireless mesh network configured to perform data transmission in the above manner.
US10823681B2	System and method for imaging a surface defect on an object	A system and a method for imaging a surface defect on an object are provided. The system includes an actuator, a sensor assembly connected to the actuator, and a processor configured to control the actuator and the sensor assembly. The sensor assembly includes at least one sensor configured to capture at least one image of the object. The processor is configured to control the actuator and the sensor assembly to identify the actuator and the sensor assembly, a region of a region of interest associated with the surface defect using an using an image of the object and to repeatedly identify at least one subsequent region of interest associated with the surface defect using at least a preceding region of interest such that the surface defect is identified according to a predetermined criterion.
US10826608B2	Light emitting diode communication device, method of forming and operating the same	Various embodiments may relate to a light emitting diode (LED) communication device including a communication interface configured to couple with an electronic device. The LED communication device may also include an electrical interface electrically coupled to the communication interface. The LED communication device may further include a light emitting diode electrically coupled to the electrical interface. The electrical interface may be configured to convert data signals received from the electronic device into driving signals transmitted to the light emitting diode during uplink, and to convert sensing signals received from the light emitting diode into data signals transmitted to the electronic device during downlink. The light emitting diode may be configured to convert the driving signals received from the electrical interface into a plurality of light pulses during uplink, and to convert a plurality of light pulses received by the light emitting diode into the sensing signals during downlink.
US10819366B1	Delta sigma modulator for and method of generating a digital output voltage	Various embodiments may provide a delta sigma modulator for generating a digital output voltage. The delta sigma modulator may include a capacitance-to-voltage converter for converting a sensed continuous-in-time applied capacitance signal to a delta analog output voltage signal. The modulator may also include an integrator circuit arrangement configured to generate an analog output voltage signal based on the delta analog output voltage signal. The modulator may additionally include a quantizer circuit arrangement configured to generate the digital output signal based on the analog output voltage signal. The modulator may further include a voltage digital-to-analog converter configured to generate the analog charging voltage based on the digital output signal, thereby generating the delta analog output voltage signal based on the digital output signal.
JP6770832B2	Joining methods, programs, computer storage media, joining devices and joining systems	PROBLEM TO BE SOLVED: To appropriately join a plurality of chips arranged on a substrate to the substrate.SOLUTION: A joining method, in a state in which a wafer has a first temperature T1 inside an airtight treatment chamber, compresses the inside of the treatment chamber to a second pressure P2 higher than an atmospheric pressure (step S3); then, heats the wafer to a second temperature T2 higher than the first temperature T1 (step S4); then, joins a plurality of chips to the wafer while keeping the inside of the treatment chamber at the second pressure P2 and keeping the wafer at the second temperature T2 (step S5); then, cools the wafer to a third temperature T3 lower than the second temperature T2 (step S6); and, then, decompresses the inside of the treatment chamber to the atmospheric pressure (step S7).SELECTED DRAWING: Figure 9

US10809182B2	Differential polarisation imaging and imaging precision ellipsometry	Methods and systems for imaging precision ellipsometry of a sample are provided. The method includes shining a source of linearly polarised light on a surface of the sample wherein light reflected off the surface of the sample has elliptic polarisation. The method further includes converting polarisation of the light reflected off the surface of the sample into linear polarisation suitable for a polarisation modulator by a retarder and oscillating a polarisation modulator to measure the polarisation rotation of the polarised light passing through the retarder. In addition, the method includes synchronising acquisition of images of the light from the retarder with oscillations of the polarisation modulator to acquire first array images during positive half-periods of oscillations of the polarisation modulator and to acquire second array images during negative half-periods of the oscillations of the polarisation modulator. Finally, the method includes differential image processing of the first array images and the second array images to generate difference images comprising a plurality of pixels, the value of each of the plurality of pixels in each of the difference images being proportional to the polarisation rotation of the light reaching the polarisation modulator from the sample.
US10809430B2	Polarization device for polarizing electromagnetic waves, methods of forming and operating the same	Various embodiments may provide a polarization device for polarizing electromagnetic waves. The polarization device may include a stacked arrangement including a medium and an anti-reflection coating in contact with the medium. The polarization device may also include a periodic array of polarization elements in contact with the medium. The polarization device may be configured to, based on an electric response and a magnetic response of the periodic array of the polarization elements, transmit first polarized electromagnetic waves having a first polarization and reflect second polarized electromagnetic waves having a second polarization upon receiving the electromagnetic waves.
US10802957B2	Control modules, multi-level data storage devices, multi-level data storage methods, and computer readable media	A control module for a multi-level data storage device having a plurality of memory devices is disclosed. The control module may include: an access determination circuit configured to determine that access has been made to a piece of data stored on at least one of the plurality of memory devices, the piece of data associated with a level being one of a first level, a second level, or a third level; a level management circuit configured to change the level from the third level to the second level or from the second level to the first level upon determining that access has been made to the piece of data; and a memory controller configured to promote the piece of data in response to whether the level is the first level, the second level or the third level, wherein at least two levels of the first level, the second level, and the third level are associated with one of the plurality of memory devices.
US10793601B2	Therapeutic spalt-like transcription factor 4 (SALL4) peptide	Isolated peptides and pharmaceutical compositions comprising isolated peptides that bind to retinoblastoma binding protein 4 (RBBp4) and block the Spalt-Like Transcription Factor 4 (SALL4)-RBBp4 interaction are described. Methods of inhibiting binding of SALL4 to RBBp4 and methods of treating a subject having a disorder mediated by a dysregulation of SALL4 are also described
US10793678B2	Fillers for polymers	This invention relates to a composite material comprising a core comprising an organosilica such as a polyhedral oligomeric silsesquioxane (POSS) and a functionalized elastomeric polymer such as poly(n-butyl acrylate) bonded onto said core. The elastomer is preferably functionalised with an amine moiety. The present invention also relates to a polymer comprising a resin such as Bisphenol A diglycidylether (DGEBA) and the aforementioned composite material, and a method for making the composite material. The composite material can improve both the material strength and material toughness of the polymer into which it is mixed.
US10786530B2	Antimicrobial cationic polycarbonates	Antimicrobial cationic polymers having one or two cationic polycarbonate chains were prepared by organocatalyzed ring opening polymerization. One antimicrobial cationic polymer has a polymer chain consisting essentially of cationic carbonate repeat units linked to one or two end groups. The end groups can comprise a covalently bound form of biologically active compound such as cholesterol. Other antimicrobial cationic polymers have a random copolycarbonate chain comprising a minor mole fraction of hydrophobic repeat units bearing a covalently bound form of a vitamin E and/or vitamin D2. The cationic polymers exhibit high activity and selectivity against Gram-negative and Gram-positive microbes and fungi.
US10787483B2	Antimicrobial peptidomimetics	The present invention relates to peptidomimetics of the formula (I) or (I)c wherein L1, L2, L3, R1, R2, R3, R4, R5, R6, n, m, Q, X, Z1 and Z2 are defined as mentioned in the description and to salts and solvates of each of these compounds and to processes for the preparation thereof, compositions containing them and the uses of such compounds. It has been found that the compounds have a high microbicide activity and are suited to combat resistant bacteria, such as meticillin-resistant Staphylococcus aureus (MRSA) strains, at very low concentrations.
US10780128B2	Mesenchymal stem cell particles	We describe a particle secreted by a mesenchymal stem cell and comprising at least one biological property of a mesenchymal stem cell. The biological property may comprise a biological activity of a mesenchymal stem cell conditioned medium (MSC-CM) such as cardioprotection or reduction of infarct size. The particle may comprise a vesicle or an exosome.
US10779539B2	Antimicrobial guanidinium and thiouronium functionalized polymers	Antimicrobial cationic polycarbonates and polyurethanes have been prepared comprising one or more pendent guanidinium and/or isothiouronium groups. Additionally, antimicrobial particles were prepared having a silica core linked to surface groups comprising a guanidinium and/or isothiouronium group. The cationic polymers and cationic particles can be potent antimicrobial agents against Gram-negative microbes, Gram-positive microbes, and/or fungi.
US10776912B2	Self-determining inspection method for automated optical wire bond inspection	Systems and methods for self-determining optical inspection of wire bonds of semiconductor components. The method is an automated optical wire bond inspection method that may include obtaining an image of a semiconductor component having wire bonds. The method may also include detecting a plurality of wire bonds on the semiconductor component image so that a wire between at least two of the plurality of detected wire bonds may be detected. Further, the method may include determining an inspection region of interest corresponding to at least one detected wire bond and at least one detected wire. The method may then include inspecting the detected wire bond along the region of interest.

US10767230B2	MicroRNA biomarker for the diagnosis and treatment of gastric cancer	Disclosed are methods of determining the likelihood of a subject having or developing a gastric cancer. The methods comprise measuring the expression level of at least one miRNA having at least 90% sequence identity with an miRNA as described herein in a non-cellular biofluid sample obtained from the subject, wherein differential expression of miRNA expression in the sample obtained from the subject, as compared to a control, may be indicative of the subject having gastric cancer and wherein the miRNA may be either an miRNA listed as “up-regulated” or an miRNA listed as “down-regulated”. Also disclosed is a method of determining the likelihood of a subject having or developing a stage of a gastric cancer.
US10763348B2	Group III nitride based high electron mobility transistors	The invention provides a product and a manufacturing process for a high power semiconductor device. The semiconductor device comprises a GaN/AlGaN epilayer structure on an SOI substrate with a thick, uninterrupted GaN layer for use in high-power applications.
US10752787B2	Tailorable surface topology for antifouling coatings	Embodiments are directed to a method of making an antifouling and bactericidal coating with tailorable surface topology. The method includes depositing a layer of branched polyethyleneimine (BPEI) and diamino-functionalized poly(propylene oxide) (PPO) in a mixture of water and organic solvent on a substrate to form a layer of BPEI/PPO. The method includes depositing a layer of glyoxal in a water-containing solution on the layer of BPEI/PPO. The method further includes curing the layer of BPEI/PPO and layer of glyoxal to form a homogenous, glyoxal crosslinked BPEI/PPO coating, where the curing induces local precipitation and alteration of the glyoxal crosslinked BPEI/PPO coating to provide a textured surface.
US10755993B2	Electrical connection structure, semiconductor package and method of forming the same	Various embodiments may provide an electrical connection structure. The electrical connection structure may include a first substrate having a first surface defining a cavity, and an inner wall defining a via extending from the cavity. The electrical connection structure may also include an interconnect structure provided in the via so that at least a portion of the interconnect structure protrudes into the cavity. The electrical connection structure may further include a second substrate having a second surface facing the first surface. The electrical connection structure may additionally include a connection element on the second surface. At least a portion of the connection element may be received in the cavity so that the connection element is in electrical connection with the interconnect structure.
US10745795B2	Inorganic graded barrier film and methods for their manufacture	The present invention refers to a graded barrier film comprising a layered structure, wherein the layered structure comprises a first layer consisting o metal oxide; an intermediate layer consisting of metal nitride or metal oxynitride which is arranged on the first layer; and a third layer consisting of a metal oxide which is arranged on the intermediate layer. The present invention further refers to a sputtering method for manufacturing this graded barrier film and a device encapsulated with this graded barrier film.
US10745586B2	Fluorinated networks for anti-fouling surfaces	According to one or more embodiments, a method of making an antifouling coating includes forming a polythioaminal polymer by reacting a fluorinated primary amine with an aldehyde to form an intermediate imine, and then reacting the intermediate imine with a dithiol. The method further includes depositing the polythioaminal on a substrate, and increasing a temperature of the polythioaminal deposited on the substrate to crosslink the polythioaminal and increase a contact angle of the substrate with crosslinked polythioaminal.
US10743537B2	Monomer compositions with antimicrobial functionality	Techniques regarding ionene compositions with antimicrobial functionality are provided. For example, one or more embodiments can comprise a monomer, which can comprise a single ionene unit. The single ionene unit can comprise a cation distributed along a molecular backbone. Also, a hydrophobic functional group can be covalently bonded to the molecular backbone, and the single ionene unit can have antimicrobial functionality.
US10739342B2	Test strip assembly comprising sample sorbent strip, flow separator, and reagent sorbent strip stacked on each other	There is provided a test strip assembly for detecting the possible presence of at least one analyte in a sample, a device for detecting the possible presence of at least one analyte in a sample comprising the test strip assembly and methods of detecting the possible presence of at least one analyte in a sample using the device.
US10727207B2	Semiconductor packaging structure and method of forming the same	Various embodiments may provide a method of forming a semiconductor packaging structure. The method may include forming a plurality of semiconductor packages, each semiconductor package including a semiconductor die and a mold encapsulation structure. The method may also include arranging the plurality of semiconductor packages to form a vertical stacked arrangement with a mold portion including a plurality of mold encapsulation structures, the mold portion extending from a first side to a second side of the vertical stacked arrangement opposite the first side. The method may additionally include forming a first via on the mold portion at the first side of the vertical stacked arrangement, forming a second via on the mold portion at the second side of the vertical stacked arrangement, and forming an electrically conductive filled via extending through the mold portion from the first side to the second side of the vertical stacked arrangement.
US10723813B2	PDGF-B /PDGF-BB binding variants of heparan sulfates	Affinity purification of platelet-derived growth factor-binding heparan sulphate from porcine mucosa (HS6) is disclosed. Also disclosed is the use of HS6 in repair and regeneration of the skin for treating wounds, burns, ulcers and other skin injuries.
US10723823B2	Resin formulation and uses thereof	There is provided a resin formulation comprising a base acrylate monomer or oligomer, a solubilizing acrylate monomer or oligomer, a photoinitiator compound, a photoabsorber compound, and a photochromic dye, wherein the solubilizing acrylate monomer or oligomer comprises a functional group selected from the group consisting of hydroxyl, alkoxyl, carboxylic acid, amine, alkylamine, amide, alkylamide, alkylacrylate, acrylate, alkyl and heterocycloalkyl. There is also provided a method of preparing the resin formulation and uses of the resin formulation thereof.

US10718012B2	Non-motorized optical multiplexing for the simultaneous detection of DNA target amplicons in a polymerase chain reaction solution	A multiplexed polymerase chain reaction (PCR) DNA detection system and a method for DNA detection within the PCR system are provided. The PCR DNA detection system includes a color charge-coupled device (CCD) camera, fluorophore-quencher probes and an imaging chamber. The fluorophore-quencher probes are selected in response to fluorophores quenched by the fluorophore-quencher probes corresponding to three selected primary colors and peak channel responses of the CCD camera such that emission profiles of the fluorophores substantially match the three selected primary colors and peak emission profiles of the fluorophores correspond to the peak RGB channel responses of the CCD camera. A DNA sample and the fluorophore-quencher probes are located within the imaging chamber. The color CCD camera is focused on the imaging chamber for simultaneous detection of up to three targets from fluorescence of the DNA sample and the fluorophore-quencher probes.
US10717798B2	Polymeric composition	A polymeric composition comprising (i) a plurality of monomers selected from (a) a carboxylic acryloyi monomer; (b) a sulfonic acryloyi monomer; (c) an amine acryloyi monomer; (d) a hydroxyl acryloyi monomer; (e) an alkyl acryloyi monomer; and (f) a polyalkylene hydroxyl acryloyi monomer; (ii) a divalent metallic crosslinking agent; and (c) a stabilizing agent is disclosed herein. Also provided are the use of said polymeric composition as a hydrogel coating material, a method of synthesizing the polymeric composition and the use of the hydrogel material.
US10716959B2	Polymer-flavonoid conjugates and hydrogels for biomedical applications	There is provided polymer-flavonoid conjugates. Flavonoid-grafted and flavonoid-terminated polymer conjugates are disclosed according to the invention. The linkage of flavonoids to the polymers has been achieved via thiol linkages. The inventive processes allow for making of the conjugates in high yield avoiding complex purification steps. The conjugates can be easily autoxidized to hydrogels with uses in many biomedical applications where a higher stability of the flavonoid is necessary. The hydrogels can be potentially used as viscosupplement, anti-adhesion film or dermal filler.
US10720339B2	Fan-out wafer-level packaging method and the package produced thereof	A fan-out wafer-level packaging method and the package produced thereof are provided in the present application. The method comprises steps including: providing a silicon substrate layer having a first thickness; forming one or more active/passive devices comprising at least sources and drains and one or more diffusion layers adjoining the sources and drains, wherein forming the one or more active/passive devices comprises forming the sources and the drains in a front-end-of-line (FEOL) layer on a first side of the silicon substrate layer while forming the one or more diffusion layers at locations in the silicon substrate layer adjoining the sources and the drains; forming a redistribution layer (RDL) over the FEOL layer by copper damascene formation of multiple metallization layers for connecting the one or more active/passive devices to the one or more IC dies when the one or more IC dies are mounted on a side of the RDL opposite the FEOL layer; thinning the silicon substrate layer to a second thickness to form a thinned silicon substrate, the thinned silicon substrate comprising at least the one or more diffusion layers; and patterning the thinned silicon substrate to form one or more silicon regions, each of the one or more silicon regions comprising the one or more diffusion layers.
US10711019B2	Photoinitiators functioned as both initiators and nanofillers	This invention relates to a photoinitiator compound comprising: a polyhedral oligomeric silsesquioxane (POSS) moiety and a photoinitiator moiety, wherein the photoinitiator compound having the structure according to formula (I): [R—SiO1.5]n (I), wherein n is 6, 8, 10 or 12 and R is independently selected from the group consisting of H, linear or branched (hetero)alkyl, linear or branched (hetero)alkenyl, (hetero)aryl, (hetero)alkyl aryl, (hetero)aryl alkyl and a photoinitiator moiety, wherein at least one R is a photoinitiator moiety and the photoinitiator compound is a nanoparticle. The present invention also relates to a method for the production of the photoinitiator compound of the invention, a photopolymerizable composition comprising the photoinitiator compound of the invention, the use of the photoinitiator compound of the invention for photopolymerization. The present invention is further related to a coated substrate comprising the photopolymerizable composition of the invention.
US10710005B2	Adsorbent material	An adsorbent material is provided. The adsorbent material comprises a porous, non-particulate substrate comprising pores having a size in the range of about 1 μm to about 1 mm, and a conformal coating film deposited on the porous, non-particulate substrate, wherein the conformal coating film comprises topographical features having a feature size in the range of about 1 nm to about 1 μm. A method of preparing the adsorbent material and an adsorbent device are also provided.
US10706904B2	Dynamic reference scheme for improving read margin of resistive memory array	A method of providing a reference voltage for reading of a resistive memory array, and a read circuit for reading of a resistive memory array. The method comprises the steps of generating a first reference voltage when a bitline of the resistive memory array is in a first resistance state, and generating a second reference voltage when the bitline is in a second resistance state; wherein the first reference voltage is different from the first reference voltage and the first resistance state is different from the second resistance state.
US10704101B2	Method for detection of a genetic variant	A method and kit for detecting a genetic variant associated with a disease or disorder, including incompatibility with a pharmaceutical. The method and kit using a first nano-particle coupled to at least one morpholino nucleic acid probe comprising a target complimentary region base sequence that is a perfect match to a genetic variant sequence.

US10702610B2	Method of making sulfur-containing polymers from hexahydrotriazine and dithiol precursors	Polythioaminal polymers are made from hexahydrotriazine precursors and dithiol precursors. The precursors are blended together and subjected to mild heating to make the polymers. The polymers have the general structure wherein each R1 is independently an organic or hetero-organic group, each R2 is independently a substituent having molecular weight no more than about 120 Daltons, X and Z are each a sulfur-bonded species, at least one of X and Z is not hydrogen, and n is an integer greater than or equal to 1. X and Z may be hydrogen or a functional group, such as a thiol-reactive group. The reactive thiol groups of the polythioaminal may be used to attach thiol-reactive end capping species. By using water soluble or water degradable dithiols, such as polyether dithiols, water soluble polythioaminals may be made. Some such polymers may be used to deliver therapeutics with non-toxic aqueous degradation products.
US10701107B2	Deterministic load balancing of IPSec processing	Certain embodiments described herein are generally directed to deterministic load balancing of processing encapsulated encrypted data packets at a destination tunnel endpoint. In some embodiments, an IPSec component residing within a destination tunnel endpoint is configured to select a CPU core ID of a virtual CPU using a CPU selection function. In some embodiments, the IPSec component selects an SPI value corresponding to the CPU core ID. In some embodiments, the IPsec component indicates the SPI value to a source tunnel endpoint for use in establishing an in-bound security association, wherein the in-bound security association is used by the source tunnel endpoint to encrypt a data packet received from the source endpoint and destined for the destination endpoint.
US10696747B2	IL2R common gamma chain antibodies	Anti-CD122 and/or γc antibodies and fragments thereof are disclosed. Also disclosed are compositions comprising such antibodies and fragments, and uses and methods using the same.
US10693626B2	Method and system for generating/decrypting ciphertext, and method and system for searching ciphertexts in a database	There is provided a method of generating a ciphertext. The method includes encrypting an input data to produce an encrypted data, and randomizing the encrypted data to produce the ciphertext. In particular, the randomizing process includes performing an exclusive-or (xor) operation on the encrypted data with a cipher pad, whereby the cipher pad is generated based on an xor-homomorphic function of a first key using a second key generated based on the encrypted data. There is also provided a corresponding system for generating a ciphertext, a corresponding method and system for decrypting a ciphertext, and a corresponding method and system for searching ciphertexts in a database, such as at an untrusted server.
US10689428B2	Polypeptides, nucleic acids and uses thereof	We describe an ELABELA polypeptide comprising a sequence CXXXRCXXXHSRVPFP (SEQ ID NO: 1), in which X signifies an amino acid residue, such as a sequence selected from the group consisting of: SEQ ID NO: 2 to SEQ ID NO: 18, preferably CLQRRCMPLHSRVPFP (SEQ ID NO: 2), or a fragment, homologue, variant or derivative thereof, which polypeptide is capable of maintaining self-renewal and/or pluripotency of a stem cell.
US10690595B2	Optical sensing device, method of manufacturing the same, and optical sensing method	Various embodiments may provide an optical sensing device based on surface plasmon resonance (SPR). The optical sensing device may include an optical arrangement configured to provide a first polarization light beam and a second polarization light beam, and a first optical member including a sensing surface, the first optical member configured to receive the first and second polarization light beams and reflect the first and second polarization light beams at the sensing surface. The optical sensing device may further include a second optical member arranged to receive the reflected first and second polarization light beams from the first optical member and configured to separate the reflected first and second polarization light beams in a first direction and a second direction, respectively. The optical device may additionally include a detector arrangement configured to detect the reflected first and second polarization light beams from the second optical member.
US10687896B2	Computer-aided planning of liver surgery	A method for surgical resection planning of a mass includes the steps of, modelling the mass based on a plurality of physical dimensions, determining a plurality of safety margins around a plurality of features within the mass, simulating a resection surface on the mass that includes a plurality of triangles, optimizing local area and position of a first of the plurality of triangles on the resection surface based on a triangle-based algorithm, updating the simulation of the resection surface, and repeating the steps of optimizing and updating for each of the plurality of triangles on the resection surface.
US10687530B2	Hydrophilic polymers with antimicrobial functionalities	Techniques regarding ionene and/or polyionene compositions with antimicrobial functionality and enhanced hydrophilicity are provided. For example, one or more embodiments can regard a chemical compound that can comprise an ionene unit, which can comprise a cation distributed along a degradable backbone. The degradable backbone can comprise a terephthalamide structure. The ionene unit can have antimicrobial functionality. Further, the chemical compound can comprise a hydrophilic functional group covalently bonded to the ionene unit. Also, the chemical compound can have carbohydrate mimetic functionality.
US10687528B2	Antimicrobial polymers with enhanced functionalities	Techniques regarding ionene and/or polyionene compositions with antimicrobial functionalities are provided. For example, one or more embodiments can comprise a chemical compound, which can comprise an ionene unit. The ionene unit can comprise a cation distributed along a degradable backbone. The degradable backbone can comprise a norspermidine structure having a carbonyl group. Also, the ionene unit can have antimicrobial functionality.
US10684272B2	Modulation of hepatitis B virus replication	Presently disclosed is a method of modulating Hepatitis B virus (HBV) replication, by contacting the cell with at least one agent that modulates at least one factor from a specified group consisting of SNAI2, SOX7 and other factors, the screening of said agent and use thereof in a medicament for treating HBV infection or disease or condition associated with a HBV infection in a subject. In one preferred embodiment, the agent is one peptide derived from SOX7 or SNAI2 or stapled peptides thereof. As a separate invention, a method of identifying at least one factor that modulates replication of a virus is also disclosed.

US10683382B2	Copolymer comprising a lignin or lignin derivative and a poly(alkylene oxide) alkyl ether (meth)acrylate, and a hydrogel comprising the copolymer	A copolymer comprising an oxygenated polyaromatic alcohol and a poly (alkylene oxide) alkyl ether (meth)acrylate is disclosed, wherein the oxygenated polyaromatic alcohol is preferably lignin or lignin derivative. A hydrogel comprising the copolymer and a cyclic oligosaccharide such as α-cyclodextrin is also disclosed, which can be used in biomedical or personal care industries, for example as a carrier for an active agent.
US10679860B2	Self-aligning source, drain and gate process for III-V nitride MISHEMTs	A method for fabrication of high electron mobility transistor (HEMT) semiconductor devices is presented. The method includes providing a substrate, growing a HEMT layer structure on the substrate; and self-aligned common metal stack formation of source, drain and gate electrodes on the HEMT layer structure using a single lithographic mask.
US10677682B2	Systems and methods for monitoring plastic deformation of a structured material	Systems and methods for monitoring plastic deformation of a structural material are provided. An acoustic wave actuator is configured to generate acoustic wave signals to be propagated within the structural material and is in-situ fabricated on the structural material at a first location. An alternating current (AC) electric signal source drives the acoustic wave actuator to generate the acoustic wave signals at a predetermined frequency. One or more acoustic wave sensors detect the acoustic wave signals generated by the acoustic wave actuator and propagated within the structural material. More particularly, the acoustic wave detectors are configured to detect both fundamental and second harmonic acoustic signals at the predetermined frequency. The acoustic wave sensors are in-situ fabricated on the structural material at one or more second locations.
US10669152B2	Device arrangement	Various embodiments may provide a device arrangement. The device arrangement may include a substrate including a conductive layer. The device arrangement may further include a microelectromechanical systems (MEMS) device monolithically integrated with the substrate, wherein the MEMS device may be electrically coupled to the conductive layer. A cavity may be defined through the conductive layer for acoustically isolating the MEMS device MEMS device from the substrate. At least one anchor structure may be defined by the conductive layer to support the MEMS device.
US10668500B2	Amorphous metal oxide films	A method for preparing an amorphous metal oxide film is provided. The method comprises providing an aqueous composition comprising a metal fluorine compound; and contacting a substrate with the aqueous composition at a temperature of less than about 100° C. to obtain said amorphous metal oxide film on the substrate. An amorphous metal oxide film, and use of the amorphous metal oxide film in various applications are also provided.
US10667514B2	Antimicrobial ionene compositions with a variety of functional groups	Techniques regarding amine monomers that can form ionene compositions with antimicrobial functionality are provided. For example, one or more embodiments described herein can comprise a monomer, which can comprise a molecular backbone. The molecular backbone can comprise a norspermidine structure. The norspermidine structure can comprise a tertiary amino group. Also, the tertiary amino group can comprise a functional group, and an amino group of the norspermidine structure can be capable of being ionized.
US10648908B2	Optical system, method of forming and operating the same	Various embodiments may provide an optical system for determining a refractive index of a sample. The optical system may include a laser source configured to emit a laser beam, and a non-linear crystal configured to generate, based on the laser beam, an infrared light beam which passes through the sample, and a visible signal light beam. The optical system may further include a first mirror configured to reflect the visible signal light beam, a second mirror configured to reflect the infrared light beam so that the reflected infrared light beam interacts with the reflected visible signal light beam in the non-linear crystal, and a photodetector configured to determine a property of the reflected visible signal light beam which has interacted with the reflected infrared light beam for determining the refractive index of the sample.
US10618171B2	Mobile manipulator and method of controlling the mobile manipulator for tracking a surface	There is provided a method of controlling a mobile manipulator for tracking a surface. The mobile manipulator includes a mobile base movable in an axial direction of the mobile manipulator and a manipulator supported on the mobile base having an end effector adjustable in a lateral direction of the mobile manipulator. The method includes detecting the surface from the mobile manipulator, including positions of the surface at points along the surface, determining a reference path for the end effector to track based on an offset from the surface detected, determining a tracking error in the reference path determined, and adjusting a position of the end effector in the lateral direction based on the tracking error to compensate for the tracking error in the reference path determined. There is also provided a corresponding mobile manipulator.
US10610597B2	Polycarbonates bearing aromatic N-heterocycles for drug delivery	Nanoparticles comprise a drug, a first block polymer and a second block polymer. The first block polymer has a poly(ethylene oxide) (PEO) block and a polycarbonate block bearing a side chain aromatic nitrogen-containing heterocycle (N-heterocycle). The N-heterocycle can be in the form of a base, a hydrosalt of the base, a sulfobetaine adduct of the base, or a combination thereof. The second block polymer has a PEO block and a polycarbonate block bearing a side chain catechol group, which can be present as a catechol, oxidized form of a catechol, and/or a polymerized form of a catechol. The nanoparticles can be dispersed in water and are capable of controlled release of the drug.
EP2955219B1	Water soluble pouch comprising an embossed area	The present relates to a water-soluble pouch comprising a water soluble film encapsulating a composition, wherein the film comprises at least one area of embossment
US10596296B2	Heparan sulphates	A heparan sulphate that binds TGPβ1 is disclosed.

US10588664B2	Subcutaneous implant delivery apparatus and method of delivering a subcutaneous implantable device for accessing a vascular site	According to embodiments of the present invention, a subcutaneous implant delivery apparatus is provided. The apparatus includes a receiving portion configured to receive a subcutaneous implantable device; and a stabilizing portion configured to cooperate with the receiving portion to hold the subcutaneous implantable device in a fixed position. The receiving portion and the stabilizing portion are movable relative to each other between a released configuration, wherein the receiving portion and the stabilizing portion are configured to move apart from each other to allow the receiving portion to be inserted under a skin layer, and a closed configuration, wherein the receiving portion and the stabilizing portion are configured to move toward each other to allow the subcutaneous implantable device to be held adjacent to the skin layer. According to further embodiments of the present invention, a method of delivering a subcutaneous implantable device for accessing a vascular site is also provided.
US10581449B2	Inverter-based resistors, analog-to-digital converters, and methods for dynamically generating resistance in a digital-only circuit	According to various embodiments, an inverter-based resistor may be provided. The inverter-based resistor may include at least one digital inverter, wherein each of the at least one digital inverter is configured to receive an input and provide an output, each of the at least one digital inverter further includes a positive voltage rail and a negative voltage rail, wherein the digital inverter input is connected to the inverter output and the positive voltage rail is connected to the negative voltage rail, and wherein a current flowing through the inverter-based resistor varies in direction and magnitude in response to a digital input provided to the positive voltage rail and the negative voltage rail.
US10578438B2	Optical gyroscope, electro-optic system, and methods of forming the same	Various embodiments may provide an optical gyroscope. The optical gyroscope may include a ring resonator, an input source configured to generate or provide a first light beam and a second light beam to the ring resonator, and a switching pathway having an input end and an output end coupled to the ring resonator, and may include a plurality of switches. The optical gyroscope may include a control circuit configured to control the plurality of switches to allow the first light beam to propagate from the input end to the output end along the switching pathway during a first time interval, and allow the second light beam to propagate from the input end to the output end along the switching pathway during a second time interval. The optical gyroscope may additionally include a detector loop configured to receive the first light beam and the second light beam from the ring resonator.
US10570097B2	Antimicrobial imidazolium compounds	The present invention relates to antimicrobial imidazolium compounds having the structure of Formula (I) wherein R is an optionally substituted aliphatic group that is linear, cyclic, saturated, unsaturated or any combination thereof; n is an integer of at least 1; and X is an anionic counterion. The present invention also relates to pharmaceutical composition comprising the compound, a gel comprising the compound, uses of the compound as an antibiotic and methods for the preparation of the gels.
US10563222B2	Promoters for high level expression	The present invention provides for functional chimeric gene regulatory units capable of driving strong and sustained heterologous gene expression.
EP3398970B1	A method of synthesizing cellulose carbonate	According to the present disclosure, a method of synthesizing cellulose carbonate is provided. The method includes mixing a solution comprising dimethyl sulfoxide and cellulose with an organic base in the presence of carbon dioxide to form a cellulose solution comprising cellulose carbonate anions, wherein the organic base is represented by a formula of: wherein each of R 1 , R 2 and R 3 is C 1 -C 20 alkyl; and wherein each of R 4 and R 5 is hydrogen or C 1 -C 20 alkyl. The method also includes contacting the cellulose solution with one or more organochlorides in the presence of carbon dioxide to form the cellulose carbonate, and adding an alcohol or water to precipitate the cellulose carbonate.
US10555691B2	Vital signs detecting device and a method for detecting vital signs	A vital signs detecting device and a method for detecting vital signs are provided. The vital signs detecting device comprises a detection unit; a multimode optical fiber configured to be connected to a light source and to the detection unit; a mechanical structure configured for receiving a pressure exerted by a person's body as a result of one or more of a group consisting of a movement of the person's body, a respiratory action of the person's body and a heart beat action of the person's body and to cause microbending of the multimode optical fiber under the exerted pressure and; wherein the multimode optical fiber is disposed between first and second sets of microbending elements of the mechanical structure substantially in a direction of the exerted pressure.
US10551344B2	Method and circuit for providing an accurate voltage for electrochemical sensing	A method and devices for controlling a potentiostat control loop circuit to provide an accurate cell voltage for electrochemically sensing a sample, wherein the cell voltage corresponds to a difference between electrode voltages a working electrode and a reference electrode of a three-electrode potentiostat are provided. The devices include a potentiostat control loop circuit having a first amplifier with an output connected to a counter electrode of the three electrode potentiostat and a first input connected to a first potential and a first switched capacitor network including a first capacitance device having a first electrode connected to a second input of the first amplifier. The first switched capacitor network is also operatively connected to the first amplifier for operating in a first mode and a second mode t switchably couple the second input of the first amplifier to the reference electrode of the three-electrode potentiostat. The method includes the step of, in the second mode, coupling the second input of the first amplifier to the reference electrode of the three-electrode potentiostat via the first capacitance device by coupling a second electrode of the first capacitance device to the reference electrode of the three-electrode potentiostat.
US10551336B2	Sensing device for measuring a level of an analyte, method of fabrication thereof	There is provided a sensing device for measuring a level of an analyte. The sensing device includes a sensing element configured to sense the analyte and produce an electrical output which is variable based on the level of the analyte sensed, a measurement circuit including a reference element for providing an electrical property, the measurement circuit being connected to the sensing element and configured to provide a measurement output signal based on the electrical property of the reference element and the electrical output of the sensing element, whereby the measurement output signal indicates the level of the analyte sensed with respect to the electrical property of the reference element. There is also provided a corresponding method of fabricating the sensing device.

US10544458B2	Device and method for detecting target molecules	The present invention relates to a microarray device for detecting a target molecule such as miRNA in a sample. The device comprises a carrier substrate such as glass, an anti-fouling polymer layer which is functionalised with N-Hydroxysuccinimide (NHS) or carboxyl-groups and a capture probe. In an embodiment, the capture probe is an oligonucleotide with a stem-loop structure. The invention further defines a method for fabricating the device, a kit for detecting the target nucleic acid molecule comprising the device and a detection probe.
US10544149B2	Bicyclic alkyne derivatives and uses thereof	The present invention relates to certain compounds (e.g., imidazopyrazine, imidazopyridine, imidazopyridazine and imidazpyrimidine compounds) that act as inhibitors of the MAP kinase interacting kinases MNK2a, MNK2b, MNK1a, and MNK1b. The present invention further relates to pharmaceutical compositions comprising these compounds, and to the use of the compounds for the prevention and treatment of diseases (e.g., proliferative diseases (e.g., cancer), inflammatory diseases, autoimmune diseases, metabolic diseases, and neurodegenerative diseases (e.g. autism, autism spectrum disorders, Alzheimer's disease)), as well as methods of treating these diseases.
US10546141B2	Network system, and methods of encrypting data, decrypting encrypted data in the same	Various aspects of this disclosure provide a method of encrypting data in a network system. The method may include generating within a trusted network of the network system an associated private key based on an attribute associated with an user, a homomorphically encrypted associated private key based on the associated private key via homomorphic encryption, and a homomorphic key pair. The method may also include transmitting the homomorphically encrypted associated private key from the trusted network to a non-trusted network of the network system. The method may further include generating within the trusted network encrypted data based on said data, and a homomorphically and attribute based encrypted control key. The method may further include transmitting the encrypted data, and the homomorphically and attribute based encrypted control key, from the trusted network to the non-trusted network.
US10519323B2	Antimicrobial coatings	A coating comprising a metal-organic framework, wherein the metal-organic framework having a zeolitic structure comprising at least one multivalent metal species and at least one organic ligand (such as zeolitic imidazolate framework (ZIF)). Said coating has a topography comprising an array of projections, and each projection having at least one tapered distal end. There is also provided a method of coating substrates with the disclosed coating and use of said coating as a disinfectant, an antiseptic, or an antibiotic. Such use is possible because the tapered distal end of the disclosed zeolitic structure exerting higher pressure on any microbial cell that comes into contact with the disclosed coating, thereby piercing through the cell membrane more easily, causing cell deformation and lysis.
US10514573B2	Device and arrangement for controlling an electromagnetic wave, methods of forming and operating the same	Various embodiments may provide a device for controlling an electromagnetic wave. The device may include a first electrode layer. The device may also include a second electrode layer. The device may further include a matrix layer between the first electrode layer and the second electrode layer. The matrix layer may include a liquid crystal layer. The matrix layer may also include at least one resonator element in contact with the liquid crystal layer. The liquid crystal layer may be configured to switch from, at least, a first state to a second state in response to a voltage applied between the first electrode layer and the second electrode layer, thereby changing an optical property of the matrix layer to control the electromagnetic wave received by the matrix layer.
US10512431B2	Sensor patch and sensing device having the same	According to embodiments of the present invention, a sensor patch for detecting extravasation is provided. The sensor patch includes an elastic film, and at least one sensing electrode disposed on the elastic film, wherein an electrical resistance of the at least one sensing electrode is changeable in response to a force acting on the at least one sensing electrode. According to further embodiments of the present invention, a sensing device is also provided.
US10509034B2	Bladder carcinoma biomarkers	Disclosed are bladder cancer protein biomarkers, methods of determining whether a patient suffers from or shows recurrence of bladder cancer or early stage bladder cancer, or late stage bladder cancer using the bladder cancer protein biomarkers, a detection system, and kits thereof. Said bladder cancer biomarkers comprise at least one of Coronin-IA, Apolipoprotein A-IV, Semenogelin-2, Gamma-synuclein and DJ-1, and variants thereof.
US10500288B2	Cytotoxic HEXIM1 peptides and uses thereof	Disclosed are isolated cytotoxic peptides having similar sequences as the basic region (BR) of Hexamethylene Bisacetamide Inducible Protein 1 (HEXIM1). Preferred embodiments include QLGKKKHRRRPSKKKRHW (SEQ ID No: 3). QLGRRRHRRRPSRRRRHW (SEQ ID No: 4) and QLGKKILAARPSKKKRHW (SEQ ID No: 5). Also encompassed are isolated nucleic acid molecules encoding for the claimed peptides, vectors comprising the isolated nucleic acids, compositions comprising peptides conjugated to cell-targeting or penetrating peptides or antibodies, nucleic acid molecules or vectors expressing conjugates thereof; methods of treating or preventing diseases or conditions, including cancers and obesity as well as a method of eliminating undifferentiated stem cells.
US10493012B2	Cosmetic use of heparan sulphate	Affinity purification of fibroblast growth factor 2-binding heparan sulphate from porcine mucosa (HS8) is disclosed. Also disclosed is a process for the care of keratinous material(s), comprising the application or administration of HS8, or a composition comprising thereof, to keratinous material(s). The composition may be used to improve the condition of skin, such as smoothing the skin, restoring skin elasticity and firmness, or decreasing or preventing wrinkles, and may be formulated for topical or transdermal administration
US10494295B2	Anti-reflection coating	This invention relates to a UV-curable coating material comprising an organosilica compound such as POSS or octahedral oligomeric silsesquioxane which is functionalized with a UV-curable functional group. The material further comprises at least one UV-curable cross-linker. The coating material comprises surface structures in the nano-sized range and can be used in a nanoimprint coating process where the material is coated on a substrate such as glass and a mold is pressed against the material to form an imprint before curing by UV radiation.

US10485824B2	Cationic polyamines for treatment of viruses	Antiviral cationic polyamines were prepared by modifying polyethylenimines with N-acylating agents that introduce a side chain comprising one or more carbons and at least one alcohol hydroxy group. The cationic polyamines can have a linear or branched polyethylenimine backbone structure. Preferably, the cationic polyamines comprise pendant monosaccharide groups, which can be introduced via a cyclic carbonate comprising a pendant protected monosaccharide (e.g., mannose) group. The cationic polyamines can be active and selective against a broad spectrum of viruses at low concentrations, and are generally non-toxic.
US10481166B2	Microparticle fractionation	We describe a method of monitoring the state of a cell, tissue, organ or organism. The method comprises establishing, for a sample of micro-particles from the cell, tissue, organ or organism, a ratio. The ratio is of a selected polypeptide in microparticles which comprise GM1 gangliosides, preferably which bind to Cholera Toxin B (CTB) ("GM1 ganglioside microparticle polypeptide") to the selected polypeptide in microparticles which comprise exposed phos—photidylserine, preferably which bind to Annexin V ("Annexin V microparticle polypeptide"). The GM1 ganglioside microparticle polypeptide to Annexin V microparticle polypeptide ratio so established may be indicative of the state of the cell, tissue, organ or organism.
US10481307B2	Optical antenna	According to embodiments of the present invention, an optical antenna is provided. The optical antenna includes at least one first particle, and at least one second particle having a diameter that is larger than a diameter of the at least one first particle, wherein the at least one first particle and the at least one second particle are arranged along a plane, and wherein the at least one first particle is configured to enhance an optical emission of at least one light source providing an optical signal to the optical antenna and the at least one second particle is configured to direct the optical signal in a direction at least substantially perpendicular to the plane.
US10478058B2	Speckle reduction in optical coherence tomography images	An optical coherence tomography (OCT) image composed of a plurality of A-scans of a structure is analyzed by defining, for each A-scan, a set of neighboring A-scans surrounding the A-slices scan. Following an optional de-noising step, the neighboring A-scans are aligned in the imaging direction, then a matrix X is formed from the aligned A-scans, and matrix completion is performed to obtain a reduced speckle noise image.
US10472667B2	Method for fragmenting and ligating adapters onto a nucleic acid and kit for performing the same	Providing herein, among other things, is a method for preparing a nucleic acid for sequencing. In some embodiments, the method comprises a) amplifying a nucleic acid template using a dNTP mix that contains 5-methyl dCTP, thereby producing product nucleic acid molecules that contains methylcytosines; b) digesting the product nucleic acid molecules with a methylation-dependent restriction endonuclease, thereby cleaving the product nucleic acid molecules at sites that are adjacent to at least some of the methylcytosine and producing fragments of the product nucleic acid molecules; and c) ligating double-stranded adaptors onto the ends of the fragments to produce adaptor-ligated products.
US10472626B2	Modified antimir-138 oligonucleotides	Disclosed is a modified oligonucleotide capable of reducing or inhibiting one or more activities miR-138. The modified oligonucleotide may comprise at least one locked nucleic acid (LNA) and wherein the oligonucleotide is substantially complementary to a nucleotide sequence of miR-138. Also disclosed are pharmaceutical compositions comprising the oligonucleotides, methods of using the oligonucleotides and uses thereof.
US10471091B2	Heparan sulphates for use in repair and/or regeneration of skin	Affinity purification of fibroblast growth factor 2-binding heparan sulphate from porcine mucosa (HS8) is disclosed. Also disclosed is the use of HS8 in repair and regeneration of the skin for treating wounds, burns, ulcers and other skin injuries.
US10470179B2	Radio communication methods and radio communication devices	According to various embodiments, a radio communication method may be provided. The radio communication method may include: determining in a cell at least one first subframe; determining in the cell at least one second subframe; allocating downlink user traffic in the cell during the first subframe with a low priority; and transmitting a handover command to a user equipment based on the second subframe.
US10470104B2	Method and apparatus for broadcast geo-location database (GLDB) for television white space (TVWS) spectrum access	Embodiments of the invention relate to method of operating television white space (TVWS) geo-location database (GLDB). The method comprises: embedding a plurality of data signals in a plurality of radio frequency (RF) broadcast signals of at least one existing television or radio channel, wherein the data signals comprise at least one of TVWS GLDB data, time reference data and broadcast transmitter data which comprises at least one of transmitter location data and transmitter identification; and transmitting, over a RF network which is other than an internet protocol (IP) network, the RF broadcast signals together with the embedded data signals to a plurality of white space devices.
US10465147B2	Copolymers	Described herein are copolymers comprising at least one first water-soluble monomeric unit, at least one second water-soluble monomeric unit, and at least one monomeric unit containing a basic residue.
US10463646B2	Micellar polymer-flavonoid conjugate nanocomplex	The present invention relates to micellar nanocomplexes and a method of forming the same. The micellar nanocomplex comprises a micelle and an agent encapsulated within said micelle, where the micelle comprises a polymer-flavonoid conjugate, wherein said polymer is bonded to the B ring of said flavonoid. The micellar nanocomplex may have useful applications as a drug-delivery system
US10463311B2	Multi-channel ballistocardiography with cepstrum smoothing and quality based dynamic channel selection	A method for ballistocardiography (BCG) and a BCG system ballistocardiography (BCG) system for heart beat determination are provided. The method includes digitizing a plurality of signals received from a corresponding plurality of sensors, estimating a plurality of smoothed cepstra corresponding to each of the plurality of digitized signals in response to a smoothed cepstrum analysis of a digital signal at a reception time of each of the plurality of digitized signals, and estimating a fused cepstrum for the plurality of digitized signals in response to the plurality of smoothed cepstra. The method further includes determining a heart rate in response to the plurality of smoothed cepstra and the fused cepstrum.

US10463304B2	Integrated multimodal sensor device for intracranial neuromonitoring	There is provided a monolithically integrated multimodal sensor device for intracranial neuromonitoring, the sensor device including: a single substrate; a temperature sensor formed on a first portion of the single substrate for detecting temperature; a pressure sensor formed on a second portion of the single substrate for detecting intracranial pressure; and an oxygen sensor formed on a third portion of the single substrate for detecting oxygen concentration. In particular, sensing portions of the temperature sensor, the oxygen sensor and the pressure sensor, respectively, are formed at different layers of the sensor device. There is also provided an integrated multimodal sensor system incorporating the sensor device and the associated methods of fabrication.
US10457772B2	Preparation of robust polythioaminal carriers	The present disclosure relates to polythioaminals with applications as carriers or delivery vehicles for therapeutic agents or other small molecule cargo. Polythioaminal block copolymer coupled to a therapeutic agent is a polymer-therapeutic conjugate that exhibits higher stability and longer life time in aqueous environments. The polythioaminal block copolymer coupled to a therapeutic agent can be synthesized by reacting hexahydrotriazines with a hydrophobic block precursor, a hydrophilic block precursor, a particle stabilizing segment precursor, and a cargo, such as a therapeutic agent, in a one pot synthesis. The ease of synthesizing the resulting polythioaminal block copolymer coupled to the therapeutic agent while offering the extended stability and polymer life time in aqueous environments make the polythioaminal block copolymer particularly attractive for therapeutic carriers.
US10458979B2	Solid supported artificial cell membrane system	The present invention relates to an artificial cell membrane system comprising at least one membrane protein carrier associated with at least one membrane protein, wherein the at least one membrane protein carrier comprises or consists of a polymeric vesicle or a polymeric planar structure, and a solid support freely suspended in a fluid medium, wherein the at least one membrane protein carrier is attached to a surface of the solid support. A method of forming the artificial cell membrane system, and use of the artificial cell membrane system as a reagent are also provided.
US10453511B2	Circuit arrangement, method of forming and operating the same	Various embodiments may provide a circuit arrangement. The circuit arrangement may include a first spin-orbit torque magnetic tunnel junction cell, a second spin-orbit torque magnetic tunnel junction cell, a first driver circuit arrangement, a second driver circuit arrangement, and a read circuit arrangement. The circuit arrangement allows for the operation of a non-volatile flip-flop based on spin-orbit torque effect.
US10449257B2	Self-assembled composite ultrasmall peptide-polymer hydrogels	The present invention relates to composite hydrogels comprising at least one non-peptidic polymer and at least one peptide having the general formula: Z—(X)m—(Y)n—Z′p, wherein Z is an N-terminal protecting group; X is, at each occurrence, independently selected from an aliphatic amino acid, an aliphatic amino acid derivative and a glycine; Y is, at each occurrence, independently selected from a polar amino acid and a polar amino acid derivative; Z′ is a C-terminal protecting group; m is an integer selected from 2 to 6; n is selected from 1 or 2; and p is selected from 0 or 1. The present invention further relates to methods of producing the composite hydrogels, to uses of the composite hydrogels for the delivery of drugs and other bioactive agents/moieties, as an implant or injectable agent that facilitates tissue regeneration, and as a topical agent for wound healing. The present invention further relates to devices and pharmaceutical or cosmetic compositions comprising the composite hydrogels and to medical uses of the composite hydrogels.
US10449541B2	Microfluidic device	There is provided a microfluidic device comprising: a plurality of wells, each well having an inlet and an outlet, wherein the inlets are in fluid communication with one or more entry channels and the outlets are in fluid communication with one or more exit channels, wherein said outlet is connected to the exit channel via an outlet connecting channel and said inlet is connected to the entry channel via an inlet connecting channel wherein the dimension of the outlet connecting channel is configured such that the surface tension of a liquid comprised in the well prevents the release of the liquid through the outlet connecting channel. There is also provided a system, method and use of the device.
US10442906B2	Method for preparing an oxide film on a polymeric substrate	Various embodiments refer to a method for preparing an oxide film on a polymeric substrate, wherein the oxide film is a titanium oxide film (which is optionally niobium- or silicon-doped) or silicon oxide film. The method comprises contacting a polymeric substrate with a liquid reagent comprising a polyalkoxysilane such as 3-aminopropyltriethoxysilane to form a layer of the polyalkoxysilane on the polymeric substrate by self-assembly, and contacting said layer with an aqueous mixture comprising (i) titanium tetrafluoride and/or a fluorine-containing titanium complex such as ammonium hexafluorotitanate and/or a fluorine-containing silicon complex such as ammonium hexafluorosilicate, and (ii) a fluorine scavenger such as boric acid, at a temperature of less than about 100° C. to obtained the oxide film on the polymeric substrate. An oxide film prepared by said method is also provided.
US10439141B2	P-type semiconducting polymers and related methods	There is provided p-type organic polymers of general formula I. The polymers may be useful as semi-conducting material. Thus, thin films and devices comprising such polymers are also provided.
US10431732B2	Shielded magnetoresistive random access memory devices and methods for fabricating the same	Shielded semiconductor devices and methods for fabricating shielded semiconductor devices are provided. An exemplary magnetically shielded semiconductor device includes a substrate having a top surface and a bottom surface. An electromagnetic-field-susceptible semiconductor component is located on and/or in the substrate. The magnetically shielded semiconductor device includes a top magnetic shield located over the top surface of the substrate. Further, the magnetically shielded semiconductor device includes a bottom magnetic shield located under the bottom surface of the substrate. Also, the magnetically shielded semiconductor device includes a sidewall magnetic shield located between the top magnetic shield and the bottom magnetic shield.

US10426642B2	Membrane for covering a peripheral surface of a stent	A membrane for covering a peripheral surface of a stent is provided, the membrane including a plurality of line openings formed therein. Each line opening may be a straight line opening, for example in the form of a slit, a curved line opening, or any line opening of a suitable shape or curvature, e.g. U-shaped or V-shaped. Blood pressure opens the slits to allow blood to flow through the membrane, while curved line openings create a flap in the membrane that can open to allow blood to pass through. According to further embodiments of the present invention, a method of forming a membrane on a stent and a device for use in a blood vessel are provided.
US10428429B2	Formulation and method for inhibiting carbon-based deposits	There is a formulation and a method for inhibiting carbon-based deposits on metal substrate. The method comprises the use of a formulation comprising at least one oxidizing agent and at least one etchant capable of forming free metal ions from the metal substrate, at least one sequestering agent having a ligand capable of forming a complex with the free metal ions and at least one chelating agent having a ligand capable o complexing with at least one surface metal atom.
KR101993427B1	White blood cell specific aptamer and the use thereof	According to the present invention, an aptamer, which selectively binds to leukocytes, specifically binds to CD45 or CD66b, includes 5-20 modified bases in which a 5′ position of deoxyuridine triphosphate (dUTP, deoxyuracil) is substituted with a hydrophobic functional group selected from the group consisting of a naphthyl group, a benzyl group, a pyrrolebenzyl group and tryptophan, and consists of 25-100 bases in total.
US10420830B2	Nanocapsules carrying chikungunya-associated peptides	The present invention refers to a composition comprising a viral protein or fragment thereof, wherein the viral protein or fragment thereof is enclosed within a self-assembling protein nanocapsule, preferably ferritin, and wherein the viral protein, or fragment thereof is selected from a virus of the Togaviridae family. The viral protein or fragment thereof may also further be selected from a virus of the alphavirus subfamily.
US10416153B2	Chemical fluorescent probes for detecting biofilms	The present invention relates to a family of fluorescent compounds based on the BODIPY scaffold, and methods for the preparation of said compounds. The present invention further relates to the use of said compounds for the detection of bacterial biofilms, wherein the bacterial biofilm comprises Pseudomonas aeruginosa and the compound specifically binds to a Fap protein of Pseudomonas aeruginosa, or wherein the compound specifically binds to bacterial cells that contain high levels of cyclic-di-guanosine-monophosphate (c-di-GMP).
US10414794B2	Method of purifying an antibody	Provided herein is a novel method of purifying an IgG antibody from a preparation by use of an electropositive membrane having a defined porosity.
US10408775B2	Sensor arrangements and methods of operating a sensor arrangement	According to various embodiments, there is provided a sensor arrangement including a filter configured to provide an output signal having an output wavelength, the output wavelength having a dependence on a temperature of the filter; a temperature module configured to change the temperature of the filter; a controller circuit configured to control the temperature module for changing the temperature of the filter until the output wavelength increases with decreasing temperature; and a determination circuit configured to determine a dew point of an environment surrounding the sensor arrangement, based on a minimum value of the output wavelength and the dependence.
US10406175B2	Polymer-flavonoid conjugate and uses thereof	There is provided a polymer-flavonoid conjugate, or a pharmaceutically acceptable salt thereof, uses thereof, and methods of making thereof. The disclosed polymer-flavonoid conjugates may be useful in the therapeutic and/or prophylactic treatment of a joint condition in a subject.
US10398752B2	Dermatopontin as a therapeutic for metabolic disorders	The present disclosure describes to a method of treating a metabolic disease in a subject, wherein the method comprises administration of dermatopontin to a subject, wherein the dermatopontin is recombinant dermatopontin and the metabolic disease is selected from a group consisting of weight gain, diet-induced weight gain, obesity, morbid obesity, metabolic syndrome, glucose homeostasis, insulin resistance, type I diabetes, type if diabetes and cardiovascular disease. Disclosed herein is also a method of determining or making a prognosis of a subject's susceptibility to metabolic diseases and obesity, the method comprising measuring the level of circulating dermatopontin in a sample obtained from a subject; and comparing the level of circulating dermatopontin obtained with the level of dermatopontin previously determined in a control; and determining the susceptibility of the subject to metabolic disease and obesity based on the difference between the level of circulating dermatopontin and the level of dermatopontin in the control.
US10398315B2	Method of imaging living tissue	A method of imaging living tissue is provided. The method includes introducing a photoacoustic contrast agent comprising or consisting of a photosensitizer into living tissue; and obtaining an image of the living tissue by photoacoustic imaging. Use of a photoacoustic contrast agent comprising or consisting of a photosensitizer in photoacoustic imaging is also provided.
US10392443B2	Diagnostic and therapeutic tool for cancer	Disclosed is a method for determining the likelihood of the presence or progression of a hepatocellular carcinoma in a subject, comprising determining the level of extracellular form of Agrin in an extracellular fluid obtained from the subject. Also disclosed are the use of anti Agrin agent for therapy, a pharmaceutical composition comprising anti-Agrin agent, a method of treating cancer comprising an anti-Agrin agent, a use of anti-Agrin agent and a kit thereof.
US10388371B2	Memory cell selector and method of operating memory cell	Embodiments provide a selector device for selecting a memory cell. The selector device includes a first electrode; a second electrode; and a switching layer sandwiched between the first electrode and the second electrode. The switching layer includes at least one metal rich layer and at least one chalcogenide rich layer. The metal rich layer includes at least one of a metal or a metal compound, wherein metal content of the metal rich layer is greater than 50 at. %. The chalcogenide content of the chalcogenide rich layer is greater than 50 at. %.

US10350172B2	Stimuli-responsive interpolymer complex coated hollow silica vesicles	A porous hollow silica particle with an interpolymer complex immobilized thereon is provided. The interpolymer complex comprises a first polymer immobilized to a surface of the silica particle, and a second polymer complexed with the first polymer. Pharmaceutical compositions comprising the silica particle, and methods of forming the silica particle are also provided.
US10351827B2	Method for differentiating induced pluripotent stem cells into renal proximal tubular cell-like cells	There is provided a method of differentiating an induced pluripotent stem cell (iPSC) into a renal proximal tubular cell (PTC)-like cell. The method comprises culturing an undifferentiated iPSC in a renal epithelial cell culture medium in the presence of one or more extracellular matrix (ECM) molecules, bone morphogenic protein 2 (BMP2) and bone morphogenic protein 7 (BMP7), for a period of from about 8 to about 10 days, under conditions sufficient to induce differentiation of the iPSC into a PTC-like cell. A cell population of differentiated PTC-like cells is also provided, as well as uses and methods of use of the cell population.
US10349910B2	Method and apparatus for assessing blood vessel stenosis	A method for assessing blood vessel stenosis using image data of a subject is disclosed. The image data represents a vascular structure of the subject. The method comprises: (a) segmenting, from the image data, a vessel segment representing a segment of a blood vessel, (b) obtaining, using the image data, a plurality of two-dimensional images of the vessel segment; said plurality of two-dimensional images representing respective cross-sections of the vessel segment, (c) identifying, for each of the plurality of two-dimensional images, a lumen area comprising lumen pixels representing a lumen of the corresponding cross-section, (d) obtaining a quantitative measure using the lumen areas of successive cross-sections of the vessel segment, and (e) assessing blood vessel stenosis using the quantitative measure. A computer system for performing the above method is disclosed.
US10353787B2	Data stripping, allocation and reconstruction	A method for data stripping, allocation and reconstruction in an active drive storage system including a plurality of active object storage devices, each of the plurality of active object storage devices including one or more storage devices and a controller is provided. The method includes the controller of the identified one of the plurality of active object storage devices segmenting the received data into a plurality of data chunks and generating one or more parity chunks in response to the plurality of data chunks. The method further includes the controller of the identified one of the plurality of active object storage devices reorganizing the plurality of data chunks and the one or more parity chunks in response to a number of the plurality of data chunks and a number of the one or more of the plurality of active object storage devices into which the received data is to be stored. Finally, the method includes the step of the controller of the identified one of the plurality of active object storage devices storing the plurality of data chunks and the one or more parity chunks into the one or more of the plurality of active object storage devices.
US10329322B2	Methods for reducing aggregate content of protein preparations by treatment with aryl anions	A method of reducing the aggregate content in a preparation having a target protein includes contacting the preparation with an aryl anion to form a mixture and contacting the mixture with at least one electropositive solid to remove excess aryl anion.
US10332266B2	Method and device for traffic sign recognition	Embodiments provide a method for recognizing a traffic sign from an input image. The method may include extracting image features from the input image; modifying the image features based on a predetermined image saliency map to determine modified image features; determining a plurality of traffic sign candidates by applying an adaptive boosting algorithm on the modified image features; determining a confidence score for each traffic sign candidate by applying a support vector regression algorithm; and recognizing a traffic sign based on the confidence score for each traffic sign candidate.
US10325176B2	Methods and systems for assessing retinal images, and obtaining information from retinal images	A method of assessing the quality of an retinal image (such as a fundus image) includes selecting at least one region of interest within a retinal image corresponding to a particular structure of the eye (e.g. the optic disc or the macula), and a quality score is calculated in respect of the, or each, region-of-interest. Each region of interest is typically one associated with pathology, as the optic disc and the macula are. Optionally, a quality score may be calculated also in respect of the eye as a whole (i.e. over the entire image, if the entire image corresponds to the retina).
US10323228B2	Differentiation of hepatocyte-like cells from stem cells	Disclosed are methods of differentiating stem cells in order to obtain hepatocyte-like cells, the method comprising the steps of a) subjecting definitive endoderm to at least one epigenetic modulator to obtain hepatoblasts and b) subjecting the hepatoblasts to at least one stem cell differentiation pathway inhibitor to obtain hepatocyte-like cells; wherein steps a) and b) do not comprise the use of a growth factor. In one preferred embodiment, the epigenetic modulator may be sodium butyrate and/or DMSO and the stem cell differentiation pathway inhibitor may be SB431542 and/or DMSO. Also disclosed are hepatocyte-like cells obtained from the method and uses of these cells such as drug screening.
US10316079B2	Monoclonal antibody against muramyl peptides	Disclosed is an isolated antibody or an antigen-binding fragment thereof The antibody is capable of binding to a muramyl peptide, or a derivative or an analog or a salt thereof. The muramyl peptide comprises muramic acid and an amino acid selected from the group consisting of alanine, isoglutamine, glutamic acid, and a salt thereof. Also disclosed are methods of producing the antibody, compositions comprising the antibody, methods of treating using the antibody, uses of the antibody, methods of detecting muramyl peptide, an assay for detecting muramyl peptide, an antibacterial agent, hybridomas and kits.
US10316078B2	Serotype cross-reactive, dengue neutralizing antibody and uses thereof	Disclosed are isolated antibodies, or antigen binding fragments thereof, that bind to dengue virus epitopes, as well as kits containing them, compositions containing them, and passive vaccines comprising them, in one embodiment, the antibody or antigen binding fragment thereof is capable of binding to a whole dengue virus particle better than binding to a dengue virus surface glycoprotein. Also disclosed are methods of using the antibodies or antigen binding fragments thereof, nucleic acids encoding them, vectors expressing the nucleic acids, host producing them, and methods of manufacturing them.

US10311744B2	Autodidactic cognitive training device and method thereof	A cognitive training method has a step of obtaining sensor data of a subject during a memory exercise which in turn determines whether the sensor data includes predetermined information indicative of cognitive functions used for remembering. The step of advancing the memory exercise is carried out when it is determined that the sensor data includes predetermined information indicative of cognitive functions used for remembering. The step of calculating an objective cognitive assessment of the subject is carried out when the memory exercise is completed and cognitive training is measured at least partially in response to the advancing of the memory exercise. The fact that an objective cognitive assessment is calculated provides a method of using an autodidactic cognitive training device.
US10302555B2	Sensor for and method of sensing an analyte, and method of fabricating a sensor	The invention relates to a sensor for sensing an analyte. The sensor comprises a detection sensing element having an electrical property variable with the amount of optical light received by the detection sensing element, a control sensing element having an electrical property variable with the amount of optical light received by the control sensing element, a detection optical element for contacting an analyte and transmitting a first amount of optical light received thereby to the detection sensing element in response to the contact with the analyte, a control optical element for contacting a control medium and transmitting a second amount of optical light received thereby to the control sensing element in response to the contact with the control medium, and an output arrangement configured to provide an indication based on the electrical property of the detection sensing element when the first amount of optical light is received by the detection sensing element, with respect to the electrical property of the control sensing element when the second amount of optical light is received by the control sensing element, thereby sensing said analyte. In various embodiments, the sensor is a pH sensor and electrical resistance is the electrical property variable in response to the amount of optical light received by the sensing elements.
US10293083B2	Crosslinked peptide hydrogels	The present invention relates to hydrogels comprising a plurality of amphiphilic peptides and/or peptoids capable of self-assembling into three-dimensional macromolecular nanofibrous networks, which entrap water and form said hydrogels, wherein at least a portion of said plurality of amphiphilic peptides is chemically cross-linked. The present invention further relates to methods for preparing such hydrogels and to various uses of such hydrogels, e.g. as cell culture substrates, for drug and gene delivery, as wound dressing, as an implant, as an injectable agent that gels in situ, in pharmaceutical or cosmetic compositions, in regenerative medicine, in tissue engineering and tissue regeneration, or in electronic devices. It also relates to a method of tissue regeneration or tissue replacement using a hydrogel in accordance with the present invention.
US10287547B2	Enrichment and characterization of human corneal endothelial cells (hCENC) with novel monoclonal antibody	This invention refers to an antibody or an antigen binding portion thereof, that binds specifically to human corneal endothelial cells (hCENCs), wherein the target of the monoclonal antibody, or antigen binding portion thereof, is essentially cell surface-expressed Peroxiredoxin-6 (Prdx6), as well as to methods for determining suitability of a cell sample for corneal transplantation, for quantitative enrichment of human corneal endothelial cells from a mixture of cells, and for isolating human corneal endothelial cells from a mixture of cell.
US10287553B2	In vitro method for culturing stem cells	There is provided a method for culturing a stem cell in vitro. The method comprises providing a substrate surface coated with a coating comprising a molecule having a catechol moiety or a polymer thereof; and growing a stem cell on said coated substrate surface in a growth medium.
US10278701B2	Adhesive structure with tissue piercing protrusions on its surface	An implant having an adhesive structure comprising a planar surface having two sides and rectangular cuboid-based protrusions having pyramidal tips extending from at least one of said sides, optionally having a porous basic supporting structure, and methods of making and using such implants.
US10280195B2	Virus reduction method	Methods are provided for enhancing reduction of virus and viral DNA levels in protein preparations.
US10276236B2	Resistive random access memory (RRAM) cell filament formation using current waveforms	A memory device includes a metal oxide material disposed between and in electrical contact with first and second conductive electrodes, and an electrical current source configured to apply one or more electrical current pulses through the metal oxide material. For each of the one or more electrical current pulses, an amplitude of the electrical current increases over time during the electrical current pulse to form a conductive filament in metal oxide material.
US10266612B2	Heparan sulphates	A novel class of structurally and functionally related isolated Heparan sulphate is disclosed. The novel class of Heparan sulphates has been found to bind FGF2 and enhance the proliferation of stem cells while maintaining their pluripotency/multipotency
US10259851B2	Protein extraction methods	Methods are provided for extracting DNA-compaction proteins from biological samples.
US10255939B2	Recording medium for heat assisted magnetic recording and method of forming the same	Various aspects of this disclosure provide a recording medium for heat-assisted-magnetic-recording (HAMR). The recording medium may include a substrate. The recording medium may further include a recording layer. The recording medium may also include a thermal control layer between the recording layer and the substrate. The thermal control layer may have a thermal conductivity that increases with increasing temperature.
US10257763B2	Routing protocol for advanced metering infrastructure system	There is provided an Advanced Metering Infrastructure (AMI) system including a plurality of gate-ways interconnected by a network comprising a plurality of subnets based on one or more types of networking protocols, each of the plurality of gateways communicatively coupled to or integrated in a metering device; and a concentrator connected to the network for receiving metering data from the metering devices. The concentrator and the plurality of gateways each defines a communication node in the network. In particular, each of the gateways is configured to store a route information comprising at least a primary route information and is operable to route uplink data received based on the route information, the primary route information indicating a predetermined one of the communication nodes for the gateway to route the uplink data to next as a first priority.

US10256797B2	Oscillator	According to embodiments of the present invention, an oscillator is provided. The oscillator includes a switched capacitor circuit arrangement configured to generate a predetermined voltage, a transconductance-capacitor filter configured to receive the predetermined voltage and a reference voltage, and to generate an output filter voltage based on a differential result between the predetermined voltage and the reference voltage, wherein a value of the output filter voltage is variable in response to the differential result, and a period control circuit arrangement configured to receive the output filter voltage, and further configured to generate an oscillator signal, wherein a period of the oscillator signal is variable in response to the value of the output filter voltage, wherein the oscillator is configured to control the switched capacitor circuit arrangement based on the oscillator signal to generate the predetermined voltage to be matched to the reference voltage.
US10251568B2	Method and system for optical blood pressure monitoring	An apparatus, methods and a system for cuffless blood pressure monitoring are provided. The system includes an optical BCG sensor, a PPG sensor, a transceiver and a signal processing device. The BCG sensor optically couples to the subject, acquires BCG signals from the subject, and optically transmits the subject's BCG signals. The PPG sensor optically couples to the subject for acquiring PPG signals from the subject and optically transmits the acquired subject's PPG signals. The transceiver is coupled to the BCG sensor and the PPG sensor for receiving the BCG signals and the PPG signals and generating a BCG electronic signal from the subject's BCG signals and a PPG electronic signal from the subject's PPG signals. And the signal processing device is coupled to the transceiver for receiving the BCG electronic signal and the PPG electronic signal and for monitoring the subject's blood pressure in response to predetermined BCG indicia of the BCG electronic signal and predetermined PPG indicia of the PPG electronic signal.
US10253063B2	Protein purification in the presence of nonionic organic polymers at elevated conductivity	A method of purifying a desired protein from a preparation includes providing the preparation in a form having less than about 5% of the chromatin residing in the original production medium, contacting the preparation with a nonionic organic polymer in an amount sufficient to cause the desired protein to precipitate or adsorb on a nonionic hydrophilic surface, and adjusting a salt concentration before or during the contacting step, the adjusting step providing a sufficient salt concentration to produce a conductivity greater than physiological conductivity.
US10245301B2	Glycosaminoglycans	Heparan sulphate HS/BMP2 is disclosed, together with the use of HS/BMP2 in the repair and regeneration of bone tissue.
US10249593B2	Method for bonding a chip to a wafer	A method for chip on wafer bonding is provided. The method includes the formation of a plurality of posts on at least one of a chip and a wafer, and a like plurality of contacts on the other of the chip and the wafer. After formation, a contact surface of each post is planarized, the respective planarized contact surface having a surface roughness height. A bonding material is then applied to at least one of the chip in a thickness no greater than the surface roughness height of the contact surface. The posts are then temporarily bonded to the contacts using the bonding material to stabilize a position of the chip relative to the wafer for permanent diffusion bonding of the chip to the wafer.
US10246506B2	Methods for reducing levels of protein-contaminant complexes and aggregates in protein preparations by treatment with electropositive organic additives	Methods for reduction of aggregate levels in antibody and other protein preparations through treatment with low concentrations of electropositive organic additives (e.g., ethacridine, chlorhexidine, or polyethylenimine) in combination with ureides (e.g., urea, uric acid, or allantoin) or organic modulators (e.g., nonionic organic polymers, surfactants, organic solvent or ureides). Some aspects of the invention relate to methods for reducing the level of aggregates in conjunction with clarification of cell culture harvest. It further relates to the integration of these capabilities with other purification methods to achieve the desired level of final purification.
US10245281B2	Glycosaminoglycans	Heparan sulphate HS7 is disclosed, together with the use of HS7 in the growth and/or development and/or regeneration of tissue.
US10241099B2	Film sensor	The present disclosure relates to a sensor for indicating food quality comprising a semi-permeable film layer, the semi-permeable film layer comprising at least one integrally formed well having at least one sensing element disposed therein; wherein the well is sealed by a second film layer, the semi-permeable film layer being impermeable to said sensing element but is permeable to at least one analyte detectable by said sensing element.
US10235750B2	Segmentation of cardiac magnetic resonance (CMR) images using a memory persistence approach	A method is proposed for identifying an anatomical structure within a spatial-temporal image (i.e. a series of frames captured as respective times). A current frame of spatial-temporal medical image is processed using information from one or more previous and/or subsequent temporal frames, to aid in the segmentation of an object or a region of interest (ROI) in a current frame. The invention is applicable to both two- and three-dimensional spatial-temporal images (i.e., 2D+time or 3D+time), and in particular to cardiac magnetic resonance (CMR images). An initialization process for this method segments the left ventricle (LV) in a CMR image by a fuzzy c-means (FCM) clustering algorithm which employs a circular shape function as part of the definition of the dissimilarity measure.
US10229488B2	Method and system for determining a stage of fibrosis in a liver	A method for determining a stage of fibrosis in a liver is disclosed. The method comprises the steps of: (1a) obtaining input data relating to the liver, the input data being generated using a second harmonic generation based imaging system; (1b) identifying a plurality of morphological features of the liver from the input data relating to the liver; (1c) generating a plurality of measurements based on the identified plurality of morphological features; and (1d) determining the stage of fibrosis in the liver based, on the generated plurality of measurements.

US10230532B2	Entity authentication in network	There is provided an entity authentication method for a network including a first entity and a second entity, the method including: selecting, at the firs entity, one or more pieces of data processed by the first entity to be used for authenticating the second entity; tagging, at the first entity, each of the one or more pieces of data selected with a respective tag generated based on a first secret key of the first entity; sending, from the first entity, a set of authentication data comprising the one or more pieces of data and the respective tags to the second entity; and authenticating, by the first entity, the second entity using a challenge-response authentication technique based on the set of authentication data and the first secret key. There is also provided a corresponding system with entity authentication for a network, and an entity in a network with entity authentication.
US10228400B2	Electric meter, an electric meter system and a method of providing branch-level readings for a power distribution network	According to various embodiments, there is provided an electric meter including a sensor circuit configured to provide a plurality of instantaneous magnetic field measurements; a processing circuit configured to generate a time-series of magnetic field vectors, each magnetic field vector of the time-series of magnetic field vectors including the plurality of instantaneous magnetic field measurements; and a total current determination circuit configured to determine a total current, wherein the total current is a sum of currents of each branch of a plurality of branches of a power distribution network; wherein the processing circuit is further configured to compute a de-mixing matrix based on the determined total current and the time-series of magnetic field vectors, and further configured to linear transform each magnetic field vector using the de-mixing matrix to determine a current of each branch.
US10221253B2	Phase separated composite	A composite is disclosed. The composite comprises a first conjugate of a polymer and a first phenol-containing moiety, and a second conjugate of a gelatin or collagen and a second phenol-containing moiety, wherein the polymer is selected so that the first conjugate is less cell-adhesive than the second conjugate, at least one of the first and second conjugates is crosslinked to form a matrix, and the composite comprises discrete regions that are rich in one of said first and second conjugates. A method of forming such composite is also disclosed. The method comprises mixing precursors for the first and second conjugates in a solution for forming said composite, and dispersing a catalyst in the solution to catalyze crosslinking of at least one of the first and second conjugates to form the matrix. The composite may be used to grow cells.
US10215692B2	Optical waveguide structure and optical gas sensor, and methods of fabrication thereof	There is provided an optical waveguide structure, including a substrate, an insulating layer disposed on the substrate whereby the insulating layer includes an air slot formed therein, a first material layer suspended over the air slot whereby the first material layer constitutes a waveguide core of the optical waveguide structure, and a second material layer disposed over the waveguide core whereby the waveguide core is suspended over the air slot by the second material layer. There is also provided an optical gas sensor incorporating the optical waveguide structure and methods of fabrication thereof.
US10214776B2	Nanoprobe-based genetic testing	The present application relates to methods of detecting a mutation in a target nucleic acid molecule. Two phosphorodiamidate morpholino oligomer probes that differ by at least one base are each covalently coupled to a nano article and hybridized to a target sequence. The melting temperature of the complexes between each of the two probes and the target nucleic acid are measured and compared to determine whether the sample contains a nucleic acid with the mutation. Further, the present invention relates to kits comprising a first and second conjugate as described herein and to the use of such kits for the detection of mutations in a target nucleic acid molecule or for assigning a genotype to a target nucleic acid molecule.
US10215702B2	Method for preparing a surface enhanced Raman spectroscopy particle	There is provided a method of preparing a surface enhanced Raman spectroscopy (SERS) particle comprising the step of encapsulating a plurality of Raman molecules on the surface of a metallic core with a biocompatible protective shell at an elevated temperature selected to decrease the encapsulation time by more than one-fold relative to an encapsulation performed at 20° C
US10211805B2	Micro-electromechanical resonators and methods of providing a reference frequency	According to various embodiments, there is provided a micro-electromechanical resonator, including a substrate with a cavity therein; and a resonating structure suspended over the cavity, the resonating structure having a first end anchored to the substrate, wherein the resonating structure is configured to flex in a flexural mode along a width direction of the resonating structure, wherein the width direction is defined at least substantially perpendicular to a length direction of the resonating structure, wherein the length direction is defined from the first end to a second end of the resonating structure, wherein the second end opposes the first end.
US10204708B2	System and method for deriving parameters for homeostatic feedback control of an individual	A method and system of deriving a physiological homeostatic operating set point of an individual comprising the steps of: obtaining a dataset of predetermined number of homeostatic measurements of the individual; fitting the dataset of predetermined number of homeostatic measurements according to a negative exponential decay function; identifying and setting the physiological homeostatic operating set point unique to the individual as the point corresponding to the point of maximum curvature on the fitted negative exponential decay function is disclosed. The method is especially suited for determining the [FT4]-[TSH] set point, which is unique for each individual.
US10195595B2	Catalyst composition and process for producing aromatic hydrocarbon using the catalyst composition	It is an object of the present invention to provide a catalyst that is excellent in stability even at a high catalyst-regeneration temperature. It is another object of the present invention to provide a process for producing an aromatic hydrocarbon from a lower hydrocarbon by using the above catalyst. The catalyst composition comprises molybdenum, a second metal that is not molybdenum, and a crystalline metallosilicate, wherein the content of molybdenum is 1 to 20% by weight in terms of a molybdenum atom, and the content of the second metal is 2 to 20% by weight in terms of a metal atom.
US10195593B2	Method for preparing a sodium faujasite catalyst and its use in producing acrylic acid	The invention relates generally to a sodium faujasite catalyst, and in particular the use of the sodium faujasite catalyst in producing acrylic acid. In particular, the invention relates to the use of the sodium faujasite catalyst in catalytic dehydration of lactic acid and 3-hydroxypropionic acid (3-HP) to produce acrylic acid.

US10193532B2	Method of operating a finite impulse response filter	According to one aspect of the invention, there is provided a method of operating a finite impulse response filter comprising an input; an output; and a plurality of storage elements, each coupled to the input via a sample switch and to the output via a transfer switch, the method comprising: during charging of the plurality of storage elements, applying a sample clock signal to each of the sample switches that achieves an operation mode where up to every one of the sample switches is simultaneously closed to connect all of the plurality of storage elements to the input; and during averaging of the plurality of storage elements, applying a transfer clock signal to each of the transfer switches to close one or more of the transfer switches to connect the storage elements, having charge stored therein, to the output.
US10190926B2	Fiber bragg gating (FBG) sensor	A Fiber Bragg grating (FBG) sensor structure, a method of fabricating a FBG sensor structure, and a method of employing a FBG sensor structure comprising an optical fiber portion having at least one FBG formed therein. The FBG sensor structure comprises an optical fiber portion having at least one FBG formed therein; and a sleeve structure capable of transferring vibrations and/or strain along a length thereof; wherein the optical fiber portion is coupled to the sleeve structure such that the central wavelength of the FBG, is variable under the transferred vibrations and/or strain.
US10191949B2	Recommendation system using a transformed similarity matrix	Systems and methods for transforming a similarity matrix used to generate content item recommendation lists are described. The system may determine a weight (used to transform the similarity matrix) sufficient to place one or more content items on the content item recommendation list or at a particular position on the recommendation list. The transformed similarity matrix may further be reduced in size, and content recommendations may be generated using the transformed or reduced similarity matrix.
US10186635B2	Method of forming a light emitting diode structure and a light diode structure	A method of forming a vertical III-nitride based light emitting diode structure 5 and a vertical III-nitride based light emitting diode structure can be provided. The method comprises forming a III-nitride based light emitting structure on a silicon-oninsulator (SOI) substrate; forming a metal-based electrode structure on the III-nitride based light emitting structure; and removing the SOI substrate by a layer transfer process such that the metal-based electrode structure functions as a metal-based 10 substrate of the light emitting structure.
US10183099B2	Antimicrobial and antifouling catechol-containing polycarbonates for medical applications	Catechol-bearing polycarbonates (catechol polymers) were prepared comprising i) a catechol repeat unit comprising a side chain catechol group, ii) a cationic repeat unit comprising a side chain cationic group selected from the group consisting of quaternary amine groups, quaternary phosphine groups, and combinations thereof, and iii) a PEG repeat unit comprising a side chain poly(ethylene oxide) group having a degree of polymerization o about 5 to about 30. The catechol polymers form antimicrobial and antifouling films on a variety of substrate surfaces, in particular silicone rubber.
US10179194B2	Self-assembling peptides, peptidomimetics and peptidic conjugates as building blocks for biofabrication and printing	The present invention relates to the use of peptides, peptoids and/or peptidomimetics capable of self-assembling and forming a (nanofibrous) hydrogel in biofabrication. The present invention further relates to methods for preparing hydrogels and to methods for preparing continuous fibres and to methods for obtaining multi-cellular constructs with defined, precise geometrics. The present invention further relates to various uses of such hydrogels for obtaining mini-hydrogel arrays and 3D organoid structures or 3D macromolecular biological constructs.
US10181618B2	Method of preparing a porous carbon material	A method of preparing a porous carbon material is provided. The method comprises a) freezing a liquid mixture comprising a polymer suspended or dissolved in a solvent to form a frozen mixture; b) removing the solvent from the frozen mixture to form a porous frozen mixture; and c) pyrolyzing the porous frozen mixture to obtain the porous carbon material. A porous carbon material prepared using the method, and uses of the porous carbon material are also provided.
US10176573B2	Automatic region-of-interest segmentation and registration of dynamic contrast-enhanced images of colorectal tumors	A method for dynamic contrast enhanced (DCE) image processing and kinetic modeling of an organ's region-of-interest is provided. The method includes deriving at least a contour of an exterior of the organ's region-of-interest from one or more of a plurality of images; generating a spline function in response to the derived contour of the exterior of the organ's region-of-interest from the one or more of the plurality of images; registering the plurality of images wherein the organ's region-of-interest has been segmented; deriving a tracer curve for the organ's region-of-interest in the registered images, the tracer curve indicating a change in concentration of a contrast agent flowing through the organ's region-of-interest over a time period; and kinetic modeling by fitting a kinetic model to the tracer curve to generate one or more maps of tissue physiological parameters associated with the kinetic model.
US10174126B2	Antibodies binding to an intracellular PRL-1 or PRL-3 polypeptide	We provide an antibody capable of binding to an intracellular PRL-I or PRL-3 polypeptide, in which the antibody is capable of binding to an epitope bound by antibody 269, antibody 223 or antibody 318. Such anti-PRL antibodies may be capable of binding to intracellular PRL-I or PRL-3. They may be suitable for use as therapies against cancer or metastasis thereof, or in clinical diagnosis to identify PRL-3 or PRL-1 positive patients.
US10174076B2	Protein purification process	A method of purifying a target protein includes contacting a cell culture harvest or a protein preparation including at least one target protein with at least one fatty acid having 8 to 10 carbon atoms to form a mixture, contacting the mixture with one or more solids to form a mixture, the one or more solids comprise a cationic functional group, a metal binding functional group, or both, the metal binding functional group including a nitrogen-containing moiety selected from (1) a polyamine, (2) an imine, (3) an N-heterocycle, (4) an amino acid, (5) an N-hydroxyamide, (6), an arylamine, and combinations thereof, and separating solid materials after contacting the mixture with the one or more solids to provide a solution comprising the target protein.

US10170693B2	Magnetoresistive device and method of forming the same	According to embodiments of the present invention, a magnetoresistive device is provided. The magnetoresistive device includes a free magnetic layer structure having a variable magnetization orientation, a fixed magnetic layer structure having a fixed magnetization orientation, and a tilting magnetic layer structure configured to provide an interlayer exchange biasing field to tilt, at equilibrium, the fixed magnetization orientation or the variable magnetization orientation relative to the other to be along a tilting axis that is at least substantially non-parallel to at least one of a first easy axis of the fixed magnetization orientation or a second easy axis of the variable magnetization orientation. According to further embodiments of the present invention, a method of forming a magnetoresistive device is also provided.
US10167267B2	Conversion and purification of biomass	The present invention relates to a method for synthesizing an optionally substituted furoic acid by dehydrating a biomass and oxidizing the optionally substituted furan derived from the dehydration reaction. Water extraction has been incorporated as a step between the dehydration and the oxidation in order to purify the intermediate optionally substituted furan before having it oxidized. Prior to this water extraction, the organic solvent used for dehydration may be separated by evaporation. The provision of the water extraction allows impurities to be separated from the intermediate optionally substituted furan.
US10160784B2	Antibody purification process	A method of purifying a target antibody includes contacting a cell culture harvest or a protein preparation including at least one target antibody with a least one fatty acid having 7 to 10 carbon atoms to form a mixture, contacting this mixture with allantoin, and then separating solid materials to provide a solution comprising the target antibody. Solid materials can be removed by filtration, sedimentation or centrifugation, and the fatty acids can be enanthic, caprylic, pelargonic, nonenoic or capric acid. The invention is also directed to kits used to facilitate this method of antibody purification.
US10156532B2	System and method for detecting a defective sample	In various embodiments, a system for detecting a defective sample may be provided. The system may include a chamber. The system may further include a pressure reducing mechanism coupled with the chamber. The system may additionally include a detector. The pressure reducing mechanism may be configured to reduce a pressure in the chamber. The detector may be configured to detect information indicating a temperature of the sample. Various embodiments may be capable of detecting water ingress or fluid ingress into the micro cracks or along the designed discontinuities, like bolts and rivets.
US10151863B2	Optical grating	According to one aspect of the invention, there is provided an optical grating comprising a substrate comprising a plurality of protrusions with a space in between any two adjacent protrusions; and a cap provided on at least one of the plurality of protrusions at an end that is furthest from the substrate, wherein the cap has a higher degree of optical attenuation compared to the substrate material and wherein the combination of each protrusion and the respective cap thereon has a generally symmetric cross-sectional profile.
US10151638B2	Bolometer, method of fabricating the same, and bolometric method	Various aspects of this disclosure provide a bolometer including a substrate and a ring resonator structure over the substrate. The bolometer may also include a silicon oxide layer in thermal contact with the ring resonator structure. The bolometer may further include a first waveguide over the substrate and coupled to the ring resonator structure, the first waveguide configured to couple an infrared light to the ring resonator structure so that the infrared light generates a temperature increase in the silicon oxide layer. The bolometer may additionally include a second waveguide over the substrate and coupled to the ring resonator structure, the second waveguide configured to couple a probe light input to the ring resonator structure so that a probe light output is generated from the probe light input, the probe light output having a change in a characteristic from the probe light input based on the temperature increase.
US10145669B2	Reducing speckle noise in optical coherence tomography images	A method and system are proposed to obtain a reduced speckle noise image of a subject from optical coherence tomography (OCT) image data of the subject. The cross sectional images each comprise a plurality of scan lines obtained by measuring the time delay of light reflected, in a depth direction, from optical interfaces within the subject. The method comprises two aligning steps. First the cross sectional images are aligned, then image patches of the aligned cross sectional images are aligned to form a set of aligned patches. An image matrix is then formed from the aligned patches; and matrix completion is applied to the image matrix to obtain a reduced speckle noise image of the subject.
US10141837B2	Device and method for energy harvesting using a self-oscillating power-on-reset start-up circuit with auto-disabling function	Device and method for energy harvesting using a self-oscillating power-on reset start-up circuit. The device for energy harvesting comprises a start-up circuit for generating self-oscillation and initial boosting of an input voltage from an energy source during a start-up phase; a main boost circuit for boosting the input voltage during a steady state phase; a clock generator circuit for generating clock signals which control voltage boosting of the main boost circuit during the steady state phase; and a switching circuit coupled to the start-up circuit, the main boost circuit and the clock generator circuit for switching powering of the clock generator circuit between the start-up circuit and the main boost circuit such that the clock generator circuit is powered by only one of the start-up circuit and the main boost circuit at any point in time.
US10134607B2	Method for low temperature bonding of wafers	A method for bonding wafers is provided. The method comprises the steps of providing a first wafer having an exposed first layer, the first layer comprising a first metal; and providing a second wafer having an exposed second layer, the second layer comprising a second metal, the first metal and the second metal capable of forming a eutectic mixture having a eutectic melting temperature. The method further comprises the steps of contacting the first layer with the second layer; and applying a predetermined pressure at a predetermined temperature to form a solid-state diffusion bond between the first layer and the second layer, wherein the predetermined temperature is below the eutectic melting temperature.

US10128503B2	Conductive fibrous materials	There is provided a conductive fibrous material comprising a plurality of carbonaceous fibers, wherein each carbonaceous fiber is fused to at least one other fiber. The carbonaceous fibers may be fused at fiber-to-fiber contact points by a polymer. The process of making the conductive fibrous material comprises mixing a phenolic polymer with a second polymer to form a polymer solution, preparing phenolic fibers having nano- or micro-scale diameters by electrospinning the polymer solution, and subsequent carbonization of the obtained phenolic fibers, thereby generating carbonaceous fibers, wherein each carbonaceous fiber is fused to at least one other fiber. The conductive fibrous material may be useful in electrode materials for energy storage devices.
US10127114B2	Method of file system design and failure recovery with non-volatile memory	A method of rebooting a file system using a non-volatile memory is provided. The method comprising persistently storing critical information in the non-volatile memory, the critical information indicating a status of the file system; in response to a predetermined event, obtaining critical information of the file system stored in the non-volatile memory; determining if the file system has crashed based on the critical information; and rebooting from metadata in the non-volatile memory if it is determined that the file system has crashed.
US10122381B2	Method of constructing flat XOR codes from integer indexed tanner graphs	A method for defining an erasure code for system having a predetermined number of data disks is disclosed. The method includes selecting step, constructing step, determining step and repeating step. The selecting step includes selecting a predetermined acceptable number of failures for the system. The constructing step includes constructing a first Tanner graph for two failures acceptable system having predetermined number of data disks. The determining step includes determining erasure code from the first Tanner graph. The repeating step includes repeating the constructing step and the determining step by increasing the acceptable number of failures by one and constructing another Tanner graph in response to the increased acceptable number of failures by increasing number of parity nodes until the predetermined number of failures for the system is reached.
US10117946B2	Self-assembling ultrashort peptides modified with bioactive agents by click chemistry	The present invention relates to hydrogels comprising a first peptide with a covalently linked bioactive agent and optionally a second peptide. The present invention further relates to uses of the hydrogel for delivery of the bioactive agent or as an implant. The present invention further relates to drug delivery devices, implant, pharmaceutical or cosmetic compositions comprising the hydrogel. The present invention further relates to methods of local treatment of diseases and to methods for preparing the first peptide and the hydrogels.
US10116286B2	Reference clock signal generators and methods for generating a reference clock signal	According to various embodiments, there is provided a method for generating a reference clock signal, the method including discharging a capacitive element to a discharged state, when a reset signal has a predetermined reset state; charging the capacitive element from the discharged state to a first voltage, when a charge signal has a predetermined charge state; comparing the first voltage to a zero voltage, when a compare signal has a predetermined compare state; generating a second voltage based on the comparing of the first voltage to the zero voltage; generating a clock signal based on the second voltage, using an oscillator; and generating each of the reset signal, the charge signal and the compare signal, based on the clock signal.
US10112971B2	Protein purification in the presence of nonionic organic polymers and electropositive surfaces	A method of purifying a desired protein from a preparation includes (a) providing the preparation in a form having less than about 5% of chromatin residing in an original production medium, (b) contacting the preparation with a nonionic organic polymer and a salt, a concentration of nonionic organic polymer being sufficient to precipitate the desired protein or cause its accretion on a hydrophilic surface, or maintain it in a precipitated state or accreted on the hydrophilic surface, the salt concentration being sufficient to produce greater than physiological conductivity, and (c) contacting the preparation with at least one electropositive surface, optionally in the presence of a salt concentration sufficient to produce greater than physiological conductivity, the desired protein does not substantially adsorb to the at least one electropositive surface while not preventing adsorption of acidic contaminants to the at least one electropositive surface.
US10111787B2	Apparatus for a diaper, a system, a diaper and a method of manufacturing an electrode	Various embodiments provide an apparatus for a diaper. The apparatus has two electrodes and an electronic device. The electronic device is coupled to the two electrodes. The two electrodes are operable to generate a potential difference when they are electrically connected together by ionized liquid. The electronic device is operable to generate an alarm signal when the potential difference is generated. Various other embodiments relate to a corresponding system, diaper and method of manufacturing an electrode.
US10107748B2	Optical sensing device for surface plasmon resonance (SPR) and optical sensing method using surface plasmon resonance (SPR)	An optical sensing device is provided, including a first polarizer, a second polarizer, wherein the first polarizer and the second polarizer have respective transmission axes aligned in orthogonal directions, an SPR sensor arrangement including an SPR sensing surface, the SPR sensor arrangement arranged to receive an incident light beam passed through a polarizer to be reflected at the SPR sensing surface and transmitted through a second polarizer to provide a transmitted light beam, a detector arrangement configured to detect the transmitted light beam, the transmitted light beam including a sensing signal and a reference signal, and a processor electrically coupled to the detector arrangement, the processor configured to perform a subtraction operation between the sensing signal and the reference signal. The optical sensing is based on a differential measurement scheme. The subtraction between the sensing signal and the reference signal cancels the common path noise and enhances the sensor resolution.

US10105454B2	Ultrashort peptides as exogenous second harmonic probes for bioimaging applications	Various aspects of the present invention relate to a peptide based biomaterial for visualization by SHG microscopy. In particular the invention relates to the use of short peptides as a non-linear optical (NLO) material for second harmonic generation (SHG) microscopy. A preferred short peptide comprises LIVAGK (LK6) and contains a non-polar aliphatic tail (with decreasing hydrophobicity) and a polar head; and can self-assemble into hydrogels; wherein which the peptide forms a tunable fibrous structure for in vitro and in vivo imaging applications and is suitable in disease diagnostics such as amyloidosis, including 1) neuro-degenerative amyloidosis, e.g. Alzheimer's (AD), Parkinson's, Huntington's (PD), 2) non-neuropathic localized amyloidosis such as in Type II Diabetes, and 3) systemic amyloidosis that occurs in multiple tissues, e.g. cataracts and lattice corneal dystrophy (LCD), as well as drug delivery and/or wound dressings.
US10105293B2	Core-shell particle	There is provided a core-shell particle comprising a polymer conjugate encapsulating an active agent, wherein the polymer conjugate comprises a biocompatible polymer and a polyacidic polymer. There is also provided a process for forming the core-shell particle, a delivery vehicle comprising the core-shell particle and a method for delivering an active agent to a desired site.
US10103359B2	Multilayer film for encapsulating oxygen and/or moisture sensitive electronic devices	The present invention refers to a multilayer barrier film capable of encapsulating a moisture and/or oxygen sensitive electronic or optoelectronic device, the barrier film comprises at least one nanostructured layer comprising reactive nanoparticles capable of interacting with moisture and/or oxygen, the reactive nanoparticles being distributed within a polymeric binder, and at least one ultraviolet light neutralizing layer comprising a material capable of absorbing ultraviolet light, thereby limiting the transmission of ultraviolet light through the barrier film.
US10100331B2	Reagent for gene-drug therapeutics	The present invention relates to a composition for transfecting a cell with a genetic material comprising a first agent capable of directing the genetic material away from the acidic compartments in the cell and a second agent capable of stabilizing the microtubule or a network thereof. The invention also relates to the use of the composition in the manufacture of a medicament for treating a disease, a method for delivering a genetic material into a cell and a kit.
US10098580B2	Hypermotor activity detection system and method therefrom	There is provided a hypermotor activity detection system, including: a video capture device configured to monitor a patient and obtain a video input; and a processing system configured to process the video input. The processing system includes: an optical flow module configured to carry out an optical flow analysis on a video input region determined from the video input, and further determine a flow field magnitude of the video input region; and a local motion reference module configured to obtain a local motion reference value. The local reference module includes: a division module; a sub-window flow module; a local motion magnitude module; and a local motion comparison module. Further, a corresponding method for detecting hypermotor activity is provided.
US10094957B2	Molecular tunnel junctions and their use as sources of electronic plasmons	A method of producing electronic plasmons by applying a bias to a molecular tunnel junction to excite plasmons, in which the molecular tunnel junction contains a top metallic electrode formed of a eutectic metal alloy and a metal oxide, a bottom metallic electrode formed of a transition metal, and a self-assembled monolayer formed of a plurality of organic molecules disposed between the top metallic electrode and the bottom metallic electrode. Also disclosed are a molecular tunnel junction for producing electronic plasmons and a method for preparing such a molecular tunnel junction.
US10087416B2	Culturing pluripotent stem cells	A method for culturing and maintaining a pluripotent stem cell in an undifferentiated state is provided. The method comprises culturing the pluripotent stem cell in a medium comprising an MEK inhibitor, a GSK3 inhibitor, a dual inhibitor of AMPK and/or BMP signaling and LIF. A cell produced by the method, cell culture medium and a kit for performing the method described is also provided.
SG10201701148VA	Self-powered sensor and method of forming the same	SELFPOWERED SENSOR AND METHOD OF FORMING THE SAME Various embodiments provide a self-powered sensor. The self-powered sensor includes a solar cell having a transparent or semi-transparent electrode, wherein the solar cell is configured to at least substantially absorb light of a first wavelength range for generating electrical energy and configured to at least substantially transmit light of a second wavelength range. The self-powered sensor further includes an energy storage configured to store the electrical energy generated by the solar cell; and a detector electrically connected to the energy storage to receive the electrical energy and configured to detect the transmitted light of the second wavelength range. The electrode of the solar cell is configured to have at least one of a selected thickness or a selected material dependent on a desired absorptance of the solar cell for light of the first wavelength range and a desired transmittance of the solar cell for light of the second wavelength range. FIG. A and IB
US10080644B2	Tissue interface augmentation device for ligament/tendon reconstruction	The present invention relates to a device for the interfacial augmentation of tissue grafts for the purpose of tendon and ligament reconstruction. The inventive device works both as a delivery vessel for osteoconductive and osteoinductive factors and as a scaffold to stimulate and support bone ingrowth and comprises a tubular composite silk sheath, said tubular composite silk sheath comprising: a backbone consisting of a tubular silk mesh, and a carrier material consisting of a porous silk sponge, wherein said tubular silk mesh consists of degummed silk fibroin fibers, wherein said porous silk sponge comprises silk fibroin fibers and hydroxyapatite particles and said tubular silk mesh and said porous silk sponge form a composite material. The present invention is also directed to a method for the manufacturing of such augmentation devices, a method for fixation of the thus fabricated tissue interface augmentation devices onto ligament or tendon grafts, a method for applying such devices for ligament and/or tendon reconstruction to tendon grafts, as well as their application in ligament and tendon reconstruction.
EP2585421B1	Method of producing alkenes by dehydration of a mixture of alcohols	The invention relates to a method of producing alkenes by dehydration of a mixture of alcohols using a metal-modified zeolite, wherein the method comprises providing two or more alcohols; contacting the mixture with a catalyst, wherein the catalyst is a metal-modified zeolite; and reacting the mixture in a temperature range of about 350 to about 500 °C, thereby producing the alkenes

US10076772B2	Transducer and method for forming the same	A transducer is provided, which includes a substrate, wherein a cavity is defined at least partially through the substrate, at least one stopper structure arranged within the cavity, a support layer arranged over the at least one stopper structure and the cavity to seal the cavity, and a piezoelectric functional arrangement arranged on the support layer. According to further embodiments of the present invention, a method for forming a transducer is also provided.
US10077227B2	Method for synthesizing an alkenoic acid	There is provided a method for synthesizing an alkenoic acid, in particular acrylic acid comprising the step of oxidizing an alkenyl alcohol in the presence of a metal oxide catalyst to form the alkenoic acid. The invention further provides a step of deoxydehydrating a polyol, including glycerol to obtain said alkenyl alcohol including an allyl alcohol.
US10071115B2	Method of promoting wound healing	Disclosed is a method of promoting wound healing or wound closure. The method comprises administration of a miR-198 inhibitor and/or a follistatin-like-1 (FSTL1) polypeptide. Also disclosed are method of treating chronic cutaneous wounds, method of identifying a non-healing wound, use and a pharmaceutical composition comprising a miR-198 inhibitor and/or a follistatin-like-1 (FSTL1) polypeptide.
US10066019B2	Optimised heavy chain and light chain signal peptides for the production of recombinant antibody therapeutics	Antibodies of interest comprising a heavy chain signal peptide and/or a light chain signal peptide or combination thereof and compositions are described. The method of determining the signal peptide including creating data set of antibodies signal peptides, clustering, selecting and creating recombinant antibodies for enhanced expression and secretion are described.
EP2958933B1	Crosslinked peptide hydrogels	The present invention relates to hydrogels comprising a plurality of amphiphilic peptides and/or peptoids capable of self-assembling into three-dimensional macromolecular nanofibrous networks, which entrap water and form said hydrogels, wherein at least a portion of said plurality of amphiphilic peptides and/or peptoids is chemically cross-linked. The present invention further relates to methods for preparing such hydrogels and to various uses of such hydrogels, e.g. as cell culture substrates, for drug and gene delivery, as wound dressing, as an implant, as an injectable agent that gels in situ, in pharmaceutical or cosmetic compositions, in regenerative medicine, in tissue engineering and tissue regeneration, or in electronic devices. It also relates to a method of tissue regeneration or tissue replacement using a hydrogel in accordance with the present invention.
US10054599B2	Pre-eclampsia biomarkers	We describe a method of detecting pre-eclampsia in a cell, tissue, organ or organism, the method comprising detecting a modulated level of expression, activity or amount of a pre-eclampsia biomarker polypeptide selected from the group consisting of PlGF, FLT1, BNP, ANP, CD9, PAI-1, TGF β, PCT, SI 00b, TIMP1, CD 105 and IL6 in or of a microparticle type (selected from a CTB binding microparticle and an Annexin V binding microparticle) from the cell, tissue, organ or organism, as compared to level of expression, activity or amount of the pre-eclampsia biomarker polypeptide in the same microparticle type in a cell, tissue, organ or organism not sufferin from pre-eclampsia.
US10052389B2	Polymeric system for release of an active agent	The present disclosure relates to a polymeric system for release of an active agent, comprising a first polymeric phase containing the active agent, the first polymeric phase forming discrete regions of a set size range and being dispersed within a second polymeric phase comprising a cross-linked polymer-phenol conjugate for release of the active agent therein. The present disclosure further provides an injectable hydrogel comprising the disclosed polymeric system, a carrier for delivering a biologically active substance or a drug comprising the injectable hydrogel, and a method for producing the disclosed polymeric system.
US10052604B2	Silica coating on nanoparticles	This invention relates to a method for synthesizing a SiO2-coated nanoparticle, the method comprising the step of reacting a hydroxyl-functionalized silane with a nanoparticle in a substantially aqueous phase under conditions to induce silanization of the nanoparticle. The method enables silanization of the nanoparticle in aqueous phase that is substantially free of organic solvents
US10050557B2	Energy harvesting apparatus and a method for operating an energy harvesting apparatus	In various embodiments of the present disclosure, there is provided an energy harvesting apparatus, including: an energy harvester for generating electric power from an ambient source; a power conditioning circuit coupled to the output of the energy harvester; including: a boost converter module; a buck-boost converter module; and a power modification control module; wherein the power modification control module is configured to initialize the energy harvesting apparatus from inactivity to a normal energy harvesting state by operating the boost converter module, and operating the buck-boost converter when an output voltage of the power conditioning circuit rises to a predetermined value. A corresponding method of operating an energy harvesting apparatus is provided.
US10045343B2	Digital auto frequency control for a general purpose if subsystem with multi-modulation schemes	An automatic frequency control (AFC) device is provided. The AFC device includes an input module, a received signal strength indicator (RSSI) module and a carrier frequency offset (CFO) estimation module. The input module down converts and samples a received signal. The RSSI module is coupled to the input module and calculates a RSSI signal in response to the down converted and sampled received signal. The CFO estimation module is coupled to the input module and the RSSI module and calculates a moving average of binary elements of the down converted and sampled received signal. The CFO estimation module continues to calculate the moving average until the AFC converges.
US10043563B2	Flip-flop circuit, method of controlling a flip-flop circuit and memory device	According to embodiments of the present invention, a flip-flop circuit is provided. The flip-flop circuit includes a first stage circuit and a second stage circuit, wherein each of the first stage circuit and the second stage circuit is operable in two modes of operation, and a driver arrangement, wherein the first stage circuit includes a first transistor and a first non-volatile memory cell connected to each other, wherein the second stage circuit includes a second transistor and a second non-volatile memory cell connected to each other, and wherein the driver arrangement is configured, at a clock level, to drive the first stage circuit in one of the two modes of operation to access the first non-volatile memory cell and, at the clock level, to drive the second stage circuit in the other of the two modes of operation to access the second non-volatile memory cell.

US10035990B2	Specific internalization of nanoparticles into protein cages	The invention relates to a method to encapsulate nanoparticles into a protein cage by inserting the nanoparticles into the core through holes. Currently commercially available nanoparticles can be functionalized using the inventive method. The inventive hybrids have applications in biosensing and bioimaging. The use of an affinity between poly-histidine chains and nitrilotriacetic acid as chelating reagent to obtain the inventive cages and hybrid assemblies by the method according to the invention is shown in FIG. 1.
US10033305B2	Energy harvesting device and method for forming the same	According to embodiments of the present invention, an energy harvesting device is provided. The energy harvesting device includes a plurality of energy harvesting elements, each energy harvesting element including a transducer, and at least one spring arranged in between at least two energy harvesting elements of the plurality of energy harvesting elements to mechanically couple the at least two energy harvesting elements to each other. According to further embodiments of the present invention, a method for forming an energy harvesting device is also provided.
US10024820B2	Microfluidic device for gel electrophoresis and method of manufacturing thereof	According to embodiments of the present invention, a microfluidic device for gel electrophoresis is provided. The microfluidic device includes a sample channel configured to receive a sample; a stacking channel comprising a preloaded stacking reagent; and a separation channel comprising a preloaded separation reagent, wherein the preloaded stacking reagent has a physical characteristic different from that of the preloaded separation reagent; and wherein the sample channel, the stacking channel and the separation channel are in fluid communication with one another. According to further embodiments of the present invention, a method of manufacturing a microfluidic device for gel electrophoresis is also provided.
US10023609B2	Methods for reducing chromatin content in protein preparations by treatment with alkyl cations	A method of reducing aggregate content in a preparation having a target protein includes contacting the preparation with an alkyl cation to form a mixture, and contacting the mixture with at least one functionalized solid to remove excess alkyl cation.
US10023697B2	Condensation polymers for antimicrobial applications	A number of cationic antimicrobial polymers have been synthesized by a condensation polymerization in bulk. The initial polymer formed has backbone tertiary nitrogens, which are subsequently quaternized using a suitable quaternizing agent (e.g., alkyl halide). The cationic polymers include polyamides, polycarbonates, polypolyureas and polyguanidiniums having a cationic repeat unit comprising the quaternary ammonium nitrogen as a backbone nitrogen. The cationic polymers can be active against Gram-negative, Gram-positive microbes, and/or fungi.
US10004801B2	HBV epitope reactive exogenous T cell receptor (TCR) and uses thereof	There is provided at least one isolated cell comprising at least one HBV epitope-reactive exogenous T cell receptor and/or fragment thereof, and methods for producing them. In particular, there is provided polynucleotides, constructs and vectors encoding at least one HBV epitope-reactive exogenous T cell receptor for use in the treatment of Hepatitis B Virus (HBV) and Hepatocellular Carcinoma (HCC). The invention further provides kits and methods of detection of HBV and HCC.
US9999743B2	Sound-induced sleep method and a system therefor	A method and system for sound-induced sleep is provided. The method includes detecting brainwave signals of a subject. The method further includes analyzing the brainwave signals to determine a current sleepy state of the subject and selecting a sound in response to the current sleepy state based on a quantified association index between the brainwave signals and acoustical features of the sound. The method further more includes playing the sound to the subject.
US9994644B2	mAB 2 anti-Met antibody	Antibodies specifically binding an epitope comprised in the α-chain of c-Met, modifications, compositions and uses thereof are disclosed herein.
US9994611B2	Chromatographic purification of antibodies from chromatin-deficient cell culture harvests	Methods for the improved purification of antibodies and other proteins from protein preparations including the steps of conditioning the protein preparation by contacting it with multivalent organic ions, then applying the conditioned preparation to an adsorptive chromatography medium.
US9995749B2	Method for detecting a target analyte	There is method for detecting the presence or absence of a target analyte in a sample comprising the steps of: allowing an inorganic fluorescent particle to conjugate with a detection biomolecule that is bound to said target analyte, if present in said sample, said target analyte additionally being bound by a capture biomolecule immobilized on or within a nanostructure; and detecting the fluorescence emitted by said inorganic fluorescent particle, said nanostructure being capable of generating a surface plasmon resonance effect when excited by a light source to substantially increase the fluorescence emitted by said inorganic fluorescent particle, wherein the detected fluorescence indicates the presence of said target analyte in said sample.
US9988694B2	Effect of HBV on clinical outcome of hepatocellular carcinoma cancer patients	A method for predicting prognosis (clinical outcome) of hepatocellular carcinoma patients based on the detection of a Hepatitis B virus, determination of the HBV genotype, identification of the strain of the HBV genotype and its integration into the genome, in biological samples of such patients is provided.
US9988423B2	Organogels and emulsions for biological and non-biological applications	The present invention relates to organogels and emulsions based on ultrasmall self-assembling peptides. It further relates to methods for producing such organogels and emulsions as well as to the use of the organogels and emulsions in biological and non-biological applications.

US9987369B2	Vitamin functionalized gel-forming block copolymers for biomedical applications	Gel-forming block copolymers were prepared comprising i) a central hydrophilic block consisting essentially of a divalent poly(ethylene oxide) chain and ii) two peripheral monocarbonate or polycarbonate hydrophobic blocks linked to the central block by linking groups bearing one or more hydrogen bond forming *—N(H)—* groups. The hydrophobic blocks comprise one or more vitamin-bearing subunits. The gel-forming block copolymers can be used to prepare various biodegradable and/or biocompatible hydrogel and organogel drug compositions, in particular antimicrobial and/or anti-tumor drug compositions. The hydrogel compositions have utility in depot injections for drug delivery. The hydrogen bonding *—N(H)—* group(s) provide longer in vivo lifetime of the hydrogel before degradation and a more prolonged and controlled release rate of a hydrophobic drug compared to similar hydrogels prepared from poly(ethylene glycol).
US9981964B2	Maleimide derivatives as modulators of wnt pathway	The present invention relates to compounds of formula (I), combinations and uses thereof for disease therapy, or a pharmaceutically acceptable salt, solvate or polymorph thereof, including all tautomers and stereoisomers thereof wherein R1 represents optionally substituted alkyl (wherein optional substituents include one or more substituents each independently selected from C1-6alkoxy); optionally substituted carbocyclyl (wherein optional substituents include one or more substituents each independently selected from C1-6alkyl, C1-6alkoxy, C1-6haloalkyl, C1-6haloalkoxy and halo); or alkylaryl; R2 represents H; or alkyl; R3 represents H; or alkyl; U, V and W represent —(CH2)—; or U and V together represent —CH═CH— and W represents C═O; Y represents aryl; heteroaryl; optionally substituted carbocyclyl (wherein optional substituents include one or more substituents each independently selected from C1-6alkyl, C1-6alkoxy, C1-6haloalkyl, C1-6haloalkoxy and halo); or optionally substituted heterocyclyl (wherein optional substituents include one or more substituents each independently selected from C1-6alkyl, C1-6 alkoxy, —C(O)OC1-6alkyl, —C(O)C1-6alkyl and —C(O)NHC1-6alkyl); and Z represents aryl; heteroaryl; optionally substituted carbocyclyl (wherein optional substituents include one or more substituents each independently selected from C1-6alkyl, C1-6alkoxy, C1-6haloalkyl, C1-6haloalkoxy and halo); or optionally substituted heterocyclyl (wherein optional substituents include one or more substituents each independently selected from C1-6alkyl, C1-6 alkoxy, —C(O)OC1-6alkyl, —C(O)C1-6alkyl and —C(O)NHC1-6alkyl).
US9979908B2	Image processing devices and image processing methods with interpolation for improving image resolution	According to various embodiments, an image processing device may be provided. The image processing device may include: an input circuit configured to receive input image data including pixels related to varying exposure times; an interpolation circuit configured to determine an output image based on an interpolation based on the input image data; and an output circuit configured to output the output image.
US9977014B2	Nanoparticle sensor for nucleic acid-protein interaction	The present invention provides a sensor for sensing nucleic acid-protein interactions, comprising a noble metal nanoparticle (NP), a double stranded nucleic acid molecule capable of binding with a protein in an aqueous solution and a fluorescent conjugated polymer (CP). The present invention also provides a method for sensing nucleic acid-protein interactions with the sensor as defined above
US9976113B2	Methods, apparatuses, and systems for cell and tissue culture	This invention provides an apparatus and method for culturing cells to probe the influence that the properties of a surface onto which the cells are bonded has on the properties of the cell.
US9975081B2	Method for purifying gas using liquid marbles	The invention relates to methods for purifying gas, and in particular, to such methods using liquid marbles. The liquid in the liquid marbles is comprised of a material or mixture of materials that selectively removes unwanted gaseous component in the gas to be purified.
US9974303B2	Cationic polymers for antimicrobial applications and delivery of bioactive materials	A cationic star polymer is disclosed of the general formula (1): wherein w′ is a positive number greater than or equal to 3, I′ is a dendritic polyester core covalently linked to w′ independent peripheral linear cationic polymer chains P′. Each of the chains P′ comprises a cationic repeat unit comprising i) a backbone functional group selected from the group consisting of aliphatic carbonates, aliphatic esters, aliphatic carbamates, aliphatic ureas, aliphatic thiocarbamates, aliphatic dithiocarbonates, and combinations thereof, and ii) a side chain comprising a quaternary amine group. The quaternary amine group comprises a divalent methylene group directly covalently linked to i) a positive charged nitrogen and ii) an aromatic ring.
US9972709B2	Semiconductor device fabrication	There is provided a method for fabricating a semiconductor device having the following structure, and comprising the steps of growing a first and a second nucleation layer on a substrate; depositing a binary layer over these nucleation layers; and annealing the binary layer to form a first contact area and a second contact area on the substrate, wherein the annealed binary layer comprises a group 14 element selected from Si, Ge and their combination thereof, and the annealed binary layer in the first and second contact areas are capable of providing a lower contact resistance for a current to flow in the device. This method serves to provide an intermediate layer which enables the fabrication process to become CMOS compatible.
US9963704B2	Modulating the interaction between ZO-2/TJP2 and a Snail zinc finger transcription factor family member	There is provided a method of identifying candidate agents capable of modulating interaction between a first polypeptide and a second polypeptide, wherein the first polypeptide is ZO-2/TJP2 or a functional variant thereof and the second polypeptide is a Snail zinc finger transcription factor family member or a functional variant thereof.

US9963682B2	Nuclear receptor and mutant thereof and the use of the same in the reprogramming of cells	According to the invention there is provided methods for inducing pluripotent stem cells in vitro, vectors and compositions for producing the same and methods for using the induced pluripotent stem cell for treating a patient in need of a pluripotent stem cell treatment.
US9962259B2	Stent member, artificial valve, and method of implanting the same	In various embodiments, a stent member is provided. The stent member may include a self-expanding stent frame defining in its expanded position a central annular opening along a longitudinal axis, the opening extending from a first end to a second end of the stent frame. The stent member may include at least one anchoring structure extending radially outwards from the second end of the stent frame. The stent member may further include a biocompatible coating on the stent frame.
US9959927B2	Multi-step voltage for forming resistive access memory (RRAM) cell filament	A memory device and method comprising a metal oxide material disposed between and in electrical contact with first and second conductive electrodes, and a voltage source configured to apply a plurality of voltage pulses spaced apart in time across the first and second electrodes. For each one of the voltage pulses, an amplitude of the voltage increases during the voltage pulse
US9958433B2	Method and system for in vitro developmental toxicity testing	A method and system of in vitro developmental toxicity testing comprising the steps of micropatterning an extracellular matrix; growing embryonic stem cells on the micropatterned extracellular matrix in the presence of mesoendodermal induction and testing for change of the geometrical mesoendoderm structure in the presence or absence of a test compound wherein (1) a decrease in mesoendodermal differentiation and/or (2) a change in morphology of the geometrical mesoendoderm structure in the presence of the test compound compared to cells in the absence of the test compound indicates that the test compound is a developmental toxic agent.
US9955687B2	Polymeric film surface	A surface on a polymeric film having an array of patterned structures, wherein the array of patterned structures influences fluid flow of the surface and causes reduced attachment of a biological material.
US9953129B2	Patient stratification and determining clinical outcome for cancer patients	In a first aspect the present invention is directed to a method of generating a scheme allowing classification of a cancer of an individual patient for estimating a clinical outcome for said patient. It also refers to a method of estimating a clinical outcome of a patient suffering from epithelial ovarian cancer (EOC). The present invention also refers to a method of determining whether the epithelial mesenchymal score of a patient suffering from a cancer can be changed by administering an EMT reversal agent to increase patients susceptibility for an anti-cancer treatment.
US9950032B2	Compositions and methods for lung regeneration	Airway stem cells have been implicated in the pathology and progression of chronic airway diseases and yet also hold the promise of physiological and ultimately therapeutic repair of damage wrought by these conditions. The present invention is based on the observation that certain p63-expressing stem cells in the bronchiolar epithelium undergo rapid proliferation after infection and radiate to interbronchiolar regions of alveolar ablation. Once there, these cells assemble into discrete, Krt5+ pods and initiate expression of markers typical of alveoli. The dynamics of this p63-expressing stem cell in lung regeneration mirrors parallel findings that defined pedigrees of human distal airway stem cells assemble alveoli-like structures in vitro and provides new therapeutic avenues to acute and chronic airway disease as well as identifying agents which can promote repair.
US9951179B2	Cyclic carbonate monomers and ring opened polycarbonates therefrom	Eight-membered ring cyclic carbonates having an oxygen or an acylated nitrogen at position 6 were prepared by reaction of precursor diols with ethyl chloroformate. The cyclic carbonates undergo organocatalyzed ring opening polymerization. In one instance, the initial polymer formed comprises a carbonate repeat unit having a Boc-protected nitrogen in the polymer backbone. Deprotecting the nitrogen with acid forms a cationic carbonate repeat unit having a positive charged secondary ammonium nitrogen in the polymer backbone
US9945968B2	Force feedback electrodes in MEMS accelerometer	A microelectromechanical system (MEMS) accelerometer having separate sense and force-feedback electrodes is disclosed. The use of separate electrodes may in some embodiments increase the dynamic range of such devices. Other possible advantages include, for example, better sensitivity, better noise suppression, and better signal-to-noise ratio. In one embodiment, the accelerometer includes three silicon wafers, fabricated with sensing electrodes forming capacitors in a fully differential capacitive architecture, and with separate force feedback electrodes forming capacitors for force feedback. These electrodes may be isolated on a layer of silicon dioxide. In some embodiments, the accelerometer also includes silicon dioxide layers, piezoelectric structures, getter layers, bonding pads, bonding spacers, and force feedback electrodes, which may apply a restoring force to the proof mass region. MEMS accelerometers with force-feedback electrodes may be used in geophysical surveys, e.g., for seismic sensing or acoustic positioning.
US9938415B2	Functionalised antifouling compounds and use thereof	The present invention relates to derivatives of α, α-disubstituted amide compounds which comprise a substituted aryl at the α carbon such that the substituent provides a means for attachment or incorporation of the compound to or in a polymer. The provision of such a substituent on the aryl has surprisingly been found not only to permit attachment to or incorporation n a polymer but also retention of useful antifouling activity. In embodiments, the substituent is selected from hydroxyl, ethers, esters, carboxyls, alkylsilyls and alkenyls. Experiments demonstrate that antifouling activity can be as good or better as the corresponding unsubstituted compound and that polymers functionalized so as to include or be formed from the substituted compound can be used to reduce settlement.
US9936454B2	Stations, access points, communication systems and methods of controlling the same	In various embodiments, a method of controlling a station may be provided. The method may include receiving a first signal from an access point, the first signal including information indicating a time period. The method may further include deactivating the station after receiving the first signal and before expiry of the time period. The method may also include activating the station upon expiry of the time period.

US9935355B2	THz photomixer emitter and method	A THz photomixer emitter is disclosed. The emitter comprises a photoconductive material, an antenna structure, and an electrode array. The electrode array is disposed such that an electric field associated with photocarriers generated in the photoconductive material is coupled to the antenna for emission of a THz wave via the antenna structure. The electrode array is configured such that an electric field resonance pattern of the electrode array is substantially aligned with an emission field pattern of the antenna structure
US9933390B2	Devices for extracting at least one analyte	A device for extracting at least one analyte may include: a sample reservoir configured to contain a sample comprising at least one target analyte and interfering materials; at least one extraction chamber connected to the sample reservoir; at least one porous structure lining one or more sides of the at least one extraction chamber; and a voltage source configured to provide a first voltage and a second voltage, wherein, when the first voltage is provided, the at least one target analyte and the interfering materials move towards the at least one extraction chamber or to a predetermined area from the at least one extraction chamber, wherein, when the second voltage is provided, the interfering materials pass through and exit the at least one extraction chamber, and the at least one target analyte is stopped from exiting the at least one extraction chamber by means of the at least one porous structure.
US9932454B2	Porous polymer material	The present disclosure relates to a polymer material comprising mesopores extending between melamine-formaldehyde co-polymer nano-particles and wherein micropores extend within the co-polymer nano-particles, methods of producing the same and uses thereof
US9927427B2	Exosome recovery methods with low molecular weight organic zwitterions	A method of isolating exosomes includes conducting at least one purification step in the presence of an organic zwitterion having a molecular weight of less than about 350 Daltons, a buffering pK of a negatively charged portion of the organic zwitterion is at least one full pH unit below an operating pH at which the at least one purification step is conducted, and a buffering pK of the positively charged portion of the organic zwitterion is at least one full pH unit above the operating pH.
US9915670B2	Method of detecting hydrogen peroxide	A method of detecting one or more analytes comprising or consisting of hydrogen peroxide using surface enhanced Raman spectroscopy (SERS) is provided. The method includes providing a SERS-active substrate having at least one metal carbonyl cluster compound attached thereon; contacting one or more analytes with the SERS-active substrate; and detecting changes in surface enhanced Raman signal from the at least one metal carbonyl cluster compound as an indication of the presence of one or more analytes comprising or consisting of hydrogen peroxide.
US9909203B2	Nano-aperture fabrication using template guided thermal dewetting	A method for fabrication of metal film with nanoapertures is provided. The method includes the steps of providing a nanopatterned template including a plurality of nanostructures, depositing of the metal film onto the nanopatterned template, and thermally induced dewetting of the metal film to define the nanoapertures in the metal film by diffusion and reflow of the metal film
US9908104B2	Methanation catalyst	The invention relates to a catalyst, comprising a catalytic element disposed on a substrate, wherein said substrate has formula Ce1-xMxO2, wherein x is between about 0 and about 0.3, optionally between about 0.01 and about 0.3, and wherein M, if present, is a metallic element other than Ce, when used for catalysing a methanation reaction. There is also described use of the catalyst for catalysing a methanation reaction and a method for methanation of a feedstock including carbon monoxide and hydrogen, said method comprising contacting the feedstock with the catalyst.
US9904165B2	Method of reducing the dimension of an imprint structure on a substrate	A method of reducing the dimension of an imprint structure on a substrate, the method comprising the steps of:(a) providing a substrate having at least one imprint structure thereon, said structure being formed of an inorganic-organic compound comprising an inorganic moiety and a polymer moiety, said polymer moiety having a lower vaporization temperature than the melting point of said inorganic moiety; and(b) selectively removing at least part of the polymer moiety while enabling at least part of the inorganic moiety to form a substantially continuous inorganic phase in said imprint structure, wherein the removal of the at least part of the polymer moiety from the imprint structure reduces the dimension of the imprint structure.
US9902942B2	Chromatographic purification of virus preparations with negatively charged particles	A method of purifying a sample that includes a desired virus includes the steps of (i) providing a packed chromatographic column having negatively charged porous particles, (ii) equilibrating the column to the conditions to which the desired virus in the sample is to elute, (iii) contacting the sample with the packed chromatographic column such that the sample volume applied to the packed chromatographic column is less than or equal to the interparticle space of the negatively charged porous particles within the packed chromatographic column, (iv) eluting the desired virus from the packed chromatographic column, where the desired virus is in a purer state and in the conditions to which the packed chromatographic column was equilibrated.
US9901649B2	Block copolymers for therapeutic drug delivery	Amphiphilic block copolymers (BCPs) were prepared comprising a poly(ethylene oxide) block and a biodegradable polycarbonate block functionalized with disulfide groups and carboxylic acid groups. The BCPs form self-assembled micellar particles in aqueous solution that can be loaded with hydrophobic drugs for therapeutic drug delivery. The loaded particles have small particle sizes (<100 nm), narrow particle size distributions, and high drug loading capacity (up to about 50 wt %) based on total dry weight of the loaded particles. Particles loaded with DOX released the DOX in response to changes in pH and glutathione (GSH) redox chemistry. The loaded particles efficiently delivered and released DOX within tumor cells, effectively suppressing growth of the tumor cells at a similar or even lower drug concentration than free DOX. Blank particles containing no DOX did not induce cytotoxicity to cells.
SG11201800822RA	Il2rbeta/common gamma chain antibodies	Anti-CD122 and/or γc antibodies and fragments thereof are disclosed. Also disclosed are compositions comprising such antibodies and fragments, and uses and methods using the same.

US9897561B2	Method of detecting defects in an object based on active thermography and a system thereof	There is provided a method of detecting defects in an object based on active thermography, the method including heating a surface of the object at a plurality of localized regions thereof, selecting at least one of the localized regions as a reference region, selecting at least another one of the localized regions as a comparison region, comparing a thermal response at the comparison region to a thermal response at the reference region due to the heating, and determining whether the object has a defect based on the comparison. There is also provided a corresponding system for detecting defects in an object.
US9896741B2	Method of producing metal carbonate from an ultramafic rock material	A method of producing a metal carbonate from an ultramafic rock material is provided. The method includes providing an ultramafic rock material comprising a metal silicate; reacting the ultramafic rock material with an acid to form a mixture comprising a salt of the metal; contacting the mixture comprising a salt of the metal with oxygen so as to aerate impurities in the mixture and/or to remove residual acid from the mixture; heating the resultant mixture to decompose the salt of the metal to form metal oxide; and reacting the metal oxide with aqueous ammonium carbonate to obtain the metal carbonate. A system for producing a metal carbonate from ultramafic rock material is also provided.
US9890376B2	Chromatographic purification of polynucleotides with negatively charged particles	A method of purifying a sample that includes a polynucleotide includes the steps of (i) providing a packed chromatographic column having negatively charged porous particles, (ii) equilibrating the column to the conditions to which the polynucleotide in the sample is to elute, (iii) contacting the sample with the packed chromatographic column such that the sample volume applied to the packed chromatographic column is less than or equal to the interparticle space of the negatively charged porous particles within the packed chromatographic column, (iv) eluting the polynucleotide from the packed chromatographic column, where the polynucleotide is in a purer state and in the conditions to which the packed chromatographic column was equilibrated.
US9890205B2	Chromatographic purification of immunoglobulin G preparations with particles having multimodal functionalities	A method of purifying a sample containing a desired protein includes the steps of (i) providing a packed chromatographic column having positively charged porous particles, (ii) equilibrating the column to the conditions to which the desired protein in the sample is to elute, (iii) contacting the sample with the packed chromatographic column such that the sample volume applied to the packed chromatographic column is less than or equal to the interparticle space of the positively charged porous particles within the packed chromatographic column, (iv) eluting the desired protein from the packed chromatographic column, where the desired protein is in a purer state and in the conditions to which the packed chromatographic column was equilibrated; where the desired protein is an antibody, an antibody fragment, an antibody derivative, or an antibody fusion protein.
US9889180B2	Method of treating cancer	The present invention relates to a pharmaceutical composition comprising a histone-lysine N-methyltransferase EZH2 (enhancer of zeste homolog 2) inhibitor and an enhancer of interferon-gamma receptor activity. The invention also relates to method of treating a patient having cancer, comprising administration of the pharmaceutical composition.
US9879059B2	Tailoring multivalent interactions of biopolymers with a polyproline scaffold	A glycopeptide, comprising a polyproline backbone and one or more carbohydrate molecules.
SG11201710515SA	A modified layered clay material and composites containing the same	There is provided modified layered clay material comprising a layered clay material modified by a functionalized silsesquioxane having a functional group with at least two conjugated amine groups. There is also provided a composite containing the modified layered clay material, a method for forming the modified layered clay material and a method for forming the composite
US9863956B2	Differentiation of isobaric amino acids and other species	Techniques for differentiating isobaric species are described. An isobaric species may be substituted with a tagging species identified using mass spectrometry. The isobaric species may be a subunit of a first polymer having a defined sequence, e.g., the isobaric species may be an amino acid in a protein or a peptide sequence. A tagging species may be substituted for the isobaric species in a second polymer having an otherwise identical sequence as the first polymer. The second polymer may have the same number of sequences as the first polymer, and substantially the same sequence of subunits, with a few exceptions such as the tagging species for the isobaric species. The first polymer and the second polymer may be prepared in the same reaction vessel. A polymer/protein of defined subunit sequence containing an isobaric species or a tagging species may be analyzed by mass spectrometry to determine the sequence.
US9863937B2	Fluorescent molecular rotors	The present invention relates to methods and compositions for detecting an interaction between a protein and a ligand, comprising: (i) binding at least one fluorescent molecular rotor to said ligand or protein; and (ii) detecting a change in fluorescence emitted by said fluorescent molecular rotor after contact of the bound fluorescent molecular rotor with the other of said ligand or protein, thereby detecting an interaction between the ligand and the protein, wherein the fluorescent molecular rotor comprises: a rotating ?-bond; an electron-donating moiety; an electron-accepting moiety; and a ? conjugated linker.
US9858678B2	Method and system for human motion recognition	A system and method for human motion recognition are provided. The system includes a video sequence decomposer, a feature extractor, and a motion recognition module. The video sequence decomposer decomposes a video sequence into a plurality of atomic actions. The feature extractor extracts features from each of the plurality of atomic actions, the features including at least a motion feature and a shape feature. And the motion recognition module performs motion recognition for each of the plurality of atomic actions in response to the features.

US9854538B2	Base station, user terminals and wireless communication method	The objective of the invention is to suppress, in a case of applying the RRH system in an environment having a plurality of cells (multi-cellular environment), the reduction of the throughput of the whole system. A base station, in the RRH system in which a plurality of antenna ports are dispersively placed in each of a plurality of cells, comprises: a selection unit that selects antenna ports, to which user terminals are to connect, from among the antenna ports of the cells in which the user terminals are existent; and a power setting unit that controls the transmission powers of the antenna ports. The selection unit and power setting unit set predetermined conditions for the target SINRs(t) of the user terminals and the transmission powers of the antenna ports, and select the antenna ports for the user terminals and control the transmission powers of the antenna ports such that the smallest one of the values of the SINRs of the user terminals of the plurality of cells is maximized.
US9851288B2	Event-driven coulter counter IC for high throughput particle counting	A particle occurrence sensing circuit for microfluidic particle sensing includes a set of particle event indicators, each of which includes: a Coulter counter having a sensing electrode exposable to a fluid within a microfluidic channel and configured for providing a particle sensing signal; an input stage configured for providing an extracted particle sensing signal; and a particle event detector configured for providing a set of particle event occurrence signals. Each of the set of particle event occurrence signals indicates a sensed occurrence of a particle greater than or equal to a given reference particle size during fluid flow through the microfluidic channel to which the sensing electrode is exposed. The particle event detector includes a successive approximation (SA) analog-to-digital converter (ADC) configured for generating a plurality of reference particle size threshold values and successively comparing the extracted particle sensing signal amplitude with reference particle size threshold values.
US9845493B2	Tunable fluorescence using cleavable linkers	The invention relates to cleavable chemistry in general, and in particular, to tunable fluorescence using cleavable linkers present in fluorochrome-quencher conjugates.
CN206731337U	Burden flow resistance oscillator	The utility model discloses a burden flow resistance oscillator, a burden flow resistance oscillator include entry, export, cavity, the entry is located the upper end of cavity, the export is located the lower extreme of cavity, be equipped with the elastic construction in the middle of the cavity to it becomes to go up cavity and lower cavity to separate the cavity, going up the cavity and being equipped with the miniflow way that produces constant flow and hinder down between the cavity, cavity and lower cavity intercommunication will be gone up to the miniflow way, the utility model discloses a burden flow resistance oscillator simple structure, the operation controls is more convenient, and the robustness is good.
US9841399B2	Chemical sensor package for highly pressured environment	A package for a chemical sensor including an encapsulation and a pressure balancing structure is disclosed. The encapsulation encapsulates a chemical sensor and has a hole for exposing a chemical sensitive part of the chemical sensor. The pressure balancing structure balances pressure applied to the chemical sensor at the chemical sensitive part.
SG10201703470WA	Composite Particles Comprising Phase Change Materials	-
US9829358B2	Device for determining a property of a fluid and method of forming the same	In various embodiments, a device for determining a property of a fluid may be provided. The device may include a fluid receiving structure configured to receive the fluid having a first condition. The device may further include a flow control structure coupled to the fluid receiving structure. The flow control structure may be configured to change the first condition of the fluid to a second condition. The device may further include a determination mechanism configured to determine the property of the fluid based on the second condition. The device may also include a voltage generation mechanism a voltage generation mechanism configured to generate a voltage based on the second condition.
US9822222B2	Biodegradable and biocompatible shape memory polymers	This invention relates to shape memory block copolymers comprising: at least one switching segment having a Ttrans from 10 to 70° C.; and at least one soft segment, wherein at least one of the switching segments in linked to at least one of the soft segments by at least one linkage, and wherein the copolymer transforms from a first shape to a second shape by application of a first stimulus and the copolymer transforms back to the first shape from the second shape by application of a second stimulus. The shape memory block copolymers may be biocompatible and biodegradable.
US9823150B2	Micro-machined optical pressure sensors	A micro-machined optical pressure sensor, comprising: a diaphragm configured to deform when a force is applied thereto; and a sensing micro-ring spaced apart from the diaphragm by a gap, the gap being variable depending on the force applied on the diaphragm, wherein the sensing micro-ring is configured to produce a resonance wavelength shift when the gap is varied, the resonance wavelength shift indicative of the force applied to the diaphragm.
US9809639B2	Purification of biological products by constrained cohydration chromatography	Materials and methods for use of constrained cohydration agents in the purification of biological materials such as antibodies, viruses, cells, and cellular organelles in connection with convective chromatography, fluidized bed or co-precipitation applications.
US9808789B2	Method for regenerating a used sorbent having a gas adsorbate adsorbed thereto	The invention relates to methods for regenerating a used sorbent having a gas adsorbate adsorbed thereto. In particular, the used sorbent comprises liquid marbles. The liquid in the liquid marbles is comprised of a material or mixture of materials that selectively removes unwanted gaseous component in the gas to be purified.
US9802902B2	Antifungal compound	There is provided compound for use in therapy, the compound comprising repeating units of hydrophilic heterocyclic amine monomers that are coupled by hydrophobic linkers selected to confer a therapeutic effect. There is also provided the use of the above compound in the manufacture of a medicament for the treatment of a fungal infection and a method of treating a fungal infection using the above compound.

US9802872B2	Methanation catalyst	The invention relates to use of a catalyst comprising particles of nickel dispersed in a porous silica matrix for catalyzing a methanation reaction. There is also described a method for methanation of a feedstock at least comprising gases carbon monoxide and hydrogen, said method comprising contacting the feedstock with the catalyst.
US9802821B2	Method for preparing transition metal phosphide	There is provided a method of preparing transition metal phosphide comprising the step of mixing a solution of a transition metal precursor and a phosphorous precursor under conditions to form the transition metal phosphide. There is also provided a transition metal phosphide particle made according to the method as defined herein. There is additionally provided a method of preparing a transition metal phosphide-based electrode used for producing hydrogen in the electrolysis of water.
JP6214854B2	Method and apparatus for forming a structure on a resin	PROBLEM TO BE SOLVED: To provide a method for forming a structure on a resin base material.SOLUTION: The method includes: (a) a step of bringing a mold which has a fixed surface pattern into contact with an ultraviolet (UV) curable resin base material supported on a photodegradable amorphous polymer base material, the fixed surface pattern forming the structure on the UV curable resin base material; (b) a step of curing the UV curable resin supported on the amorphous polymer base material by exposing the UV curable resin to a UV radiation; and (c) a step of separating the resin having been cured from the mold. Also, there is provided a device for carrying out the steps.
US9790547B2	Integrated microfluidic and solid state pyrosequencing systems	The invention provides for sequencing a nucleic acid molecule based on the detection of base incorporation by the release of pyrophosphate (PPi) using a new enzyme system comprising adenosine diphosphate (ADP)-glucose pyrophosphorylase (AGPase) and its substrate ADP-glucose.
US9790503B2	VHZ for diagnosis and treatment of cancer	We provide VHZ for use in a method of treatment, prophylaxis or alleviation of a cancer, such as breast cancer, in an individual. We provide an anti-VHZ agent for the treatment, prophylaxis or alleviation of cancer. We further provide a kit for detecting breast cancer in an individual or susceptibility of the individual to breast cancer comprising means for detection of VHZ expression in the individual or a sample taken from him or her as well as a method of detecting a cancer cell, the method comprising detecting modulation of expression, amount or activity of VHZ in the cell.
US9790488B2	Mutated internal ribosomal entry site (IRES) for controlled gene expression	The present invention relates to a nucleic acid molecule comprising one or multiple mutant IRES elements. Further, the present invention relates to methods of enhancing gene expression and to methods of differentially controlling expression of one or multiple gene(s) of interest. In addition, the present invention relates to a kit for studying interactions or any application requiring co-expression of multiple genes.
US9786202B2	Robot assisted surgical training	A surgical training system and method. The system comprises means for recording reference data representing a reference manipulation of a computer generated model of an object by a master user; means for physically guiding a trainee user based on the recorded reference data during a training manipulation of the model of the object by the trainee user; and means for recording assessment data representing an assessment manipulation of the model of the object by the trainee user without guidance
SG10201701337VA	Nitro Compounds Detection Substrate And Methods Of Using The Same	-
US9768860B2	Method and system for high bandwidth and low power body channel communication	A system and method for body channel communication is provided. The system includes a transceiver which encodes multiple bits per symbol when operating in a high data rate mode by selecting a first Walsh code in response to a first set of multiple bits of data and selecting a second Walsh code in response to a second set of multiple bits of data, both Walsh codes selected from a multiple-bit Walsh code sequence. The transceiver also generates a multi-level transmission signal having a predetermined symbol frequency by stacking the first Walsh code onto the second Walsh code, and transmits the multi-level signal having the first predetermined symbol frequency through the body channel. The transceiver also has additional modes of operation which include a normal mode and a low power mode, the low power mode decoding the multiple bits from the signal in response to harmonic energy from a harmonic frequency generated by the multiple-bit Walsh code sequence. Also, the transceiver modulates an M-Sequence code with the multi-bit Walsh code sequence up to a desired frequency band associated with the predetermined frequency in order to improve auto-correlation after passing through the body channel.
US9768347B2	High speed surface plasmon coupled light emitting diodes	A light emitting diode device (LED) is provided. The LED comprises a first-doped layer on a substrate, an active layer on the first-doped layer, a second-doped layer on the active layer, and a metal layer on the second-doped layer. The second-doped layer is patterned on a surface opposite to the active layer to define a first portion and a second portion. The first portion of the second-doped layer has a first portion thickness constrained for electron-hole pairs in the active layer to couple efficiently to a surface plasmon mode at an interface of the metal layer and the second-doped layer thereby increasing the spontaneous emission rate of the LED. The second portion of the second-doped layer has a second portion thickness sufficient to ensure formation of a p-n junction in the LED.
US9754356B2	Method and system for processing an input image based on a guidance image and weights determined thereform	In various embodiments of the present disclosure, there is provided a method for processing an input image. The method includes generating a base layer portion and a detail layer portion from the input image by carrying out a linear transformation of pixels of a guidance image, and determining, fo each of the pixels of the guidance image, a variance of the pixels in a surrounding window of pixels. Further, the method includes determining, for each of the pixels of the guidance image, a weight value of the pixels based on the determined variance, wherein the pixels are weighted in the linear transformation according to the determined weight value. Accordingly, a system for processing an input image is also provided.

US9746877B2	Detecting and correcting an error in a digital circuit	A method for detecting and correcting an error in a circuit is provided. The circuit is configured to receive an input signal and clock the input signal with a rising and falling timing signal. The method includes detecting late arrival signal transition of the input signal, at an intermediate point of a path, the path being one through which the input signal transits. The method further includes predicting an error in the input signal in response to detecting the late arrival signal transition at the intermediate point of the path. In addition, the method includes correcting the error in the input signal by manipulating the timing signal and/or a supply voltage.
US9738704B2	Binding molecules against Chikungunya virus and uses thereof	The invention relates to binding molecules against Chikungunya virus, which are able of neutralizing Chikungunya virus infectivity, and which can be used with therapeutic, diagnosis or research purposes, as well as to a pharmaceutical composition comprising said binding molecules.
US9734954B2	Conducting polymer/graphene-based material composites, and methods for preparing the composites	A composite comprising a conducting polymer and a graphene-based material is provided. The composite includes a graphene-based material doped with nitrogen or having a nitrogen-containing species grafted thereon, and a conducting polymer arranged on the graphene-based material. Methods of preparing the composite, and electrodes formed from the composite are also provided.
US9731997B2	Multilayer heat rejection coating	There is provided a multilayer coating comprising a plurality of layers comprising a) one or more layers of an elemental transition metal; b) one or more layers of an elemental metalloid; and c) two or more layers of an oxide; characterized in that the transition metal and metalloid layers are between the oxide layers and the plurality of layers does not need to contain an additional transparent conductive film (TCF). The multilayer coatings show high transparency in the visible light range combined with heat shielding without the need of transparent conductive oxide which have been previously used to achieve these properties. The multilayers can be produced with conventional physical vapor deposition methods on glass and polymer substrates. The coatings may therefore be used for applications on windows, plastic sheets and window shields. The invention relates also to the process for making the multilayer coatings, articles comprising them and their use in building and other applications.
US9727566B2	Selecting adaptive secondary content based on a profile of primary content	A content adaptation method includes: obtaining a primary metadata profile associated with a particular time point of primary content; obtaining secondary metadata profiles each associated with corresponding secondary content of a plurality of secondary content; identifying one of the plurality of secondary content associated with a secondary metadata profile having a desired similarity value with the primary metadata profile associated with the primary content; and matching the identified secondary content with the particular time point of the primary content.
US9718957B2	Biodegradable organic radical-functionalized polycarbonates for medical applications	Paramagnetic, amphiphilic, biocompatible polymers were prepared comprising a carbonate repeat unit bearing a paramagnetic organic radical, more specifically a nitroxyl radical. The radical polymers can be produced in one step from a precursor polymer bearing an active ester side chain by treating the precursor polymer with a radical-bearing nucleophile. The precursor polymer can be prepared by organocatalyzed catalyzed ring opening polymerization (ROP) of a cyclic carbonate monomer bearing an active ester side chain. The radical polymers can be non-toxic and partially biodegradable. The radical polymers have utility as contrast enhancing agents in a medical imaging application and/or as therapeutic agents for treating a medical condition. The radical polymers can also serve as carriers for therapeutic agents (e.g., drugs) and/or medical image enhancing agents (e.g., NIRF dyes).
US9717430B2	Real-time multi-functional ECG signal processing system, DSPE for the ECG signal processing system, and method thereof	An electrocardiogram (ECG) signal processing system is provided. The ECG signal processing system comprises an analog-to-digital converter (ADC) configured to convert an input analog ECG signal into a digital ECG signal, and a digital signal processing engine (DSPE) coupled to the ADC to receive the digital ECG signal. The DSPE is configured to decompose and reconstruct the digital ECG signal. A dynamic system clock source is coupled to the ADC and the DSPE for dynamic signal sampling, the dynamic system clock source clocking the ADC and the DSPE at a first frequency f1 to detect one or more first parameters of the input analog ECG signal and at a second frequency f2 to detect one or more second parameters of the input analog ECG signal.
US9715640B2	Robust graph representation and matching of retina images	A numerical parameter indicative of the degree of match between two retina images is produced by comparing two graphs obtained from the respective images. Each graph is composed of edges and vertices. Each vertex is associated with a location the corresponding retina image, and with descriptor data describing a part of the corresponding retina image proximate the corresponding location.
US9710908B2	Method and system for assessing fibrosis in a tissue	A method for assessing fibrosis in a tissue is proposed. The method uses a test image which is an image of the tissue and comprises identifying, from the test image, a portal collagen area, a septal collagen area and a fibrillar collagen area respectively comprising pixels representing portal collagen, septal collagen and fibrillar collagen of the tissue, obtaining quantitative values of one or more features for each identified area based on characteristics of the identified area in the test image and assessing fibrosis using the quantitative values obtained for all the identified areas.
US9707228B2	Dry powder formulation	A dry powder formulation comprising a combination of at least a first pharmaceutically active quinolone and a second pharmaceutically active quinolone.

US9707563B2	Reagent fluid dispensing device, and method of dispensing a reagent fluid	According to various embodiments, a reagent fluid dispensing device may be provided. The reagent fluid dispensing device may include a chamber for receiving a reagent fluid, the chamber having a first opening and a second opening; a first fluid conduit connected to the first opening of the chamber; a reservoir connected to the first fluid conduit, the reservoir having a first opening, wherein the first opening of the reservoir is connected to the first fluid conduit to form a passive valve, wherein the reservoir is dimensionalized for storing a predetermined volume of the reagent fluid; and a pneumatic conduit connected to the second opening of the chamber, wherein selective application of pneumatic pressure to the chamber through the pneumatic conduit transfers the reagent fluid from the reservoir to the chamber through the first fluid conduit. According to various embodiments, a microfluidic device including the reagent fluid dispensing device, and a method of dispensing a reagent fluid may be provided.
US9701585B2	Electro-optic ceramic materials	The present invention provides a product and manufacturing method for electro-optic ceramic material having the composition (A′(1-y)A″y)1-XLnxM(1-2X/5)O3 wherein 0<x<0.1; 0<y<1; A′ and A″ are independently, alkali metals; Ln is a lanthanide metal; and M is a transition metal. The present invention provides a product and manufacturing method for an electro-optic device that is operable at room temperature and the properties of which are tunable by an applied external electric field
US9694127B2	Bioreactor unit for use in bioartificial kidney device	There is provided a bioreactor device having cells, including human primary proximal tubule cells (HPTCs) or HPTC-like cells on the exterior surface of hollow fiber membranes included within the device. Also provided are bioartificial kidney devices incorporate the bioreactor device and methods of using such devices.
US9698427B2	Particle exhibiting catalytic activity	A particle exhibiting catalytic activity comprising (a) an inner core formed of an alloy material; and (b) an outer shell formed of a metal material surrounding the inner core, wherein the alloy material is selected such that the inner core exerts a compressive strain on the outer shell.
US9695216B2	Materials and methods for removing endotoxins from protein preparations	A method includes (i) adding allantoin in a supersaturating amount to a protein preparation including a desired protein and at least one endotoxin as a contaminant, (ii) removing solids after the adding step to provide a sample for further purification by void exclusion chromatography on a packed particle bed of electropositive particles in a column, the packed particle bed having an interparticle volume, (iii) applying a sample volume to the packed particle bed, wherein the electropositive particles support void exclusion chromatography, and wherein the sample volume is not greater than the interparticle volume, and (iv) eluting a purified sample including the desired protein and a reduced amount of the endotoxin. The method is optionally carried out with only the allantoin treatment or only the void exclusion chromatography.
US9697894B2	Methods and circuit arrangements for determining resistances	A method may include applying a first current through the memory element and a first selection component. The memory element and the first selection component may be located along a memory line. The method may also include measuring a first potential difference across the memory line. The method may further include applying a second current through a second selection component, wherein the second selection component is located along a dummy line, and measuring a second potential difference across the dummy line. The method may additionally include determining the resistance of the memory element based on the first potential difference and the second potential difference. The first selection component may be activated and the second selection component may be deactivated to apply the first current. The first selection component may be deactivated and the second selection component may be activated to apply the second current.
US9684959B2	Methods and systems for automatic location of optic structures in an image of an eye, and for automatic retina cup-to-disc ratio computation	A method is proposed for automatically locating the optic disc or the optic cup in an image of the rear of an eye. A portion of the image containing the optic disc or optic cup is divided into sub-regions using a clustering algorithm. Biologically inspired features, and optionally other features, are obtained for each of the sub-regions. An adaptive model uses the features to generate data indicative of whether each sub-region is within or outside the optic disc or optic cup. The result is then smoothed, to form an estimate of the position of the optic disc or optic cup.
US9675962B2	Perovskite-type strontium titanate	The present invention relates to a perovskite-type strontium titanate, wherein the strontium titanate is Y- and Ni-doped and has the general formula (Sr,Y)(Ti,Ni)O3. A method of preparing the perovskite-type strontium titanate and its use are also provided
US9679379B2	Cost-sensitive linear reconstruction based optic cup localization	A method is presented to obtain, from a retinal image, data characterizing the optic cup, such as data indicating the location and/or size of the optic cup in relation to the optic disc. A disc region of the retinal image of an eye, is expressed as a weighted sum of a plurality of pre-existing “reference” retinal images in a library, with the weights being chosen to minimize a cost function. The data characterizing the cup of the eye is obtained from cup data associated with the pre-existing disc images and the corresponding weights. The cost function includes (i) a construction error term indicating a difference between the disc region of the retinal image and a weighted sum of the reference retinal images, and (ii) a cost term, which may be generated using a weighted sum over the reference retinal images of a difference between the reference retinal images and the disc region of the retinal image.
US9678574B2	Computing system utilizing three-dimensional manipulation command gestures	A computing system utilizing three-dimensional manipulation command gestures. An embodiment of an apparatus includes a sensing element to sense a presence or movement of a user of the apparatus, a processor, wherein operation of the processor includes interpretation of command gestures of the user to provide input to the apparatus, and a display screen to provide a display. The command gestures include one or more command gestures to manipulate at least a portion of the display, the one or more command gestures being gestures including motion along an axis between the display screen and the user.

US9672226B2	Method to identify an object and a system for doing the same	Various embodiments relate to a method to identify an object comprising: receiving an image, the image having an object in front of a background; segmenting the image into a segmented image using a segmentation technique, the segmented image having a foreground component showing at least a part of the object and a background component showing at least a part of the background; determining at least one property of the foreground component of the segmented image; and matching the at least one property of the foreground component with a database of identified objects having the corresponding at least one property to identify the object.
US9670462B2	Bioactive surface for hepatocyte-based applications	The invention provides a surface, wherein said surface comprises (i) a polymer substrate and (ii) sugar groups and peptide groups coupled to said substrate suitable for culturing hepatocytes.
US9668168B2	Method and device for mobile data offload	Embodiments provide a mobile data offload method for associating a mobile client device with a wireless access point. The method may include transmitting a first authentication request from the mobile client device to the wireless access point via a first network being a Cellular Wide Area radio communication network; transmitting a second authentication request from the mobile client device to the wireless access point via a second network being a Short Range radio communication network or a Metropolitan Area System radio communication network; transmitting an authentication response from the wireless access point to the mobile client device via the second network upon receiving at least one of the first authentication request and the second authentication request at the wireless access point, and associating the mobile client device with the wireless access point upon receiving the authentication response at the mobile client device.
US9663874B2	Device for manufacturing polymer fibers and uses thereof	There is provided a device, and related method and uses, for drawing a polymer fiber, the device comprising: a. at least two polymer compartments, wherein each polymer compartment is capable of retaining a polymer solution, and wherein adjacent compartments comprise different polymer solutions; and b. a slider comprising at least one prong, wherein the prong is capable of contacting the different polymer solutions, and wherein the slider is arranged in a retractable manner from the at least two polymer compartments. There is further provided a system and a related method for manufacturing a polymer fiber.
US9650237B2	Electromechanical device including a suspended structure and method of fabricating the same	An electromechanical device and method of fabrication thereof comprising: providing a first wafer with a circuit arrangement on a first surface thereof and a first electrode on a second surface thereof; forming first and second via structures from the first surface to the second surface of the first wafer, said first via electrically connecting the first electrode with the circuit arrangement; providing a second wafer with a suspended structure on a first surface thereof; forming a second electrode on the suspended structure; forming an interconnect structure on the first surface of the second wafer that electrically connects with the second electrode; bonding the first wafer to the second wafer with the second surface of the first wafer facing the first surface of the second wafer, with the second via structure electrically connecting the circuit arrangement to the interconnect structure, and the first and second electrodes forming a capacitive structure.
US9647183B2	Vertical light emitting diode with photonic nanostructures and method of fabrication thereof	There is provided a method of fabricating a vertical light emitting diode which includes forming a light emitting diode structure. Forming the light emitting diode structure includes: forming a first material layer of a first conductivity type, forming a second material layer of a second conductivity type, forming a light emitting layer between the first material layer and the second material layer, and forming a plurality of generally ordered photonic nanostructures at a surface of the first material layer through which light generated from the light emitting layer is emitted for enhancing light extraction efficiency of the vertical light emitting diode. In particular, forming a plurality of generally ordered photonic nanostructures includes forming a self-assembled template including generally ordered nanoparticles on the surface of the first material layer to function as a mask for forming the photonic nanostructures at said surface of the first material layer. There is also provided a vertical light emitting diode with the self-assembly derived ordered nanoparticles.
US9644234B2	Methods and device to balance radiation transference	A method and device for adjusting the temperature of a sample by heating a substrate with a laser diode light; said light projected on to the substrate to absorb the light and convert the light energy to a heat energy thereby raising the temperature of the substrate corresponding to the intensity of the light energy, the substrate configured to transfer the thermal energy substantially homogenously to the sample. The device or method suitable for amplification of a nucleic acid sample.
US9642360B2	Antimicrobial polymers formed by bulk polyaddition	Cationic antimicrobial polymers have been synthesized by a bulk addition polymerization of a nucleophilic agent comprising two tertiary amines and an electrophilic agent that comprises two leaving groups and an aromatic ring between the leaving groups. The reaction solvent for the polymerization is chosen to allow precipitation of the cationic polymer at the polymerization temperature, thereby limiting molecular weight. Quaternization and polymerization occur concurrently. The cationic polymers can be highly active against Gram-negative and Gram-positive microbes, and/or fungi. The cationic polymers can also be non-hemolytic and non-cytotoxic at the effective concentration against the microbes.
US9637724B2	Selective binding of biological targets to solid phase ureides	A method of selectively separating a biological target from a sample including the biological target material or suspected of including the biological target includes the steps of (i) providing a solid including ureide moieties at its surface, (ii) contacting the sample with the solid, whereby a substantial fraction of the biological target in the sample binds to the ureide moieties, and (iii) separating the solid from the sample.

US9636639B2	Porous metallic membrane	The present disclosure relates to a method of forming a metallic layer having pores extending therethrough, the method comprising the steps of: (a) contacting a cathode substrate with an electrolyte solution comprising at least one cation; reducing the cation to deposit the metallic layer on a surface of the cathode substrate; and (c) generating a plurality of non-conductive regions on the cathode substrate surface during reducing step (b); wherein the deposition of the metallic layer is substantially prevented on the non-conductive regions on the cathode substrate surface to thereby form pores extending through the deposited metallic layer. The present disclosure further provides a metallic porous membrane fabricated by the disclosed process.
US9637592B2	Vitamin functionalized gel-forming block copolymers for biomedical applications	Gel-forming block copolymers were prepared comprising i) a central hydrophilic block consisting essentially of a divalent poly(ethylene oxide) chain and ii) two peripheral monocarbonate or polycarbonate hydrophobic blocks. The hydrophobic blocks comprise one or more vitamin-bearing subunits. The vitamin-bearing subunits comprise a carbonate backbone portion and a side chain comprising a covalently bound form of a vitamin. The gel-forming block copolymers can be used to prepare various biodegradable and/or biocompatible hydrogel and organogel drug compositions, in particular antimicrobial and/or anti-tumor drug compositions. The hydrogel compositions can be suitable for depot injections. Synergistic enhancement of toxicity to microbes was observed with compositions comprising an antimicrobial cationic polymer and an antimicrobial compound.
US9631050B2	Antimicrobial cationic polycarbonates	Antimicrobial cationic polymers having one or two cationic polycarbonate chains were prepared by organocatalyzed ring opening polymerization. One antimicrobial cationic polymer has a polymer chain consisting essentially of cationic carbonate repeat units linked to one or two end groups. The end groups can comprise a covalently bound form of biologically active compound such as cholesterol. Other antimicrobial cationic polymers have a random copolycarbonate chain comprising a minor mole fraction of hydrophobic repeat units bearing a covalently bound form of a vitamin E and/or vitamin D2. The cationic polymers exhibit high activity and selectivity against Gram-negative and Gram-positive microbes and fungi.
US9633685B2	Method of writing to an optical data storage medium, method of reading from an optical data storage medium, and optical data storage medium	According to embodiments of the present invention, a method of writing to an optical data storage medium is provided. The method includes receiving a plurality of data elements, each data element having one of a plurality of values, wherein each value of the plurality of values is associated with a wavelength, and forming, for each data element, a nanostructure arrangement on the optical data storage medium, the nanostructure arrangement configured to reflect light of the wavelength associated with the value of the data element in response to a light irradiated on the optical data storage medium. According to further embodiments of the present invention, a method of reading from an optical data storage medium and an optical data storage medium are also provided.
US9627621B2	Polymeric semiconductors, devices, and related methods	A polymer comprises a polymeric chain represented by formula (I) or (II). In formula (I) a, b, d, and n are integers, a from 0 to 3, b from 1 to 5, c from 1 to 3, d from 1 to 5, and n from 2 to 5000; R1 and R2 are side chains; R3 and R4 are each independently H or a side chain; and when a is 0, R3 and R4 are side chains. In formula (II), a, b, c, d, e, and n are integers, a from 1 to 3, b and c being independently 0 or 1, d and e being independently 1 or 2, and n from 2 to 5000; R1 and R2 are side chains except —COOalkyl; and X1, X2 and X3 are independently O, S, or Se. Semiconductors and devices comprising the polymer are also provided.
US9627633B2	Perylene functionalized porphyrin dyes for dye-sensitized solar cells	The invention relates to dyes for dye-sensitized solar cells, and in particular, to perylene functionalized porphyrin dyes for dye-sensitized solar cells. The invention further relates to a dye molecule comprising perylene functionalized porphyrin moiety.
US9613928B2	Method and apparatus for chip-to-wafer integration	An apparatus and a method for chip-to-wafer integration is provided. The apparatus includes a coating module, a bonding module and a cleaning module. The method includes the steps of placing at least one chip on a wafer to form an integrated product, forming a film on the integrated product, such that the integrated product is substantially fluid-tight, and exerting a predetermined positive pressure on the film during permanent bonding of the at least one chip to the wafer. The method further includes the step of removing the film from the integrated product after permanent bonding of the at least one chip to the wafer.
US9614599B2	Method for determining precoding matrixes for communication and a system therefrom	In various embodiments of the present disclosure, there is provided a method for determining precoding matrixes for a communication of a first base station and a second base station with a first mobile station and a second mobile station. Precoding matrixes for a plurality of signal channels between the base stations and the mobile stations are determined based on a signal to noise ratio (SNR) consideration. Accordingly, the method can include determining a first set of precoding matrixes based on a predetermined consideration of SNR between the first base station and the second base station and the first mobile station and the second mobile station and generating a second set of precoding matrixes based on the first set of precoding matrixes. A corresponding system for carrying out a determination of precoding matrixes is provided.
US9601174B2	Magnetoelectric device, method for forming a magnetoelectric device, and writing method for a magnetoelectric device	A magnetoelectric device is provided. The magnetoelectric device includes a reference magnetic layer structure having a fixed magnetization orientation, and a synthetic antiferromagnetic layer structure including a free magnetic layer structure and a coupling magnetic layer structure antiferromagnetically coupled to each other, each of the free magnetic layer structure and the coupling magnetic layer structure having a magnetization orientation that is variable, wherein the reference magnetic layer structure and the synthetic antiferromagnetic layer structure are arranged one over the other. According to further embodiments of the present invention, a method for forming a magnetoelectric device and a writing method for a magnetoelectric device are also provided.
US9586884B2	Metal-doped hydroxyapatite catalyst	The present invention provides the use of a metal-doped hydroxyapatite catalyst for highly selective conversion of an alcohol to an aldehyde at low temperatures. More specifically, the invention provides the use of a silver-doped hydroxyapatite catalyst for the highly selective oxidative dehydrogenation of ethanol to acetaldehyde. The present invention also provides the method for converting ethanol to acetaldehyde using a silver-doped hydroxyapatite catalyst.

US9586878B2	Method for synthesizing a sugar alcohol	A method for synthesizing a sugar alcohol comprising the step of hydrolyzing a polysaccharide in the presence of hydrogen ions (H+), an alcoholic reducing agent and a hydrogen transfer catalyst to form the sugar alcohol.
US9581807B2	Supply independent and programmable non-resonant MEMS driver	A motor driver circuit for a Micro-electro-mechanical systems (MEMS) micro-mirror device, the motor driver circuit comprising: a non-inverting buffer circuit; an inverting buffer circuit; and a scalar circuit, the scalar circuit comprising a Supply Tracked Common Mode Voltage (VCMSC) generation circuit, wherein the non-inverting buffer circuit, the inverting buffer circuit, and the scalar circuit are configured, together with the VCMSC generation circuit, to provide a common mode voltage to a motor in response to a VCMSC voltage generated by the VCMSC generation circuit, and wherein the VCMSC voltage is generated by the VCMSC generation circuit in response to a control supply voltage and a driver supply voltage provided to the VCMSC generation circuit.
US9577620B2	Printed circuit arrangement and method of forming the same	In various embodiments, a printed circuit arrangement may be provided. The printed circuit arrangement may include a processor circuit. The printed circuit arrangement may further include a printed main circuit arrangement in electrical connection with a first input node of the processor circuit. The printed main circuit arrangement may be configured to receive at least one input signal and generate a main circuit signal based on the at least one input signal after a first delay from receiving the at least one input signal. The printed circuit arrangement may further include a printed reference circuit arrangement in electrical connection with a second input node of the processor circuit. The printed reference circuit arrangement may be configured to receive a further input signal, may have a second delay and may be configured such that the second delay adapts to the first delay.
US9568466B2	In vitro assay for predicting renal proximal tubular cell toxicity	There is provided an in vitro assay for screening a test compound for toxicity in renal proximal tubular cells. The method comprises contacting a test compound with a test population of renal proximal tubular cells; and examining one or more cell morphology features, examining one or more cytoskeleton features, and/or determining cell numbers of the renal proximal tubular cells in the test population and comparing such cell morphology, arrangement of cytoskeletal components and/or cell count with the respective features of a control population. A change in one or more cell morphology features, a change in arrangement of one or more cytoskeleton features or a decrease in cell numbers of the test population relative to the control population is indicative that the test compound is toxic for renal proximal tubular cells.
US9557957B2	System and method for developing a model indicative of a subject's emotional state when listening to musical pieces	A method for deriving optimal discriminating features indicative of a subject state when the subject listens to one of a set of musical pieces, comprising a step of extracting frequency features from the subject's EEG signal when the subject is in a first subject state and a second subject state, the frequency features being extracted from more than one frequency band in one set of time segments; and identifying optimal discriminating features from the extracted frequency features, the optimal discriminating features indicative of characteristics of the EEG signal when the subject is in the first subject state and the second subject state, wherein one of the first subject state and the second subject state indicates that the subject likes a musical piece while the other state indicates that the subject does not like the musical piece.
US9548762B2	Normalization factor adaptation for LDPC decoding for hard disk drive systems	An adaptation technique for decoding low-density parity-check (LDPC) codes for hard disk drive (HDDs) systems is disclosed. The method includes tuning the normalization factor for LDPC decoding for each data zone and read head during the test stage of manufacturing. The LDPC decoder can be either a sum-product algorithm (SPA) decoder or a Min-Sum decoder. The channel detector can be any soft-output detector, such as a soft-output Viterbit detector (SOVA), a BCJR detector, a pattern-dependent noise-predictive (PDNP) detector, or a bi-directional pattern-dependent noise-predictive (BiPDNP) detector. The adaptation technique can optimize the LDPC decoding performance for each data zone and read head, thereby relaxing the acceptance criteria for hard disk drive read/write heads and disk media, enabling acceptance and use of a much broader range of head and media for hard disk drives.
US9539222B2	Methods to inhibit intracellular growth of bacteria and to treat bacteria-mediated diseases	Disclosed is a method of preventing, treating or inhibiting bacterial infections. The method comprises administering at least one of the compounds disclosed herein. Also disclosed are methods of increasing acidity of bacterial phagosomes to inhibit bacterial growth, methods of increasing mitochondrial reactive oxygen species (mROS) generation to inhibit bacterial growth in a cell, pharmaceutical compositions and uses thereof.
US9538934B2	Brain-computer interface system and method	A method of training a classification algorithm for a Brain Computer Interface (BCI). The method includes the steps of: dividing a Electroencephalography (EEG) signal into a plurality of time segments; for each time segment, dividing a corresponding EEG signal portion into a plurality of frequency bands; for each frequency band, computing a spatial filtering projection matrix based on a Common Spatial Pattern (CSP) algorithm and a corresponding feature, and computing mutual information of each corresponding feature with respect to one or more motor imagery classes; for each time segment, summing the mutual information of all the corresponding features with respect to the respective classes; and selecting the corresponding features of the time segment with a maximum sum of mutual information for one class for training classifiers of the classification algorithm.
US9533023B2	EIF4E binding peptides	The present invention relates to modified eIF4G1 peptides, uses thereof and pharmaceutical compositions comprising the modified eIF4G1 peptides.

CN103056363B	Powder feed nozzle, assembly and method for manufacturing a laser-assisted additives	The invention provides an inner nozzle portion used for a powder feeding nozzle. The inner nozzle portion can be coaxially disposed in an outer nozzle portion of the powder feeding nozzle. The inner nozzle portion comprises an upper portion having a plurality of determined shapes disposed on a surface of the upper portion, the determined shapes being configured to operate power flows flowing through the surface of the upper portion; and a lower portion having a substantially flat cone-shaped surface so as to form a channel between the substantially flat cone-shaped surface and an inner surface of the outer nozzle portion when the inner nozzle portion is connected to the outer nozzle portion. The inner nozzle portion is communicated with the inlet of the power feeding nozzle so as to receive the power flows for flowing through the surface of the upper portion and passing through the channel and flowing to a power discharging port of the channel. The invention also provides the powder feeding nozzle of the inner nozzle portion coaxially disposed in the outer nozzle portion, and components and methods of the powder feeding nozzle for manufacturing laser assisted additive.
US9521685B2	Circuit arrangement and method of determining a priority of packet scheduling	The present invention is a circuit arrangement for a wireless cellular network. The circuit arrangement includes a determiner configured to determine a priority value of each packet of a plurality of packets based on at least a position of a video frame in a group of pictures and a type of the video frame, the video frame or a part thereof being contained in the packet, wherein the type of video frame comprises I frame data or P frame data; and wherein the determiner is further configured to set the priority value of a packet including I frame data lower than the priority value of at least one other packet including P frame data; and a controller configured to control scheduling of the packet based on the determined priority value for a communication device in a wireless cellular network. A method of determining a priority of packet scheduling is also disclosed.
US9517252B2	P53 activating peptides	The present invention is directed to p53 activating peptides. The present further describes methods for generating these peptides and the use of these peptides.
US9513294B2	Megastokes amino-triazolyl-BODIPY compounds and applications to live neuron staining and human serum albumin FA1 drug site probing	A library of novel amino-triazolyl-BODIPY compounds is described. Particular compounds of the library serve as selective fluorescent probes for human serum albumin (HSA) and for live primary neurons. The fluorescent probe for HSA binds uniquely and specifically to the fatty acid site 1 of HSA, and thus proves a valuable and unique probe for drugs that bind to such a site on HSA. Methods of synthesis for the library compounds are also described.
US9506110B2	Processing of amplified DNA fragments for sequencing	A processing method to trim ends of DNA fragments, exposing the internal DNA part to give original DNA sequence information enabling application of next generation sequencing for DNA samples to be amplified by DOP-PCR or other primer dependent amplification methods. Specifically, nucleic acids are amplified using primers comprising a recognition site for a restriction enzyme, for example BpmI or MmeI. Primer sequences are removed by cleavage with the restriction enzyme.
US9508140B2	Quantifying curvature of biological structures from imaging data	A method and system are proposed to obtain quantitative data about the shape of a biological structure, and especially a heart ventricle. A set of three-dimensional input meshes are generated from MRI data. They represent the shape of a ventricle at successive times. The input meshes are used to generate a set of three-dimensional morphed meshes which have the same number of vertices as each other, and have respective shapes which are the shapes of corresponding ones of the input meshes. Then, for each of the times, shape analysis is performed to obtain a curvedness value at each of a plurality of corresponding locations in the morphed meshes. The curvedness value may be used to obtain a curvedness rate at each of the locations, indicative of the rate of change of curvedness with time at each of the locations.
US9510121B2	Transducer and method of controlling the same	According to embodiments of the present invention, a transducer is provided. The transducer includes a substrate, and a diaphragm suspended from the substrate, wherein the diaphragm is displaceable in response to an acoustic signal impinging on the diaphragm, wherein the transducer is configured, in a first mode of operation, to determine a direction of the acoustic signal based on a first displacement of the diaphragm in the first mode of operation, and to decide to accept or reject the acoustic signal based on at least one predetermined parameter and the determined direction of the acoustic signal, and in a second mode of operation, to sense the acoustic signal based on a second displacement of the diaphragm in the second mode of operation if the acoustic signal is accepted in the first mode of operation.
US9505612B2	Method for thin film encapsulation (TFE) of a microelectromechanical system (MEMS) device and the MEMS device encapsulated thereof	A method for thin film encapsulation (TFE) of a microelectromechanical system (MEMS) device, including providing a substrate; forming a MEMS device on the substrate; forming one or more etching channels adjacent to the MEMS device; providing one or more cavities below the MEMS device; and forming one or more cavities above the MEMS device.
US9499601B2	Molecular probe for sphingolipids	There is presently provided a probe comprising an isolated sphingolipid binding domain (SBD) polypeptide, wherein the isolated SBD polypeptide is capable of binding to a sphingolipid, and methods and uses relating to such a probe.
US9492952B2	Super-hydrophilic structures	A polydioxanone film comprising substantially cylindrical polydioxanone pillars on at least one side thereof, said pillars having diameters from about 0.2 μm to about 3 μm, and heights from about 2 μm to about 20 μm from the surface of the film, a process for adsorbing proteins using the film and medical devices incorporating the film.

US9494562B2	Method and apparatus for defect detection in composite structures	Methods and apparatus for non-destructive testing of a composite structure utilizing sonic or ultrasonic waves. In response to a wideband chirp wave sonic excitation signal transmitted from a probe to the composite structure, a probe signal received is correlated with a library of predetermined probe signals and a graphical representation of defects detected is generated. The graphical representation provides detailed information on defect type, defect location and defect shape. Also contemplated is a probe for non-destructive testing of a composite structure comprising three or more transducers wherein each transducer is separately configurable as a transmitter or as a receiver; and a controller coupled to each of transducer for providing signals thereto and receiving signals therefrom, wherein the signals provided thereto include signals for configuring each transducer as either a transmitter or a receiver, and signals for providing an excitation signal from each transducer which is configured as a transmitter.
US9489950B2	Method and system for dual scoring for text-dependent speaker verification	Embodiments of systems and methods for speaker verification are provided. In various embodiments, a method includes receiving an utterance from a speaker and determining a text-independent speaker verification score and a text-dependent speaker verification score in response to the utterance. Various embodiments include a system for speaker verification, the system comprising an audio receiving device for receiving an utterance from a speaker and converting the utterance to an utterance signal, and a processor coupled to the audio receiving device for determining speaker verification in response to the utterance signal, wherein the processor determines speaker verification in response to a UBM-independent speaker-normalized score.
US9481827B2	Core-shell nanoparticle and method of generating an optical signal using the same	A core-shell nanoparticle is provided. The core-shell nanoparticle has a core comprising a metal fluoride doped with a first sensitizer and a shell surrounding the core, wherein the shell comprises a first layer comprising the metal fluoride doped with a second sensitizer and a first activator, and a second layer comprising the metal fluoride doped with a third sensitizer and a second activator, wherein the first activator and the second activator are different, and each is independently selected from the group consisting of Tm3+, Ho3+, and combinations thereof. A method of generating an optical signal using the core-shell nanoparticle and a method of preparing the core-shell nanoparticle is also provided.
SG10201602185SA	Optical Light Source And Method Of Controlling The Same	-
US9469726B2	Water soluble polycarbonates for medical applications	Water soluble biodegradable polymers were prepared by an organoacid catalyzed ring opening polymerization (ROP) of a cyclic carbonate monomer bearing an active ester side chain. The initial polymer comprising an active ester side chain was treated with an amino-alcohol, which transformed the active ester groups to N-substituted amide groups bearing mono-hydroxy alkyl groups and/or dihydroxy alkyl groups, thereby forming the water soluble polymers. The water-soluble polymers are non-toxic and exhibit stealth properties in buffered serum solution.
US9458431B2	Microcarriers for stem cell culture	We disclose a particle comprising a matrix coated thereon and having a positive charge, the particle being of a size to allow aggregation of primate or human stem cells attached thereto. The particle may comprise a substantially elongate, cylindrical or rod shaped particle having a longest dimension of between 50 μm and 400 μm, such as about 200 μm. It may have a cross sectional dimension of between 20 μm and 30 μm. The particle may comprise a substantially compact or spherical shaped particle having a size of between about 20 μm and about 120 μm, for example about 65 μm. We also disclose a method of propagating primate or human stem cells, the method comprising: providing first and second primate or human stem cells attached to first and second respective particles, allowing the first primate or human stem cell to contact the second primate or human stem cell to form an aggregate of cells and culturing the aggregate to propagate the primate or human stem cells for at least one passage. A method of propagating human embryonic stem cells (hESCs) in long term suspension culture using microcarriers coated in Matrigel or hyaluronic acid is also disclosed. We also disclose a method for differentiating stem cells.
CN102780418B	A self-powered remote control device	The invention provides a self-Powered remote control device. Users shake the remote control device to generate electric energy for operating the device, and the self-Powered remote control device comprises a movable body, such as a steel ball which can moves in a larger shell freely. When users shake the remote control device, the steel ball impacts the shell edge and a piezoelectric sensor arranged in the shell, and then, the generated electricity passes a step-down transformer, is rectified by a diode, and then is used to charge an electricity storage medium, such as a capacitor. The capacitor utilizes the electric energy to supply a coder and a wireless signal emitter with power. When users press the buttons on the remote control device, the coder executes coding operations according to the pressed buttons, emits the coded signal to the wireless signal emitter, and the wireless signal emitter sends out the coded signal from the remote control device.
US9454428B2	Error correction method and module for non-volatile memory	There is provided an error correction method for a non-volatile memory. The method includes receiving a codeword read from the non-volatile memory, computing a reliability information for each bit of the codeword received, and performing a reduced-complexity soft-decision decoding (SDD) technique to decode the received codeword. In particular, the SDD technique includes forming a set of test patterns based on the reliability data, and determining whether to perform a HDD of a test pattern in the set of test patterns based on a distance between the test pattern and a candidate pattern. There is also provided an error correction module for a non-volatile memory and a memory system incorporating the error correction module.

US9447407B2	Double coating procedure for the membranes of bioartificial kidneys	The present invention generally relates to modified substrates such as membranes for use in bioartificial organs, such as bioartificial kidneys, and other applications. Certain aspects are generally directed to a membrane or other substrate modified to facilitate the attachment of cells. In one set of embodiments, the substrate or membrane may be at least partially coated with an adhesive such as 3,4-dihydroxy-L-phenylalanine (DOPA), poly(dopamine), or other adhesive comprising a molecule having a catechol moiety, for example on one side of the membrane or substrate. On at least a portion of the adhesive coated portion of the substrate, a protein may be coated, such as an extracellular matrix protein (for example, a collagen), to which cells such as primary human renal proximal tubule cells may be adhered. Surprisingly, such a dual coating may be used to promote the attachment of such cells to a membrane or other substrate that otherwise may not promote cell adhesion. In certain embodiments, the coating may also facilitate or promote not only cell adhesion, but also cell proliferation and/or differentiation. Such membranes or other substrates may be useful, for example, in bioartificial organs such as bioartificial kidneys, hemodialysis cartridges, bioimplants, biosensors, bioreactors, etc. In certain embodiments, cells may be attached to a membrane or other substrate on only one side, while the other side may be kept free of attached cells.
US9450175B2	Method for preparing a lead-free piezoelectric thin film	The present invention discloses a method of preparing a lead-free piezoelectric thin film comprising the steps of: providing a precursor solution comprising at least one alkali metal ion, a polyamino carboxylic acid, and an amine; depositing the precursor solution on a substrate to form a film; and annealing the film. The present invention also provides a lead-free piezoelectric thin film prepared according to the method, a precursor solution for use in the method and a method of preparing the precursor solution.
US9439886B2	Methods for producing crosslinked flavonoid hydrogels	There is provided methods for producing a hydrogel comprising conjugates of a hydrogel forming agent and a flavonoid including a method for producing a hydrogel that is capable of adhesion of cells and which comprises enzymatically cross-linked conjugates of a hydrogel forming agent and a flavonoid. There is also provided a method for producing a hydrogel comprising conjugates of a hydrogel forming agent and a flavonoid without the addition of an exogenous peroxide or peroxidase or without the addition of an exogenous peroxide. Hydrogels produced by such methods and methods of using the hydrogels are also described herein.
US9441134B2	Fluorinated core-shell-polymers and process for preparing same	Disclosed is a process for preparing fluorinated core-shell polymer particles in which the core is a non-fluorinated polymer and the shell is derived from at least 50% by weight of fluorinated monomers, by 1) synthesizing a core polymer latex by aqueous emulsion polymerization of non-fluorinated monomers forming the core polymer, 2) adding the shell-forming fluorinated monomers or mixtures of at least 50% by weight of fluorinated monomers with non-fluorinated monomers to the core polymer latex of step 1) and allowing for at least one hour of equilibration time in which essentially no polymerization of the shell monomers occurs, 3) reacting the shell-forming monomers in the mixture from step 2) to form the core-shell polymer particles, wherein the process steps 1) to 3) are carried out under mechanical stirring in the absence of surfactants, emulsifiers, emulsifying monomers and mixtures thereof.
EP1531757B1	Biodegradable triblock copolymers, synthesis methods therefor, and hydrogels and biomaterials made there from	A drug delivery system that includes a hydrogel formed from cyclodextrin and an amphiphilic copolymer that includes an A polymer block comprising a poly(alkylene oxide) and a B polymer block comprising a poly(hydroxyalkanoate), and a therapeutically effective amount of at least one therapeutic agent intimately contained within the hydrogel. In one preferred embodiment of the invention, the A polymer block is poly(ethylene oxide) (PEO) and the B polymer block is poly[(R)-3-hydroxybutyrate] (PHB), and the copolymer is the triblock ABA copolymer PEO-PHB-PEO. A method of synthesizing the amphiphilic triblock copolymer is also provided.
US9427908B2	Modification of surface wetting properties of a substrate	A method of modifying the wetting properties of the surface of a substrate, the method comprising the step of applying a first mold having an imprint forming surface to said substrate to form a first imprint thereon, said imprint forming surface being chosen to modify the wetting properties of the substrate surface.
US9427794B2	Method and apparatus for forging	An apparatus for forming an article by forging. The apparatus has at least one die having a die cavity to receive material, said material being at least partially molten, and at least one punch to slidably engage the die cavity and to exert a forming pressure on material disposed in the cavity. There is also at least one pin for forming an article feature. The pin is to slidably engage the die and to contact the material, the pin being further to recede upon exertion of the forming pressure and to exert a feature forming pressure when receded and thereby form the article having the article feature when the material solidifies under the forming pressure.
US9423295B2	Photo-sensor with a transparent substrate and an in-plane electrode pair	According to one aspect of the invention, there is provided a photo-sensor comprising: an optically transparent substrate; an electrode pair; and a photoactive film with electrical polarization located between the optically transparent substrate and the electrode pair, wherein the optically transparent substrate is configured to transmit incident radiation received by the optically transparent substrate to the photoactive film and wherein the electrode pair is configured to receive charge carriers generated by the photoactive film in response to the transmitted incident radiation.
EP2539069B1	Nanosized gold catalysts for co oxidation and water gas shift reactions	Methods of making supported monolithic gold (Au) catalysts that can be used for generating a hydrogen-rich gas from gas mixtures containing carbon monoxide, hydrogen and water via a water gas shift reaction, and for the removal of carbon monoxide from air at a low reaction temperature via its oxidation reaction are described. Methods of making highly dispersed gold catalysts on washcoated monoliths and the stabilization of monolithic catalyst supports by the addition of a third metal oxide, such as zirconia (ZrO2), lanthanum oxide (La2O3), or manganese oxide (MnxOy). The catalyst supports and/or washcoats may include a variety of transition metal oxides such as alpha iron oxide (a -Fe2O3), cerium oxide (CeO2), ZrO2, gamma alumina (? -Al2O3), or their combinations.

US9399044B2	Antimicrobial cationic polyamines	Antimicrobial, non-hemolytic cationic polyamines were prepared by treating partially N-acylated polyethylenimines and/or partially oxidized polyethylenimines with a protic acid. The cationic polyamines can have a linear or branched polyethylenimine backbone structure. Preferably, the cationic polyamines comprise pendant urea groups, which can be introduced via a cyclic carbonate comprising a pendant urea group. The cationic polyamines can be active against a tuberculosis mycobacterium at low concentration. The cationic polyamines are also effective against Gram-negative Escherichia coli and Pseudomonas aeruginosa, Gram-positive Staphylococcus aureus, and fungus Candida albicans in solution and in the form of a film.
SG10201509100YA	A core-shell nanoparticle and method of generating an optical signal using the same	-
US9374090B2	Circuit arrangement and method of operating the same	A circuit arrangement may be provided including a level shifting stage configured to be coupled to a first reference voltage and a second reference voltage. The circuit arrangement may also include a first input electrode in electrical connection with the level shifting stage for coupling a first input voltage and a second input electrode in electrical connection with the level shifting stage for coupling a second input voltage. The level shifting stage may be configured to generate an output voltage above a predetermined output level at the output node due to the first reference voltage when the first input voltage is in the first logic state and the second input voltage is in the second logic state. The circuit arrangement may also include a feedback circuit coupled to the output stage and the level shifting stage and a voltage stabilization circuit coupled to the level shifting stage.
US9364804B2	Microfluidic agitator devices and methods for agitation of a fluid	According to various embodiments, a microfluidic agitator device may be provided. The microfluidic agitator device may include: an air inlet; an air outlet; an elastic diaphragm provided between the air inlet and the air outlet and configured to oscillate if an airflow from the air inlet to the air outlet is provided; and a chamber coupled to the elastic diaphragm.
US9362916B2	Circuit arrangements and methods of operating the same	In various embodiments, a circuit arrangement may be provided. The circuit arrangement may include a level shifting stage configured to be coupled to a first reference voltage, the level shifting stage having an output node. The circuit arrangement may further include a first input electrode in electrical connection with the level shifting stage. The circuit arrangement may also include a second input electrode in electrical connection with the level shifting stage. The circuit arrangement may further include a load having a first end and a second end, the first end coupled to the level shifting stage and the second end for coupling to a second reference voltage. In addition, the circuit arrangement may include a bypass circuit element connected in parallel to the load. The bypass circuit element may be configured to allow current to flow through upon application of an external voltage for bypassing the load.
US9354283B2	Sensor and method of controlling the same	According to embodiments of the present invention, a sensor is provided. The sensor includes a substrate, a beam suspended from the substrate, and a plurality of conductive lines arranged on the beam, wherein the beam is adapted to be displaced in response to a current flowing through the plurality of conductive lines, and a magnetic field interacting with the beam, and wherein the sensor is configured to determine a property of the magnetic field based on the displacement of the beam. According to further embodiments of the present invention, a method of controlling a sensor is also provided.
SG10201508174XA	Hollow Core-Shell Particles	-
US9334324B2	Podocalyxin-like-protein-1 binding antibody molecule	The disclosure relates to novel markers of pluripotent stem cells and uses thereof, and particularly, though not exclusively, to antibody molecules based on fragments of mAb84 which bind to undifferentiated pluripotent stem cells via podocalyxin-like protein-1 (PODXL)
US9334317B2	Hepatitis B virus specific antibody and uses thereof	There is provided at least one isolated TCR-like antibody or fragment thereof, wherein the antibody or fragment thereof is capable of specifically binding to at least one HBV derived peptide.
US9331878B2	Frequency shift keying transmitter	According to embodiments of the present invention, a frequency shift keying transmitter is provided. The frequency shift keying transmitter includes a logic gate arrangement that produces an output signal having a frequency that depends on input signals to the logic gate arrangement, a clock generator coupled to the logic gate arrangement, the clock generator adapted to produce a clock signal, and a sampling arrangement coupled to the logic gate arrangement, the sampling arrangement adapted to receive a data signal, wherein the sampling arrangement is configured to sample the clock signal to generate periodic waveforms delayed from each other by an interval determined by the point the clock signal is sampled, wherein the sampling arrangement is configured to be controlled by the data signal to have the logic gate arrangement select periodic waveforms that are delayed from each other by one of a set of intervals associated with the data signal, to be used as the input signals to the logic gate arrangement to produce the output signal.
US9327303B2	Microfluidic droplet generator	A microfluidic droplet generator device, a kit of parts for assembling a microfluidic droplet generator device, and a method of generating microfluidic droplets. The generator device comprises a substrate; a microfluidic channel formed in the substrate; a fluid outlet in fluid communication with the microfluidic channel; and a mechanical element configured such that vibration of the mechanical element causes droplet dispensing from the fluid outlet.
US9321630B2	Sensor with vacuum-sealed cavity	A method and apparatus for detecting underwater sounds is disclosed. An embodiment of the apparatus includes a substrate with a vacuum-sealed cavity. A support structure and an acoustic pressure sensor are situated on the substrate. The support structure of the apparatus may include a first oxide layer situated on the substrate, a silicon layer situated on the first oxide layer, and a second oxide layer situated on the silicon layer. The acoustic pressure sensor of the apparatus includes a first electrode layer situated on the substrate, a piezoelectric layer situated on the first electrode layer, and a second electrode layer situated on the piezoelectric layer. In one embodiment, the surface area of the second electrode layer is between about 70 to 90 percent of the surface area of the piezoelectric layer. In various embodiments, the support structure is thicker than the piezoelectric layer.

US9305372B2	Method and device for image processing	Embodiments provide a method for processing a first image based on a second image, wherein each pixel in the first image has a plurality of color components and has a corresponding pixel in the second image, and wherein each value of a color component in the first image corresponds to a value of a color component in the second image. The method may include deciding, for each color component of a pixel in the first image, whether to modify the value of the color component dependent on a predetermined criterion. The method may further include determining a similarity index between the pixel in the first image and the corresponding pixel in the second image based on, for each color component of the pixel, the value of the color component of the pixel, or if it is decided that the value of the color component of the pixel is to be modified, the corresponding value of the color component in the second image.
US9297813B2	Targeting metabolic enzymes in human cancer	Targeting metabolic enzymes in human cancer Abstract Lung cancer is a devastating disease and a major therapeutic burden with poor prognosis. The functional heterogeneity of lung cancer (different tumor formation ability in bulk of tumor) is highly related with clinical chemoresistance and relapse. Here we find that, glycine dehydrogenase (GLDC), one of the metabolic enzyme involved in glycine metabolism, is overexpressed in various subtypes of human lung cancer and possibly several other types of cancers. GLDC was found to be highly expressed in tumor-initiating subpopulation of human lung cancer cells compared with non-tumorigenic subpopulation. By array studies we showed that normal lung cells express low levels of GLDC compared to xenograft and primary tumor. Functional studies showed that RNAi inhibition of GLDC inhibits significantly the clonal growth of tumor-initiating cells in vitro and tumor formation in immunodeficient mice. Overexpression of GLDC in non-tumorigenic subpopulation convert the cells to become tumorigenic. Furthermore, over-expression of GLDC in NIH/3T3 cells and human primary lung fibroblasts can transform these cells, displaying anchorage-independent growth in soft agar and tumor-forming in mice. Not only is GLDC is expressed human lung cancer, it is also up-regulated in other types of cancer, such as colon cancer. RNAi knockdown of GLDC in colon cancer cell line, CACO-2 cells, can also inhibit the tumor formation in mice. Thus GLDC maybe a new metabolic target for treatment of lung cancer, and other cancers.
US9284404B2	Antimicrobial polymers and methods of manufacture thereof	Biodegradable cationic block copolymers are disclosed, comprising a hydrophilic block comprising first repeat units derived from a first cyclic carbonyl monomer by ring-opening polymerization, wherein more than 0% of the first repeat units comprise a side chain moiety comprising a quaternary amine group; a hydrophobic block comprising second repeat units derived from a second cyclic carbonyl monomer by ring-opening polymerization; an optional endcap group; and a chain fragment derived from an initiator for the ring opening polymerization. The cationic block copolymers form aqueous micelle mixtures suitable for antimicrobial applications.
US9273096B2	Amphiphilic peptides comprising the formula I: (X₁Y₁X₂Y₂)_n, and uses thereof	Disclosed are amphiphilic peptides. Also disclosed are methods of treating proliferative disease, bacterial infection, viral infection and fungal infection, endotoxin neutralization and a method of removing biofilm. Also disclosed is the use of the amphiphilic peptides.
US9273292B2	Chinese hamster ovary cell lines	We provide a Chinese Hamster Ovary (CHO) cell which is capable of higher protein sialylation compared to a wild type Chinese Hamster Ovary cell, such as in the presence of functional GnT 1, in which the CHO cell is obtainable by selection with Ricinus communis agglutinin I (RCA-I).
US9249383B2	Apparatus for culturing anchorage dependent cells	The invention relates to an apparatus (1) for culturing anchorage-dependent cells. The apparatus (1) comprises a housing (2) with an inlet (4) and an outlet (5), and a plurality of culture plates (6) removably stacked within the housing (2). The housing (2) has a circumferential wall (7), a base (8) and a top wall (9). The base (8) comprises the inlet (4) and the top wall (9) comprises the outlet (5). The circumferential wall (7) of the housing (2) defines a longitudinal axis thereof, as well as an inner cross section perpendicular to the longitudinal axis. Shape and dimensions of the inner cross section are essentially uniform along the longitudinal axis. The culture plates (6) are arranged at least essentially parallel to each other. Each plate (6) is mounted and sealed to the circumferential wall (7) of the housing (2). Plates (6) are arranged at a distance from each other. Each culture plate (6) has a through hole (14), so that inlet (4) and outlet (5) are in fluid communication. Each through hole (14) is positioned at an outer end of the respective culture plate (6), proximate the circumferential wall (7). Through holes (14) of adjacent culture plates (6) are distally positioned in the plane of the inner cross section of the housing (2).
US9243235B2	Method of producing recombinant proteins with mannose-terminated N-glycans	We describe a method of expressing a recombinant protein comprising mannose-terminated N-glycans from a host cell, the method comprising: (a) introducing a nucleic acid encoding a recombinant protein into a Chinese Hamster Ovary (CHO) cell comprising a mutation in the GnT 1 gene (GenBank Accession Number AF343963) leading to loss of GnT 1 function; and (c) expressing the recombinant protein from the host cell, in which the expressed recombinant protein comprises a mannose-terminated glycan structure, and in which the method does not include a step of introducing functional GnT-I into the host cell. The method may be used for producing recombinant glucocerebrosidase with a mannose-terminated glycan structure, suitable for treatment or prevention of Gaucher's Disease.
US9240362B2	Layer arrangement and a wafer level package comprising the layer arrangement	The invention relates to a layer arrangement and a wafer level package comprising the layer arrangement, and in particular, the layer arrangement comprises a getter layer and further comprises a sacrificial layer. The wafer level package may be used in microelectromechanical systems (MEMS) packaging at a vacuum level of about 10 mTorr or less such as close to 1 mTorr (i.e. MEMS vacuum packaging).

US9240690B2	Power transfer device	A power transfer device is provided. The power transfer device includes a circuit arrangement including a primary side having a primary coil; a secondary side having a secondary coil inductively coupled to the primary coil and a load transformation unit; wherein the load transformation unit includes an inductor and a capacitor; wherein the secondary coil, the inductor and the capacitor respectively includes a first terminal and a second terminal; wherein the first terminal of the secondary coil is coupled to the first terminal of the capacitor, the second terminal of the capacitor is coupled to the first terminal of the inductor, and the second terminal of the inductor is coupled to the second terminal of the secondary coil.
US9233393B2	Process for creating lithographically-defined plasmonic structures with enhanced Q factors	A method for plasmonic structure manufacture and for protecting a plasmonic nanostructure during annealing is provided. The method includes: lithographically forming a plasmonic nanostructure on a substrate; encapsulating the plasmonic nanostructure in high temperature resistant material; annealing the plasmonic nanostructure; and removing the high temperature resistant material to reveal the annealed plasmonic nanostructure.
US9237560B2	Cyclic prefix schemes	Methods and systems are proposed for transmitting data from a source (110) to a destination (130) via a relay station (120) having multiple antennae (122, 124). The relay station (120) receives from the source a message containing the data and a first cyclic prefix. It does this using each of its antennae (122, 124), so producing multiple respective received signals. In certain embodiments, the relay station (120) removes the first cyclic prefix from the received signals, replacing it with a new one. In other embodiments, the relay station (120) removes only a portion of the first cyclic prefix. In either case, the relay station (120) may apply space-time coding to generate second signals, which it transmits to the destination (130), which extracts the data. Methods are also proposed for estimating parameters of the channel, to enable the destination (130) to decode the data.
US9236078B2	Recording medium for heat-assisted-magnetic-recording (HAMR) and method for manufacturing the same	According to embodiments of the present invention, a method for manufacturing a recording medium for heat-assisted-magnetic-recording (HAMR) is provided. The method includes forming an underlayer on a substrate, the underlayer including a precursor material, epitaxially depositing an interlayer on the underlayer, forming a recording layer over the interlayer, and converting the precursor material to a converted material having a thermal conductivity that is higher than a thermal conductivity of the recording layer. According to further embodiments of the present invention, another method for manufacturing a recording medium for heat-assisted-magnetic-recording (HAMR) and a recording medium for heat-assisted-magnetic-recording (HAMR) are also provided.
US9228977B2	Contactless conductivity detector	A portable electrophoretic contactless conductivity detection (C4D) system for analysis on a microfluidic chip houses in one embodiment a fluidic compartment for receiving the microfluidic chip, and four detection electrodes: first and second emitting electrodes, and first and second receiving electrodes. The first emitting electrode and the first receiving electrode are adjacent to a first channel wall of the microfluidic chip, and the second emitting electrode and the second receiving electrode are adjacent to a second channel wall, where the second channel wall is opposite to the first channel wall. In an embodiment, the electrodes are provided as portions of a removable cartridge cell.
US9226899B2	Particulate hyaluronic acid and flavonoid formulations for cellular delivery of bioactive agents	There is presently provided a suspension of immiscible particles in a solution, wherein the particles comprise an agglomeration of a bioactive agent, for example an anti-cancer agent; and a plurality of conjugates of a hyaluronic acid and a flavonoid, for example a catechin-based flavonoid, wherein the particles are on average from about 15 nm to about 300 nm in diameter and wherein the bioactive agent is releasably retained in the particles by the flavonoid. The suspension is useful for delivery of the bioactive agent to cells, including cancer cells. There are also provided a therapeutic formulation comprising the suspension, as well as methods for using the suspension and therapeutic formulation, including for delivery of a bioactive agent to a cell and for treating a disease, including cancer.
US9220264B2	Multimeric forms of antimicrobial peptides	The invention relates to multimeric forms of antimicrobial peptides, for example, defensin peptides. The multimeric forms of defensin peptides possesses antimicrobial activity and may be formulated into antimicrobial compositions, pharmaceutical compositions, eyedrop composition, contact lens solution compositions for coating medical devices and the like. The invention also relates to the use of these multimeric forms of peptides, e.g. multimeric forms of defensin peptides for inhibiting and/or reducing the growth of microorganisms in general, including in a host. The invention further relates to a method of preparing multimers of peptides derived from defensins, for example hBD3. The method includes a composition or combination comprising the multimeric antimicrobial peptides and at least one active pharmaceutical ingredient.
US9199073B2	Nerve stump interface and axonal regeneration system for generating an electric field for promoting and guiding axonal regeneration	The present invention provides a nerve stump interface for generating an electric field for promoting and guiding axonal regeneration and an electric field assisted axonal regeneration system. The nerve stump interface comprises a sieve having a plurality of holes. A strip is coupled to the sieve. A first electrode is provided at one of the plurality of holes and a second electrode is provided on the strip. The strip is arranged to space the second electrode from the first electrode. The first electrode and the second electrode are for generating the electric field. At least one securing element is provided on a side of the strip to allow that side of the strip to affix against an opposite side of the strip. The present invention also provides a method for assembling the electric field assisted axonal regeneration system.
SG10201502677XA	Nanoimprinting mould device	-
SG10201507533VA	N-heterocyclic carbene metallacycle catalysts and methods	-

SG10201501736VA	Methods for determining particle concentration in a fluid and systems therefor	-
US9172351B2	Piezoelectric resonator having electrode fingers with electrode patches	According to embodiments of the present invention, a piezoelectric resonator is provided. The piezoelectric resonator includes a piezoelectric substrate, a first electrode comprising a first plurality of electrode fingers, a second electrode comprising a second plurality of electrode fingers, wherein the first plurality of electrode fingers and the second plurality of electrode fingers are interdigitated, and wherein electrode patches are arranged along the first plurality of electrode fingers and the second plurality of electrode fingers according to a 2-dimensional lattice.
US9166568B2	Low power high resolution sensor interface	A sensor interface circuit is provided for resolving sensor signals from a plurality of sensors into a digital sensor signal. The sensor interface circuit includes a relaxation oscillator that receives and pre-processes the sensor signals to generate an analog sensor signal. The relaxation oscillator includes one or more dynamic circuits. The sensor interface circuit also includes a monitoring module for receiving the analog sensor signal and generating the digital sensor signal in response thereto. There is also provided a sensor system front-end and a relaxation oscillator.
US9155814B2	Nanostructured material formulated with bone cement for effective antibiotic delivery	This invention uses mesoporous silica nanoparticles and other nanostructured materials to formulate polyacrylate-based bone cement for achieving an enhanced and controlled elution of active ingredients such as antibiotics. This invention overcomes the limitation of low antibiotic release from commercial polyacrylate-based bone cements using for example, PMMA. In certain aspects, the formulation enables a sustained release of antibiotics from the bone cement over a period of 80 days and achieves 70% of total drug release, whereas the commercial antibiotic bone cement (e.g., SmartSet GHV) only releases about 5% of the antibiotics on the first day and subsequently an almost negligible amount. In addition, the mechanical properties of our formulated bone cements are well retained. The inventive bone cement exhibits good antibacterial properties and has very low cytotoxicity to mouse fibroblast cells.
US9155707B2	Core-shell microspheres	The specification describes a substance comprising a plurality of microparticles. The microparticles comprise a core comprising a first polymer and a shell surrounding said core and comprising the first polymer and a second polymer, wherein the second polymer is less rapidly degradable than the first polymer. A process for making the microparticles and uses of the microparticles are also described.
US9157861B2	Sensor and method of detecting a target analyte	A sensor and a method of detecting a target analyte are provided. The sensor includes a substrate; a layer comprising a plurality of through holes, wherein the layer is disposed above the substrate; a first element configured to detect a target analyte; a second element that can produce a detectable signal; wherein the first element and the second element are configured to couple the target analyte between the first element and the second element.
US9150829B2	Culture of pluripotent and multipotent cells on microcarriers	A method is disclosed for culturing pluripotent or multipotent cells in vitro, the method comprising attaching pluripotent or multipotent cells to a plurality of microcarriers to form microcarrier-cell complexes, and culturing the microcarrier-cell complexes in suspension culture in the presence of a ROCK inhibitor.
US9149719B2	Device and method for generating a representation of a subject's attention level	A device and method for generating a representation of a subject's attention level. The device measures brain signals from the subject; extracts temporal features from the brain signals; classifies the extracted temporal features using a classifier to give a score X1; extracts spectral-spatial features from the brain signals; selects spectral-spatial features containing discriminative information between concentration and non-concentration states from the set of extracted spectral-spatial features; classifies the selected spectral-spatial features using a classifier to give a score X2; combines the scores X1 and X2 to give a single score; and presents the score to the subject.
SG10201501251VA	Embossing apparatus and method of fabricating the same	-
US9148323B2	Transmitter	According to embodiments of the present invention, a transmitter is provided. The transmitter includes a frequency shift keying (FSK) circuit, and a phase shift keying (PSK) circuit coupled in series to the FSK circuit, wherein the FSK circuit is configured, in a first mode of operation, to provide a FSK modulated signal to the PSK circuit, and, in a second mode of operation, to provide a fixed frequency signal to the PSK circuit, and wherein the PSK circuit is configured, in the first mode of operation, to transmit the FSK modulated signal, and, in the second mode of operation, to provide a PSK modulated signal based on the fixed frequency signal received from the FSK circuit.
US9139924B2	Systems and processes for forming molds such as nickel molds	For forming a nickel mold, a metal and a corresponding etchant are selected such that the etchant selectively etches the metal over nickel. The metal is sputtered onto a surface of a template having nano-structures to form a sacrificial layer covering the nano-structures. Nickel is electroplated onto the sacrificial layer to form a nickel mold, but leaving a portion of the sacrificial layer exposed. The sacrificial layer is contacted with the etchant through the exposed portion of the sacrificial layer to etch away the sacrificial layer until the nickel mold is separated from the template. Subsequently, the nickel mold may be replicated or scaled-up to produce a replicate mold by electroplating, where the replicate mold has nano-structures that match the nano-structures on the template. The metal may be copper.
US9125788B2	System and method for motor learning	A method and system for motor learning. The method comprises the steps of detecting a user's motor intent; and giving robotic assistance to the user for executing a motor task associated with the motor intent based on the detected motor intent

JP5773410B2	Silicon-based electro-optic device	PROBLEM TO BE SOLVED: To provide an electrode connection structure which achieves an efficient optical connection and enables both high-speed operations and a reduction in optical propagation loss in a silicon-based electro-optic device formed on an SOI substrate. SOLUTION: In the electro-optic device, a stack structure including a first silicon semiconductor layer of a first conductivity type and a second silicon semiconductor layer of a second conductivity type has a rib waveguide shape to form an optical confinement area, and a slab portion of a rib waveguide includes an area to which a metal electrode is connected. The slab portion in the area to which the metal electrode is connected is thicker than a surrounding slab portion. The area to which the metal electrode is connected is set within a range of a distance from the rib waveguide to the area to which the metal electrode is connected such that, when the distance is changed, an effective refractive index of the rib waveguide in a zeroth-order mode does not change.
US9115340B2	Microfluidic continuous flow device	A microfluidic continuous flow device comprising a channel which comprises a first and a second area wherein the first area of the channel is a compartment which is defined by partitioning elements and the second area of the channel is a space outside the compartment; wherein through passages which are formed between the partitioning elements are dimensioned such as to retain a biological material and optionally a sustained release composition which can be comprised in the compartment within the compartment; wherein the channel has a first inlet to the compartment through which biological material can be introduced into the compartment; a second inlet for introducing a cultivation medium into a space of the channel arranged outside of the compartment, and an outlet. The present invention further refers to methods of using the devices of the present invention and kits comprising the microfluidic continuous flow devices of the present invention.
US9109087B2	Low molecular weight branched polyamines for delivery of biologically active materials	A branched polyamine comprises about 8 to about 12 backbone tertiary amine groups, about 18 to about 24 backbone secondary amine groups, a positive number n′ greater than 0 of backbone terminating primary amine groups, and a positive number q greater than 0 of backbone terminating carbamate groups of formula (2): wherein (n′+q) is a number equal to about 8 to about 12, the starred bond of formula (2) is linked to a backbone nitrogen of the branched polyamine, L′ is a divalent linking group comprising 3 to 30 carbons, and q/(n′+q)×100% equals about 9% to about 40%
US9096952B2	Methods and compositions for polynucleotide library production, immortalization and region of interest extraction	Aspects of the present invention are drawn to methods and compositions for the genetic analysis of regions of interest (ROI) from one or more starting polynucleotide sample(s). In certain aspects, adapter tagged polynucleotide fragments from a plurality of initial polynucleotide samples are pooled, circularized and amplified to produce an immortalized library. Multiple ROI's from this immortalized library are amplified (e.g., in independent iPCR reactions) to generate amplicons, and, in some embodiments, pooled to form a pooled ROI amplicon sample. In certain embodiments, the amplicons for each ROI amplicon in the pooled ROI amplicon sample are present at known molar or mass ratios. The pooled ROI amplicon sample can be analyzed/processed as desired, e.g., sequenced using next generation sequencing technology.
US9087975B2	Resistive memory arrangement and a method of forming the same	According to embodiments of the present invention, a resistive memory arrangement is provided. The resistive memory arrangement includes a nanowire, and a resistive memory cell including a resistive layer including a resistive changing material, wherein at least a section of the resistive layer is arranged covering at least a portion of a surface of the nanowire, and a conductive layer arranged on at least a part of the resistive layer. According to further embodiments of the present invention, a method of forming a resistive memory arrangement is also provided.
US9084735B2	Self-assembling bis-urea compounds for drug delivery	Cationic, anionic, and/or zwitterionic bis-urea compounds self-assemble by non-covalent interactions in aqueous solution to form high aspect ratio nanofibers. The nanofibers reversibly bind drugs by non-covalent interactions, forming drug compositions for exhibiting sustained release of the drug.
US9083437B2	Front-end transceiver	In an embodiment, a front-end transceiver may be provided. The front-end transceiver may include a receiver path, including a first receiver frequency converter configured to convert a received signal with a receiver frequency into a first receiver intermediate signal with a first receiver intermediate frequency; and a receiver direct conversion stage coupled to the first receiver frequency converter so as to receive the first receiver intermediate signal. The front-end transceiver may further include an oscillator signal generator respectively coupled to the first receiver frequency converter and to the receiver direct conversion stage so as to provide a first oscillator signal with a first oscillator frequency to the first receiver frequency converter and a first stabilizing signal with a first stabilizing frequency to the receiver direct conversion stage; wherein the oscillator signal generator may be configured so that the first oscillator frequency of the first oscillator signal may be selected such that any integer multiple of the first oscillator frequency of the first oscillator signal may be different from any integer multiple of the receiver frequency of the received signal. The front-end transceiver may also include a transmitter path.
SG10201407256SA	Method of removing heat energy from an object	-

US9058885B2	Magnetoresistive device and a writing method for a magnetoresistive device	A magnetoresistive device including a fixed magnetic layer structure, a first free magnetic layer structure, and a second free magnetic layer structure, wherein the fixed magnetic layer structure is arranged in between the first free magnetic layer structure and the second free magnetic layer structure, wherein the magnetization orientation of the first free magnetic layer structure is variable in response to a first electrical signal of a first polarity and the magnetization orientation of the second free magnetic layer structure is at least substantially non-variable in response to the first electrical signal, and wherein the magnetization orientation of the second free magnetic layer structure is variable in response to a second electrical signal of a second polarity and the magnetization orientation of the first free magnetic layer structure is at least substantially non-variable in response to the second electrical signal, wherein the second polarity is opposite to the first polarity.
US9046526B2	Method for determining protein-nucleic acid interaction	The present invention refers to a method of determining protein-nucleic acid interaction. The method comprises mixing a protein with a sample comprising a nucleic acid which is suspected to interact with the protein to form a first mixture. The first mixture can be incubated to allow interaction between the protein and nucleic acid. Metallic nanoparticles are added to the first mixture to obtain a second mixture. An electrolyte is added to the first or second mixture to determine the protein-nucleic acid interaction. The present invention also refers to a kit for determining protein-nucleic acid interaction. The kit comprises a protein capable of interacting with a nucleic acid or a nucleic acid capable of interacting with a protein, and at least one type of metallic nanoparticle.
US9048987B2	Joint detector/ decoder devices and joint detection/ decoding methods	According to various embodiments, a joint detection/decoder device may be provided. The detector and decoder device may include: an input circuit configured to receive an input signal; a survivor splitting circuit configured to produce a plurality of survivors of a next instance based on at least one survivor of a previous instance and based on the input signal; and a survivor discarding circuit configured to discard survivors based on a set of predetermined criteria; wherein each survivor has an associated bit sequence.
SG10201502164TA	Optical Circuit For Sensing A Biological Entity In A Fluid And Method Of Configuring The Same	An optical circuit for sensing a biological entity in a fluid and a method of configuring an optical circuit for sensing a biological entity in a fluid are provided. The optical circuit includes a sensing arrangement including a reference arm having a reference waveguide and a sensing arm having a waveguide; wherein lengths of the reference waveguide and the waveguide are configured in accordance with a temperature dependency reduction criterion.
US9030865B2	Circuit arrangement and method of forming the same	In various embodiments, a circuit arrangement may be provided including a data cell. The circuit arrangement may further include a first transistor and a second transistor. The first controlled electrode of the first transistor and the first controlled electrode of the second transistor may be coupled to the first electrode of the data cell. The second controlled electrode of the first transistor may be configured to electrically connect to a first reference voltage such that the first electrode of the data cell is electrically connected to the first reference voltage when the first transistor is activated. The second controlled electrode of the second transistor may be configured to electrically connect to a second reference voltage, such that the first electrode of the data cell is electrically connected to the second reference voltage when the second transistor is activated.
SG10201405426SA	Biomolecule-Based Metal Nanoclusters as Biosensors	-
US9011705B2	Method of forming a polymer substrate with variable refractive index sensitivity	The present invention relates to a method of forming polymer substrate with variable refractive index sensitivity, the method comprising the steps of: (a) contacting a metal-coated patterned mold with a polymer substrate at a temperature sufficient to deform said polymer substrate to thereby deposit a patterned mask of a metal film on the polymer substrate; and (b) etching away portions of said polymer substrate not covered by said patterned mask under conditions to form a region of variable refractive index sensitivity on said polymer substrate.
US8994409B2	Stimulator and method for processing a stimulation signal	Various embodiments provide a method for processing a stimulation signal. The method may include monitoring an output voltage on an electrode, the electrode being provided with the stimulation signal; determining whether the output voltage is lower than a threshold voltage; if it is determined that the output voltage is lower than the threshold voltage, modifying the waveform of the stimulation signal; and providing the modified stimulation signal to an object via the electrode.
US8993537B2	Forming porous scaffold from cellulose derivatives	Scaffold comprises a polymer defining macropores and comprising hydroxypropylcellulose partially substituted by a substituent comprising a self-crosslinkable group, which is crosslinked through the self-crosslinkable group. The macropores have an average pore size larger than 50 microns and are at least partially interconnected. In one method, bicontinuous emulsion comprising a continuous aqueous phase and a continuous polymer phase is formed. The polymer phase comprises hydroxypropylcellulose partially substituted by a substituent comprising a self-crosslinkable group, and is crosslinked through the self-crosslinkable group to form a polymer defining at least partially interconnected pores. In another method, phase separation is induced in a solution comprising a polymer precursor and water to form a bicontinuous emulsion comprising a continuous polymer phase and a continuous aqueous phase. The polymer precursor comprises a self-crosslinkable group and is crosslinked through the self-crosslinkable group in the emulsion to form a polymer defining at least partially interconnected macropores.

US8976901B2	Phase shift keying transmitter circuit	A phase shift keying transmitter circuit that includes: a variable frequency conversion stage adapted to receive a first data signal, wherein the variable frequency conversion stage comprises a plurality of frequency modulating elements, wherein the first data signal controls the number of the plurality of frequency modulating elements that are operated so as to control an operating frequency of the variable frequency conversion stage; and an output stage configured to switch between one of two possible outputs, the signals provided by one of the two possible outputs having an opposite polarity to the other, wherein the output stage is configured to receive a second data signal to control the switching between the two possible outputs, wherein the output stage is coupled to the variable frequency conversion stage and wherein the switching between the two possible outputs changes the phase of a signal from the variable frequency conversion stage by 180°.
US8969648B2	Blood clotting substrate and medical device	A blood clotting substrate and device which has a plurality of oxygen plasma-treated polypropylene pillars extending from the surface of a polypropylene film.
SG10201403829UA	Imprinting Apparatus and Method	-
US8963118B2	Transistor arrangement and a method of forming a transistor arrangement	In an embodiment, a transistor arrangement is provided. The transistor arrangement comprises a nanowire including a first nanowire region and a second nanowire region; a first gate contact disposed over the first nanowire region; an insulating region disposed over the second nanowire region; a second gate contact disposed over the insulating region; wherein the first nanowire region and the first gate contact forms a part of an enhancement mode transistor and the second nanowire region, the insulating region and the second gate contact forms a part of a depletion mode transistor. A method of forming a transistor arrangement may also be provided. Also contemplated is a transistor and a method for forming said transistor, where the transistor comprises a nanowire and a gate contact, where the gate contact is formed by directly writing the gate contact onto a region of the nanowire.
US8961855B2	High aspect ratio adhesive structure and a method of forming the same	A method of forming a high aspect ratio adhesive structure, the method comprising fabricating a porous template comprising at least a first tier and a second tier; introducing a softened polymer into the template; and separating the polymer from the template.
US8962772B2	Antimicrobial surface modified silicone rubber and methods of preparation thereof	An antimicrobial silicone rubber comprises a silicone rubber substrate, a catechol layer bound to a surface of the silicone rubber substrate, and an antimicrobial layer disposed on the catechol layer. The catechol layer comprises a catechol material, a quinone derivative thereof, and/or a polymer of the foregoing catechol material and/or quinone derivative. The antimicrobial layer comprises an antimicrobial cationic polycarbonate covalently linked to the catechol layer.
US8957732B2	Amplifier and transceiver including the amplifier	An amplifier and a transceiver including the amplifier are provided. The amplifier includes an input terminal; a first transistor of a first conductivity and a second transistor of a second conductivity, each transistor comprising a source terminal, a gate terminal and a drain terminal respectively, the source terminal of the first transistor being coupled to the source terminal of the second transistor, and the gate terminal of the first transistor and the gate terminal of the second transistor being coupled to the input terminal; and an output terminal coupled to the drain terminal of the first transistor and the drain terminal of the second transistor.
US8951929B2	Catalyst preparation and methods of using such catalysts	A process for the pre-treatment of Mo/ZSM-5 and Mo/MCM-22 catalysts is provided, which process comprises heating the catalyst at 500° C. in the presence of propane. The treated catalyst, when used in the non-oxidative dehydrogenation of methane demonstrates improved benzene yield and catalyst stability as compared to catalysts pre-treated with He, methane or H2
SG10201403483UA	Method for Detecting Oxidants and Reductants in A Sample	Method for Detecting Oxidants and Reductants in A Sample Abstract There is provided a method to detect oxidants and 5 reductants simultaneously by reaction of a sample with a substrate and observing a shift in fluorescence color. Metal nanoclusters templated with a DNA sequence can be used in the disclosed method. The method can be employed in assays which can be run in a one-pot system to 10 evaluate the unknown redox situation of a sample in real time. The assays may have a use for detecting free radicals or antioxidants potentially relating to aging processes or diseases as well as for evaluating the shelf-life of a food, beverage, health care, personal 15 care or sports product. (No suitable figure) 20 31
SG10201403479PA	Biomimicking Patterns	Biomimicking Patterns Abstract 5 The present invention provides a bio-mimetic pattern comprising protruding structures of various shapes and sizes for use in aquatic environments to prevent biofouling. The present invention also provides surfaces comprising the bio-mimetic pattern and a method for synthesizing surfaces comprising the 10 bio-mimetic pattern for the prevention of biofouling in aquatic environments. (Fig. 3(a)) 15 61
US8942024B2	Circuit arrangement and a method of writing states to a memory cell	A method of writing a first state or a second state to a memory cell may be provided. Writing the first state to the memory cell may include electrically connecting a first switch in electrical connection to a first end of the memory cell to a first voltage and electrically connecting a second switch in electrical connection to a second end of the memory cell to a fourth voltage to apply a first potential difference to cause formation of the first state in the memory cell. Writing the second state to the memory cell may include electrically connecting the first switch to the second voltage and electrically connecting the second switch to the third voltage to apply a second potential difference to cause formation of the second state in the memory cell.

US8926998B2	Polycarbonates bearing pendant primary amines for medical applications	An antimicrobial composition comprises an anionic drug and an amine polymer comprising a first repeat unit of formula (2): wherein a′ is an integer equal to 1 or 2, b′ is an integer equal to 1 or 2, and each R′ is an independent monovalent radical selected from the group consisting of hydrogen, methyl, ethyl, and combinations thereof. G′ is a divalent linking group selected from the group consisting of a single bond and groups comprising at least one carbon. X− is a negatively charged counterion. The drug and the amine polymer are bound by noncovalent interactions.
US8926937B2	Highly dispersed metal catalysts	The present invention relates to a novel method for preparing a new type of catalyst for the oxidation of CO in a reactant gas or air. The method provides the preparation of a catalyst having nano-sized metal particles and a capping agent deposited on a solid support. The size and distribution of the metal particles can be easily controlled by adjusting reaction condition and the capping agent used. The catalyst prepared has high activity at low temperature toward selective oxidation of CO and is stable over an extended period of time. The catalyst can be used in air filter devices, hydrogen purification processes, automotive emission control devices (decomposition of NOx, x is the integer 1 or 2), F-T synthesis, preparation of fuel-cell electrode, photocatalysis and sensors.
US8926881B2	Super-hydrophobic hierarchical structures, method of forming them and medical devices incorporating them	Synthetic polymer substrates comprising a hierarchical surface structure of multiple domes and multiple pillars on said domes, wherein said substrate is a synthetic polymer film, said domes have diameters in the range from about 5 μm to about 400 μm, heights in the range from about 2.5 μm and about 500 μm, and said pillars have diameters in the range from about 20 nm to about 5 μm and aspect ratios of from about 2 to about 50, and methods of making and using them.
US8921426B2	Cationic bis-urea compounds as effective antimicrobial agents	A cationic bis-urea compound is disclosed of formula (1): wherein:each m is independently an integer of 0 to 4,each k is independently 0 or 1,each Z is a monovalent radical independently selected from the group consisting of hydroxyl (*—OH), carboxyl (*—COOH), cyano (*—CN), nitro (*—NO2), sulfonate (*—SO3−), trifluoromethyl (*—CF3), halides, amine groups, ketone groups, alkyl groups comprising 1 to 6 carbons, alkoxy groups comprising 1 to 6 carbons, thioether groups comprising 1 to 6 carbons, and combinations thereof,each L′ is independently a divalent alkylene group comprising 1 to 6 carbons, wherein a *-[-L′-]k- is a single bond when k is 0,each Y′ is independently a monovalent non-polymeric radical comprising a positive charged amine, andeach X′ is independently a negative charged counterion.
SG10201402241YA	Mobile Test Chamber For Testing Environmental Performance Of An Interchangeable Façade System, And Test Chamber System	24 MOBILE TEST CHAMBER FOR TESTING ENVIRONMENTAL PERFORMANCE OF AN INTERCHANGLE FAQADE SYSTEM, AND TEST CHAMBER SYSTEM There is provided a mobile test chamber for testing environmental performance of 10 an interchangeable fa gad e system in a test environment, the test chamber including: a testing enclosure having one or more side frames configured for releasably securing one or more fagade specimens for testing, plurality a of sensors arranged in the testing enclosure for measuring multiple environmental parameters associated with the testing enclosure in the test environment when the testing enclosure has 15 the one or more fagade specimens releasably secured thereto, and a mobility system disposed on a base structure of the test chamber configured for allowing mobility and rotatability of the test chamber. There is also provided a test chamber system including the mobile test chamber and a computer device, and a wireless network of mobile test chambers. 20 FIG. 1
US8923771B2	Method, apparatus and computer program product for identifying frequency bands, and a method, apparatus and computer program product for evaluating performance	According to embodiments of the present invention, a method for identifying one or more frequency bands in a received signal. The method comprising: calculating a wavelet product of the received signal; setting a threshold for local maxima of the wavelet product; and detecting one or more edges in the received signal based on local maxima of the wavelet product which are greater than the threshold to identify one or more frequency bands in the received signal. A corresponding apparatus and computer program product are also provided. Embodiments also relate to a method for evaluating performance of a method for identifying one or more frequency bands in a received signal. A corresponding apparatus and computer program product are also provided.
SG11201407445UA	Methods for determining an activation scheme of a radio communication device and radio communication devices	Various embodiments provide a method for determining an activation scheme of a radio communication device. The method may include determining a plurality of frames according to a multiple access scheme; and determining for each frame of the plurality of frames a first portion of the frame, during which the radio communication device performs communication, and a second portion of the frame during which the radio communication device does not perform communication.
SG11201407443RA	Communication devices and methods for controlling a communication device	According to various embodiments, a communication device may be provided. The communication device may include: a plurality of power amplifiers in a radio frequency transmit chain; a power amplifier selection circuit configured to determine for every power amplifier in the radio frequency transmit chain, whether the power amplifier should be used; and a transmitter circuit configured to use the one or more power amplifiers for which it has been determined that they should be used for transmitting data
SG10201402242TA	Composite Paste, Method Of Manufacturing Thereof, And Use Thereof In Photoelectrodes	25 COMPOSITE PASTE, METHOD OF MANUFACTURING THEREOF, AND USE THEREOF IN 5 A sensitized aqueous composite paste is provided. The composite paste includes metal oxide particles, photosensitizer, and optionally carbon nanotubes. Method for manufacturing the sensitized aqueous composite paste is also provided. The method includes providing metal oxide particles, optionally grinding the metal oxide particles, mixing the metal oxide particles 10 with an aqueous solution, preferably deionized water, to form a paste-like mixture, adding a photosensitizer to the paste-like mixture in the dark, optionally adding carbon nanotubes to the paste-like mixture, and mixing evenly to form the sensitized aqueous composite paste. Method for manufacturing photoelectrode a using the sensitized aqueous composite paste and photochemical cell containing the photoelectrode are also provided. 15 FIG. 5

US8917540B2	Memory device with soft-decision decoding	According to embodiments of the present invention, a memory device with soft decision decoding is provided. The memory device includes a memory cell configured to store an input data bit; a memory sensor configured to read out a parameter associated with a state of the memory cell; a detector configured to determine, based on the parameter read out from the memory cell, a soft information indicating the likelihood that the input data bit stored in the memory cell is a “0” or the likelihood that the input data bit stored in the memory cell is a “1”; and a decoder configured to generate a decoded bit based on the soft information. Further embodiments relate to a method of performing soft-decision decoding on a data bit stored in a memory cell of a memory device.
US8915121B2	Encapsulated device with integrated gas permeation sensor	An encapsulated device comprising an integrated gas permeation sensor is provided, comprising a base substrate with an electronic component arranged thereon being enclosed within an encapsulation for protecting the electronic component from moisture and/or oxygen; at least one sensor is arranged within the encapsulation to measure the permeation of gas into the encapsulation; each sensor comprises an electrically conductive sensing element comprising a moisture and/or oxygen sensitive material, wherein the reaction of said material with moisture and/or oxygen results in a change in the electrical resistance/conductivity of the sensor.
US8906678B2	Use of markers of undifferentiated pluripotent stem cell	The disclosure relates to methods of binding and identifying undifferentiated pluripotent stem cells and particularly, although not exclusively, to use of binding moieties which bind to PHB on the surface of undifferentiated pluripotent stem cells, such as PHB-binding peptides, and to methods for depleting undifferentiated stem cells from a sample.
US8907055B2	Mutant sox proteins and methods of inducing pluripotency	There is presently provided mutant Sox2, Sox7 and Sox17 proteins that have acquired or increased ability to induce pluripotency in a partially differentiated or fully differentiated cell. Sox7 and Sox17 are mutated to resemble in part Sox2, or Sox2 is mutated to resemble in part Sox7 or Sox17. In one aspect, the Oct4 contact interface of Sox7 or Sox17 is mutated. In another aspect, the high mobility group (HMG) of Sox2 is fused to the C-terminal activation domain of Sox7 or Sox17. Methods relating to inducing pluripotency using a mutant Sox2, Sox7 or Sox17 protein are also provided.
SG11201405715VA	Fibrous structure	A fibrous structure comprising an assembly of hair follicle cells within a fibrous matrix.
US8889883B2	BODIPY structure fluorescence dye for neural stem cell probe	The present invention is directed to a fluorescence compound represented by structural Formula (I), with specificity to neural stem cells: I or a pharmaceutically acceptable salt thereof. The variables for structural Formula (I) are defined herein. Also described are methods for detection of neural stem cells, comprising using a compound of structural Formula (I) or pharmaceutically acceptable salts thereof. Compounds of structural Formula (I) can detect and separate neural stem cells without immunostaining, providing a much shorter and more convenient method for detection of neural stem cells.
US8889412B2	Methods of enhancing pluripotentcy	We provide for the use of Tbx3 (GenBank Accession Number: NM_005996.3 (SEQ ID NO. 1), NP_005987.3 (SEQ ID NO. 2), NM_016569.3 (SEQ ID NO. 3), NP_057653.3 (SEQ ID NO. 4)) in a method of enhancing or inducing pluripotency in a cell such as a somatic cell. We describe a method of reprogramming a cell, the method comprising modulating the expression and/or activity of Tbx3 in the cell. The cell may become a pluripotent cell such as a stem cell. We further describe a method of causing a cell such as a somatic cell to display one or more characteristics of a pluripotent cell, the method comprising modulating the expression and/or activity of Tbx3 in the cell. The method may further comprise modulating the expression and/or activity of one or more, a combination of or all of Oct4, Sox2 and Klf4 in the cell.
US8871686B2	Methods of identifying a pair of binding partners	The invention relates to methods of identifying a binding partner of a target molecule within a plurality of analyte molecules, including a plurality of peptides and/or proteins. The target molecule is physically combined with a target labeling nucleic acid molecule. Each member of the plurality of analyte molecules is physically linked to an analyte labeling nucleic acid molecule, each analyte labeling nucleic acid molecule comprising a selected nucleotide sequence. This specific nucleotide sequence may include a sequence encoding a peptide/protein combined therewith. The target molecule is contacted with the analyte molecules and a complex between the target molecule and an analyte molecule forms. The mixture is subdivided into compartments. The target labeling nucleic acid molecule and the analyte labeling nucleic acid molecule are linked and the plurality of compartments allowed to disintegrate. The linked nucleic acid molecule is retrieved and the sequence determined.
US8867260B2	Reading circuit for a resistive memory cell	A reading circuit for a resistive memory cell is provided, the circuit including a current source, a precharge switch, a comparator circuit including a first input node (in-node), and a second in-node, the precharge switch configured to couple the current source to the first in-node to apply a precharge voltage during a first reading time period, and to decouple the current source during a second reading time period, the comparator circuit configured to operate during a third reading time period, a memory cell access switch to enable a current flow at least partially during the second and the third reading time periods through a memory cell, the comparator circuit configured to compare a voltage at the first in-node with a reference voltage at the second in-node and to determine a programming state of the memory cell based on the voltage at the first in-node during the third reading time period.
US8862581B2	Method and system for concentration detection	There is a method and a system for concentration detection. The method for concentration detection includes the steps of extracting temporal features from brain signals; classifying the extracted temporal features using a classifier to give a score x1; extracting spectral-spatial features from brain signals; selecting spectral-spatial features containing discriminative information between concentration and non-concentration states from the set of extracted spectral-spatial features; classifying the selected spectral-spatial features using a classifier to give a score x2; combining the scores x1 and x2 to give a single score; and determining if the subject is in a concentration state based on the single score.
US8853330B2	Hybrid polymers	Described herein are polymers comprising a polyester and at least one polyhedral oligomeric silsesquioxane, wherein the polyester is capable of forming a stereocomplex with a polymer comprising a complimentary polyester and composites thereof

US8847104B2	Wafer cutting method and a system thereof	A method for cutting a semiconductor wafer by generating a crack within the wafer, and a system thereof, are provided. The method comprises irradiating a laser beam towards a surface of the wafer and converging the laser beam to form a focal point so that a focal volume defined by the focal point and a boundary of the laser beam within the wafer is formed. Energy encompassed within the focal volume causes the wafer located at the periphery of the focal volume to contract faster than the wafer located within the focal volume, thereby generating a crack within the wafer.
SG10201403626PA	An Optical Sensing System and a Method of Determining a Change in an Effective Refractive Index of a Resonator of an Optical Sensing System	-
US8834780B2	Hydrodynamic spinning of polymer fiber in coaxial laminar flows	A polymer fiber is formed by hydrodynamic spinning. Fluids are forced to flow through a conduit to form a laminar flow comprising three or more layers of generally coaxial fluid flows, at respective flow rates selected to define a cross-section of a tubular middle layer of the fluid flows. The middle layer comprises a cross-linkable polymer precursor. Another layer of the fluid flows comprise a cross-linking agent. The polymer precursor, cross-linking agent and fluids are selected to prevent substantial diffusion of the polymer precursor away from the middle layer, and to allow a portion of the cross-linking agent to diffuse from the another layer into the middle layer to facilitate cross-linking of the polymer precursor in the middle layer to form a tubular polymer layer in a polymer fiber. The polymer layer thus has a cross-section generally corresponding to the cross-section of the middle layer.
US8838094B2	Acquiring information from volatile memory of a mobile device	According to various embodiments, there is provided a method of acquiring information from volatile memory of a mobile device, the method including: accessing the volatile memory of the mobile device used by an application operating on the mobile device to store communicated information with a communication device; acquiring a copy of data present in the volatile memory; and analyzing the copy of data to extract the communicated information.
US8833165B2	Miniaturized piezoelectric accelerometers	The miniaturized piezoelectric accelerometer includes a support frame (102) having a cavity (104) and a seismic mass (108) supported by a plurality of suspension beams (110) extending from the support frame (102). Each of the suspension beams (110) has a piezoelectric thin film coated on a top surface thereof, with a pair of inter-digital electrodes (114) deposited on an upper surface of each piezoelectric thin film. The presence of acceleration excites bending and thus strain in the piezoelectric thin film, which in turn causes electrical signals to be generated over terminals of the electrodes (114). To collect constructively the output of the electrodes (114), one terminal of each of the electrodes (114) is routed to and electrically connected at a top surface (308) of the seismic mass (108).
US8834861B2	Polycarbonates for delivery of drugs and methods of preparation thereof	A cyclic carbonate monomer has the formula (2): wherein i) t and t′ are integers independently having a value from 0 to 6 wherein t′ and t cannot both be zero, ii) each Q1 is a monovalent radical independently selected from the group consisting of hydrogen, halides, alkyl groups comprising 1 to 30 carbons, and aryl groups comprising 6 to 30 carbon atoms, iii) L′ is a divalent linking group comprising one or more carbons, and iv) S′ is a steroidal group.
US8829765B2	Piezoelectric actuator device	A piezoelectric actuator device includes a substrate anchor region; a support beam arrangement having first and second ends, wherein the first end is fixed to the anchor region and the second end is freely suspended; first and second beams having first and second ends, wherein the first end of each beam is mechanically fixed to at least a part of the second end of the support beam arrangement and the second end of each beam is freely suspended; a coupling beam mechanically coupling the second end of the first and second beams; wherein the first and second beams are arranged such that the first end of the support beam arrangement is located between the coupling beam and the second end of the support beam arrangement.
US8823452B2	GM-ratioed amplifier	Embodiments provide a gm-ratioed amplifier. The gm-ratioed amplifier comprises a first input voltage terminal and a second input voltage terminal, a first output voltage terminal and a second output voltage terminal, and an amplifying unit. The amplifying unit may be coupled between the input voltage terminals and the output voltage terminals and may be adapted to supply an output voltage to the output terminals in dependence on an input voltage supplied to the input terminals. The amplifying unit may comprise a gm-load, which comprises a first load branch comprising a first field effect transistor, and a second load branch comprising a second field effect transistor. A first source/drain terminal and a gate terminal of the first field effect transistor may be coupled to the first output voltage terminal, and a first source/drain terminal and a gate terminal of the second field effect transistor may be coupled to the second output voltage terminal. A second source/drain terminal of the first field effect transistor and a second source/drain terminal of the second field effect transistor may be coupled with each other through a first transistor arrangement such that a linearity of response of the output voltage to the input voltage is improved.

US8824759B2	Correcting axial tilt based on object positions in axial slices of three dimensional image	A computer-implemented process is provided for reorienting a three-dimensional (3D) scan image of an object. The object has a generally flat surface. The image is constructed from image data obtained during rotation of the object about a rotation axis, which intersects the plane of the flat surface at an angle. Axial slices of the scan image are obtained, each of which represents a slice of the object that is perpendicular to the rotation axis and comprises a line representing the flat surface of the object. The axial slices are shifted to align lines representing the flat surface in different axial slices, thus forming a reoriented 3D image. Alternatively, an axial tilt angle is determined from the positions of these lines and the image is rotated by the determined angle to form a reoriented 3D image.
SG2014004071A	Analyte sensor and fabrication thereof	-
US8816456B2	Magnetoresistive device and a method of forming the same	According to embodiments of the present invention, a magnetoresistive device is provided. The magnetoresistive device includes a fixed magnetic layer structure having a fixed magnetization orientation along a first easy axis, a free magnetic layer structure having a variable magnetization orientation along a second easy axis, and an offsetting magnetic layer structure having a magnetization orientation along an axis at least substantially non-parallel to at least one of the first easy axis or the second easy axis, wherein the fixed magnetic layer structure, the free magnetic layer structure and the offsetting magnetic layer structure are arranged one over the other. According to further embodiments of the present invention, a method of forming a magnetoresistive device is also provided.
US8819529B2	Method of communication	A method of communication comprising determining whether to use distributing coding between a source (S), relay (R) and destination (D), based or a predetermined transmission rate; if the determination is positive, determining a forward error correction scheme using distributed Alamouti space-time coding, wherein the scheme is determined based on the predetermined transmission rate, a channel signal-to-noise ratio (SNR) and a network topology; relaying coded data from the S to the D using the determined forward error correction.
US8811527B2	Ultra-wideband impulse radio transmitter with modulation	A transmitter with modulation comprising a phase changing stage having a first switch and a second switch coupled t the first switch, a first transistor and a second transistor individually coupled to the each switch. The transmitter is configured to receive a phase changing signal having a first state and a second state. The first switch is configured t operate in an opposing manner to the second switch such that only the first transistor is configured to be turned on i the first state and only the second transistor is configured to be turned on in the second state upon receipt of the phase changing signal by the switches so as to achieve a change in an output phase of the transmitter when the phase changing signal switches from the first state to the second state.
US8809017B2	IRES mediated multicistronic vectors	This invention relates to nucleic acid molecules comprising at least one nucleic acid sequence encoding for a peptide or protein of interest, at least one nucleic acid sequence encoding for a selectable marker, and at least one IRES sequence, wherein the at least one IRES sequence is located between the at least one nucleic acid sequence encoding for the peptide or protein of interest and the at least one nucleic acid sequence encoding for the selectable marker. Furthermore, this invention relates to host cells comprising such nucleic acid molecule and to methods of recombinant protein expression using such host cells.
US8812323B2	Dialogue system and a method for executing a fully mixed initiative dialogue (FMID) interaction between a human and a machine	A method for executing a fully mixed initiative dialogue (FMID) interaction between a human and a machine, a dialogue system for a FMID interaction between a human and a machine and a computer readable data storage medium having stored thereon computer code for instructing a computer processor to execute a method for executing a FMID interaction between a human and a machine are provided. The method includes retrieving a predefined grammar setting out parameters for the interaction; receiving a voice input; analyzing the grammar to dynamically derive one or more semantic combinations based on the parameters; obtaining semantic content by performing voice recognition on the voice input; and assigning the semantic content as fulfilling the one or more semantic combinations.
US8805467B2	Probe element and method of forming a probe element	A probe element and a method of forming a probe element are provided. The probe element includes a carrier comprising biodegradable and/or bioactive material; and at least one electrode coupled to the carrier.
US8802376B2	Methods for identifying candidate cytotoxic antibody molecules	The disclosure relates to methods for screening candidate antibody molecules which bind to podocalyxin-like protein (PODXL) and/or to undifferentiated pluripotent stem cells and particularly, although not exclusively, to methods for identifying candidate cytotoxic antibody molecules.
US8796234B2	Crosslinking branched molecule through thiol-disulfide exchange to form hydrogel	In a process for forming a hydrogel, a precursor crosslinkable through disulfide bonds for forming the hydrogel is provided in a solution. The precursor comprises a branched molecular structure, which comprises a plurality of branches. At least three of the branches each comprises a disulfide bond. The pH in the solution is adjusted to initiate thiol-disulfide exchange in the precursor, thus crosslinking the precursor through disulfide bonds formed by thiol-disulfide exchange. After the precursor is sufficiently crosslinked to form a hydrogel, the pH in the solution is adjusted to inhibit further thiol-disulfide exchange in the hydrogel. Further, a hydrogel matrix may comprise a polymer substantially crosslinked through disulfide bonds. The polymer may comprise a hydrophobic poly(amido amine) core and an amino-functionalized hydrophilic shell.
SG2013092226A	Gelatin-based microgels	-
US8790633B2	Polymer coated magnetic particles	The invention relates to a polymer comprising a segment of Formula (I): wherein, R is either absent or a linking group, n is an integer greater than 0; and m is an integer from 1 to 6.

US8786484B2	Analogue to digital converter, an integrated circuit and medical device	An analogue to digital converter includes a first input connection to receive a first part of the analogue input signal, a second input connection to receive a second part of the analogue input signal, a first and second plurality of capacitors, each capacitor of the first plurality of capacitors forms a capacitor pair with a corresponding capacitor in the second plurality of capacitors During a sampling period, the first input connection couples the first part of the analogue input signal to a first contact of each capacitor of the first plurality of capacitors and the second input connection couples the second part of the analogue input signal to a first contact of each capacitor of the second plurality of capacitors. Further, a switching array couples a second contact of each capacitor of the first and second plurality of capacitors to a common mode voltage to determine a first bit of a digital output signal.
US8780618B2	Writing circuit for a magnetoresistive memory cell	According to embodiments of the present invention, a writing circuit for a magnetoresistive memory cell is provided. The writing circuit includes a first connecting terminal configured to provide a first electrical signal to switch a variable magnetization orientation of the free magnetic layer from a first magnetization orientation to a second magnetization orientation; a second connecting terminal configured to provide a second electrical signal to switch the magnetization orientation from the second magnetization orientation to the first magnetization orientation; and a sourcing switch configured to provide for a write operation a connection of the first or second connecting terminal to a node coupleable to the magnetoresistive memory cell. The first and second electrical signals have different amplitudes, and the first and second electrical signals are of the same polarity. Further embodiments relate to a memory cell arrangement and a method of writing into a target magnetoresistive memory cell.
US8778401B2	Mesoporous material excipients for poorly aqueous soluble ingredients	The present invention encompasses formulations and methods for producing solid dispersions comprising mesoporous materials with poorly aqueous soluble active ingredients. The active ingredient is formed in the amorphous state and entrapped in the nanosized pores of the mesoporous excipients using a co-spray drying process. The pore walls of mesoporous channels stabilize the amorphous form of active ingredient against re-crystallization. The amorphous active ingredient entrapped in mesoporous channels exhibits good stability during extended storage under stress test conditions and possesses significantly enhanced dissolution rates.
US8773897B2	Writing circuit for a magnetoresistive memory cell, memory cell arrangement and method of writing into a magnetoresistive memory cell of a memory cell arrangement	A writing circuit for a magnetoresistive memory cell is provided. The writing circuit includes a first electrical connecting terminal, a second electrical connecting terminal, a third electrical connecting terminal, a fourth electrical connecting terminal, a first reference potential terminal, a second reference potential terminal, a first switch configured to couple one of the first electrical connecting terminal, the second electrical connecting terminal, the third electrical connecting terminal and the fourth electrical connecting terminal to the magnetoresistive memory cell, and a second switch configured to couple the first reference potential terminal to the magnetoresistive memory cell if the first electrical connecting terminal or the second electrical connecting terminal is coupled to the magnetoresistive memory cell, and to couple the second reference potential terminal to the magnetoresistive memory cell if the third electrical connecting terminal or the fourth electrical connecting terminal is coupled to the magnetoresistive memory cell.
US8767355B2	Piezoelectric actuator, head gimbal assembly including the same and method of forming the same	According to embodiments of the present invention, a piezoelectric actuator is provided. The piezoelectric actuator includes a shear mode piezoelectric material including a first arm and a second arm intersecting each other, the shear mode piezoelectric material having a polarization direction oriented at least substantially along a length of the first arm, wherein the shear mode piezoelectric material has a first surface and a second surface opposite to the first surface, the first surface and the second surface being adapted to undergo a shear displacement relative to each other along an axis at least substantially parallel to the polarization direction in response to an electric field applied between the first surface and the second surface in a direction at least substantially perpendicular to the polarization direction.
US8762806B2	Decoding circuit and encoding circuit	A decoding circuit including a data buffer comprises a plurality of storage elements for storing data symbols, a processing circuit comprising a plurality of inputs and outputs, wherein the processing circuitry is configured to process data symbols received via the plurality of inputs and outputs. First and second decoding parameters are determined by a decoding rule and wherein the first and the second decoding parameters are not changed throughout the decoding process.
US8755106B2	Microelectromechanical system (MEMS) device, method of operating the same, and method of forming the same	A microelectromechanical system (MEMS) device, method of operating the MEMS device, and a method of forming the MEMS device are provided. The MEMS device includes a positioning mechanism and a locking mechanism. The positioning mechanism includes a first arm structure having a first surface and a second surface; a second arm structure having a first surface and a second surface; wherein the first surface of the first arm structure faces the first surface of the second arm structure. The positioning mechanism also includes a first actuator disposed adjacent to the second surface of the first arm structure facing away from the second arm structure; and a second actuator disposed adjacent to the second surface of the second arm structure facing away from the first arm structure. The locking mechanism includes a first pair of locking elements arranged such that each locking element is disposed at two opposite side surfaces of the first arm structure between the first and second surfaces of the first arm structure; and a second pair of locking elements arranged such that each locking element is disposed at two opposite side surfaces of the second arm structure between the first and second surfaces of the second arm structure. The first and second pairs of locking elements are configured to engage with and disengage from the first and second arm structures respectively.
US8741292B2	Proteins and methods for modulating cell activity	The present invention relates to a novel gene encoding a protein termed Coiled Coil Domain Containing 95 (CCDC95) or a peptide fragments thereof. The present invention also relates to the use of CCDC95 in Modulation of RGK small binding protein via altering concentration or sub-cellular localization of RGK small binding protein with CCDC95 or a peptide fragments thereof.

US8742963B2	Recording circuit and a method of controlling the same	A recording circuit is provided. The recording circuit includes a multiplexing circuit configured to receive a plurality of input signals and to produce a multiplexed output signal including the plurality of input signals, and a plurality of sampling circuits electrically coupled in parallel to each other, each sampling circuit being configured to sample a portion of the multiplexed output signal corresponding to an input signal of the plurality of input signals and the sampling circuits configured to alternately produce an output signal corresponding to the sampled portion.
SG10201400122VA	A high aspect ratio adhesive structure and a method of forming the same	-
US8735150B2	Methods for detecting embryonic stem cells, induced pluripotent stem cells, or cells undergoing reprogramming to produce induced pluripotent stem cells	The present invention relates to methods of detecting, in a sample, embryonic stem cells, induced pluripotent stem cells, and/or cells undergoing reprogramming to produce induced pluripotent stem cells. These methods include providing a sample potentially containing such cells and providing a rosamine derivative compound of the formula (I): where the rosamine derivative compound selectively produces fluorescent signals for embryonic stem cells, induced pluripotent stem cells, and/or cells undergoing reprogramming to produce induced pluripotent stem cells. These methods also include the steps of contacting the sample with the rosamine derivative compound and detecting the presence of the embryonic stem cells, induced pluripotent stem cells, and/or cells undergoing reprogramming to produce induced pluripotent stem cells based on fluorescent signals emitted by the sample following said contacting.
US8735750B2	Switching device and a method for forming a switching device	Embodiments provide a switching device. The switching device includes a substrate, which includes a contact region. The switching device further includes a vertical layer arrangement extending from the substrate next to the contact region. The vertical layer arrangement includes a control layer. The switching device further includes a freestanding silicon cantilever extending vertically from the contact region.
US8729695B2	Wafer level package and a method of forming a wafer level package	In an embodiment, a wafer level package may be provided. The wafer level package may include a device wafer including a MEMS device, a cap wafer disposed over the device wafer, at least one first interconnect disposed between the device wafer and the cap wafer and configured to provide an electrical connection between the device wafer and the cap wafer, and a conformal sealing ring disposed between the device wafer and the cap wafer and configured to surround the at least one first interconnect and the MEMS device so as to provide a conformally sealed environment for the at least one first interconnect and the MEMS device, wherein the conformal sealing ring may be configured to conform to a respective suitable surface of the device wafer and the cap wafer when the device wafer may be bonded to the cap wafer. A method of forming a wafer level package may also be provided.
US8722398B2	Treatment of bone fracture	The use of mesenchymal stem cells cultured in the presence of HS-2 for the treatment of bone fracture. Repair of bone fracture using such cells is enhanced compared with the treatment of bone fracture using mesenchymal cells cultured without HS-2. These mesenchymal stem cells may be formulated in a pharmaceutical composition and injected directly into tissues surrounding the fracture or used in a biocompatible implant or prosthesis.
US8725238B2	Electrocardiogram signal processing system	An electrocardiogram signal processing system is provided which includes: a wavelet transformation unit comprising a plurality of outputs, each output being connected to one of a plurality of scales, wherein the wavelet transformation unit is adapted to transform an input electrocardiogram signal into a set of wavelets, each wavelet being output to one of the scales; a plurality of signal processing blocks, each of the signal processing blocks coupled to a respective output of the wavelet transformation unit and configured to receive and process the wavelet from the respective output, wherein the signal processing blocks provide processing functions which differ from one another.
US8723949B2	Fish activity monitoring system for early warning of water contamination	A system and system for monitoring water quality. The system comprises a container for receiving a flow of water to be monitored, the container containing a plurality of fish and configured such that a substantially 3-dimensional group behavior of the fish is accommodated; a first imaging device disposed above the container for obtaining top view video data of the fish; and means for identifying individual fish based on foreground object detection.
US8716420B2	Amphiphilic polymers and nanocrystals coated therewith	An amphiphilic polymer (A) comprising repeat units of the general formulae (I), (II) and (III): or salts thereof, wherein R1 is H or methyl, R2 is an aliphatic moiety with a main chain of 3 to 30 carbon atoms and 0 to 3 heteroatoms selected from the group N, O, S, Se and Si, and R3 is one of (i) an alicyclic moiety with a main chain of 5 to 80 carbon atoms and 0 to 30 heteroatoms (ii) a moiety —Z—R4 wherein R4 is an alicyclic moiety with a main chain of 5 to 80 carbon atoms and 0 to 30 heteroatoms and Z is an aliphatic bridge of 1 to 3 carbon atoms and 0 to 2 heteroatoms, (iii) an aliphatic moiety with a main chain of 3 to 80 carbon atoms and 0 to about 30, and a C≡C group or an azido group.

US8709722B2	Methods for detecting DNA-binding proteins	There is provided a method for detecting binding of a DNA-binding protein to a target recognition sequence. The method comprises mixing in a reaction buffer a first set of metal nanoparticles, a second set of metal nanoparticles and a DNA-binding protein to form a mixture, and detecting the aggregation state of the mixture of metal nanoparticles. Each set of metal nanoparticles has a conjugated double-stranded DNA molecule having a single-stranded overhang at one end. The single-stranded overhangs of each set of DNA-conjugated metal nanoparticles are complementary to each other such that annealing of the complementary overhangs results in formation of the target recognition sequence that specifically binds the DNA-binding protein. The reaction buffer comprises an ionic species in a concentration sufficient to result in aggregation of the metal nanoparticles upon annealing of the first and second single-stranded overhang.
US8711912B2	Method, device and computer readable medium for determining whether transmission signals are present in received signals	A method is provided for determining whether transmission signals are present in received signals, the method comprising: receiving a first signal via a first radio resource; receiving a second signal via a second radio resource; determining whether a first transmission signal is present in the received first signal based on the received second signal; and determining whether a second transmission signal is present in the received second signal based on the received first signal.
US8710190B2	Human embryonic stem cell methods and PODXL expression	A method of identifying an undifferentiated human embryonic stem cell in a sample which may contain such cells, the method comprising identifying the cell or cells within the sample that express podocalyxin-like protein (PODXL) on their surface. A method of isolating an undifferentiated human embryonic stem cell from a sample containing such cells, the method comprising isolating the cell or cells within the sample that express PODXL on their surface. Typically, the methods use an antibody which binds to PODXL. Undifferentiated human embryonic stem cells isolated by the method may be useful in cell therapy. Also, in particular, compositions of cells differentiated from a human embryonic stem cell but which composition has been depleted of undifferentiated human embryonic stem cells are provided which are useful in cell therapy.
US8703194B2	Stimulus-responsive biodegradable polymers and methods of preparation	There is presently provided a stimulus-responsive polymer comprising a biodegradable polymer backbone and a stimulus-responsive pendant group attached to the biodegradable polymer backbone, wherein the biodegradable polymer backbone comprises a poly(amino ester) or a poly(amido amine), the poly(amido amine) optionally comprising a disulfide linkage in the backbone
US8696812B2	Thin films of ferroelectric materials and a method for preparing same	Thin films of ferroelectric material with a high mole fraction of Pb(A2+1/3B5+2/3)O3 substantially in a perovskite phase, wherein A is zinc or a combination of zinc and magnesium, and B is a valence 5 element such as niobium or tantalum, have been prepared. Typically, the mole fraction of Pb(A2+1/3B5+2/3)O3 in the ferroelectric material is >0.7. The method for preparing the thin films of ferroelectric material comprises providing a precursor solution containing lead, A2+, and B5+; modifying the precursor solution by addition of a polymer species thereto; applying the modified precursor solution to a surface of a substrate and forming a coating thereon; and (d) subjecting the coating to a heat treatment and forming the film in the perovskite phase. Optimal results have been obtained with PEG200 as the polymer species.
US8691945B2	Antimicrobial peptides	There is provided at least one isolated antimicrobial peptide, wherein the peptide is a linear analog of hBD3 or a fragment thereof. In particular, there is provided a linear analog of hBD3 wherein the peptide has a reduced cytotoxicity to at least one cell compared to the wild type hBD3.
US8691206B2	Formation of hydrogel in the presence of peroxidase and low concentration of hydrogen peroxide	In a process of forming a hydrogel from a mixture comprising hydrogen peroxide (H2O2), horseradish peroxidase (HRP), and a polymer comprising a crosslinkable phenol group, the gelation rate in the solution and the crosslinking density in the hydrogel can be independently adjusted or controlled by selection of the molarity of H2O2 and concentration of HRP in the solution when the molarity of H2O2 is limited to be within a range and the concentration of HRP is limited to be above a threshold. A method for determining the range and threshold is disclosed. The hydrogel may be used to grow cells, in which case, the molarity of H2O2 may be selected to affect the differentiation or growth rate of the cells in the hydrogel. Also, the hydrogel system may be used for sustained delivery of a therapeutic protein, for example in the treatment of liver cancer, fibrosis or hepatitis.
US8687917B2	Method and apparatus for registration of an atlas to an image	A method (100) and an apparatus (200) are disclosed for registering an input image and an atlas. The atlas is warped (130) using non-rigid registration. In particular, boundary displacements of structures in the atlas are calculated (132) which register those structures with equivalent structures in the input image. The boundaries of structures in the atlas are then warped (133) according to their respective boundary displacements using topology preserving propagation of boundary points of the structures.
US8686523B2	Magnetoresistive device	A magnetoresistive device having a magnetic junction including a first fixed magnetic layer structure, a second fixed magnetic layer structure, and a free magnetic layer structure, wherein the first second and free magnetic layer structures are arranged one over the other. The first second and free magnetic layer structures have respective magnetization orientations configured to orient in a direction at least substantially perpendicular to a plane defined by an interface between the free magnetic layer structure and either one of the first fixed magnetic layer structure or the second fixed magnetic layer structure. The respective magnetization orientations of the first and the second fixed magnetic layer structures are oriented anti-parallel to each other, and the first fixed magnetic layer structure is a static fixed magnetic layer structure having a switching field that is larger than a switching field of the free magnetic layer structure.
US8671754B2	Sensor device	In various embodiments, a sensor device is provided. The sensor includes a sensor receiving portion, a sensor arranged in the sensor receiving portion and a cap covering the sensor and the sensor receiving portion. The cap includes a plurality of recesses in the inner side wall of the cap for reducing the pressure measured by the sensor.

US8658099B2	Integrated apparatus for conducting and monitoring chemical reactions	Apparatus for conducting and monitoring chemical reactions comprises a base and a thermal cycler mounted on the base. A plurality of heat-conducting receptacles are mounted on the thermal cycler and in heat-communication therewith. Each receptacle comprises an opaque body defining a bore having an open end, a first window, and a second window. A cartridge is removably mounted on the receptacles. The cartridge comprises a plurality of light-transmitting reaction vessels, and conduits connected to the reaction vessels for processing and transferring fluid. The reaction vessels are received in the bores of the receptacles through the open ends of the bores. A light emitter is mounted on the base for illuminating the reaction vessels through the first windows of the reaction vessels. A light detector is mounted on the base for selectively receiving and detecting light emitted from the reaction vessels through the second windows of the receptacles.
US8642006B2	Mesocellular foam particles	The present invention provides a process for making regular shaped particles of solid foam. A first mixture, comprising water, an acid, a surfactant and a hydrophobic material, is combined with a hydrolysable silicon species to form a second mixture. The second mixture is maintained under conditions and for a sufficient time to form regular shaped precursor particles. The second mixture is then aged at a temperature and for a time effective to produce the regular shaped particles of solid foam.
US8642496B2	Method for forming a catalyst comprising catalytic nanoparticles and a catalyst support	The present invention relates to a method for forming a catalyst comprising catalytic nanoparticles and a catalyst support, wherein the catalytic nanoparticles are embedded in the catalyst support, comprising forming the catalytic nanoparticles on carbon particle, dispersing the carbon particle in a solution comprising precursors of the catalyst support to form a suspension, heating the suspension to form a gel, subjecting the gel to incineration to form a powder, and sintering the powder to form the catalyst
SG196031A1	Light coupling structure, method of forming a light coupling structure and a magnetic recording head	A light coupling structure, a method of manufacturing a memory cell, and a magnetic recording head are provided. The light coupling structure includes a light coupling layer having a cavity; a waveguide having a cladding layer and a core layer; wherein the cladding layer of the waveguide is disposed in the cavity of the light coupling layer and the core layer of the waveguide is disposed over the light coupling layer and the cladding layer of the waveguide; wherein the light coupling layer is configured to receive light from a light source and couple the received light into the core layer of the waveguide.
SG196288A1	A wafer cutting method and a system thereof	-
SG195728A1	System and method for estimating quantum efficiency and spontaneous recombination lifetime	A method and system for estimating a quantum efficiency and a spontaneous recombination lifetime of a photonic or photovoltaic device. The method comprises the steps of exciting the device using an excitation signal; measuring an excited signal from the device; calculating correlation coefficients at different respective noise frequencies between noise in the excitation signal and noise in the excited signal; estimating the quantum efficiency based on a high frequency saturation value of the square of the correlation coefficient; and estimating the spontaneous recombination lifetime from a curve fitting of the calculated correlation coefficients.
US8636937B2	Hierarchical nanopatterns by nanoimprint lithography	A method for forming hierarchical patterns on an article by nanoimprinting is disclosed. The method includes using a first mold to form a primary pattern on the article at a first temperature and a first pressure, the first temperature and the first pressure being able to reduce the elastic modulus of the article; and using a second mold to form a second pattern on the primary pattern at a second temperature that is below the article's glass transition temperature, the forming of the second pattern being at a second pressure.
US8630310B2	Wireless transmission of layered signals in a relay network	The wireless transmission of layered signals, in a described embodiment, uses multiple relay nodes (304) to implement cooperative diversity. The method includes: (i) receiving layered signals from a source node (300), (ii) receiving, from a destination node (302), a relay allocation parameter to implement a cooperative relay strategy with one or more other relay nodes (304), and (iii) relaying the layered signals to the destination node (302) using the cooperative relay strategy.
US8629425B2	Tunable wavelength light emitting diode	A light emitting diode and a method of fabricating a light emitting diode, the diode has a first set of multiple quantum wells (MQWs), each of the MQWs of the first set comprising a wetting layer providing nucleation sites for quantum dots (QDs) or QD-like structures in a well layer of said each MQW; and a second set of MQWs, each of the MQWs of the second set formed so as to exhibit a photoluminescence (PL) peak wavelength shifted compared to the MQWs of the first set.
US8626110B2	Circuit arrangement and receiver including the circuit arrangement	A circuit arrangement is provided. The circuit arrangement includes a first input terminal and a second input terminal, a first transistor and a second transistor coupled to each other and to the first input terminal and the second input terminal, each of the first transistor and the second transistor having a first controlled terminal, a second controlled terminal and a control terminal, an input matching circuit coupled to the first input terminal, the second input terminal, the first transistor and the second transistor, a first resistive element coupled between the control terminal and the second controlled terminal of the first transistor, a second resistive element coupled between the control terminal and the second controlled terminal of the second transistor, and an output terminal coupled to the second controlled terminals of the first transistor and the second transistor.

US8617879B2	Apparatus for cell or tissue culture	The apparatus for cell or tissue culture comprises a base plate (1), an intermediate face (2) and a top plate (3). The intermediate face (2) is removably sandwiched between the base plate (1) and the top plate (3). The base plate (1) has a circumferential wall (13), a base (14) and a top wall (16). The top wall (16) of the base plate (1) comprises a plurality of recesses (12) arranged in n lines, wherein n is an integer from 1 to about 25. Each line of recesses (12) ranges from a first recess to a last recess. Each recess has a circumferential recess wall (15), which has one recess inlet and one recess outlet (40, 41). The circumferential wall (13) comprises a number of 2 n ports (11). Each port (11) is coupled to a single line of recesses (12). The recesses (12) of each line of recesses are in fluid communication with (i) each other via the recess inlets and a recess outlets (40, 41) and (ii) with a first and a second port (11) of the 2 n ports, such that the first recess of each line of recesses is coupled to a first port and the last recess of each line of recesses is coupled to a second port. The intermediate face (2) has a plurality of recesses (21) arranged in m lines, fitted into the plurality of recesses (12) of the top wall (16) of the base plate (13). m is an integer from 1 to about 25 equal to or smaller than n. The recesses (21) of the intermediate face (2) have water permeability. The top plate (3) is reversibly sealed to the intermediate face (2) and the intermediate face (2) is reversibly sealed to the base plate (1). Thus the recesses (12) of the top wall (16) of the base plate (1) define culture chambers. Each culture chamber has a circumferential wall defined by the recess wall (15) and a removable top, which is defined by a portion of the top plate (3).
US8610392B2	Runout measurement for devices having a rotating body	A runout measurement system is proposed for measuring the runout of a moving surface of a device having a rotating body, such as a mass storage device (100) (e.g. a hard disk drive) having a rotor which in use includes a rotating recording medium. A sensor (102) interacting with the moving surface obtains a displacement signal. The displacement signal is sampled by a sampling unit (104) controlled by a unit (109) which initiates sampling based on both a signal indicating a ZCP and the clock signal of a high frequency (e.g. 20 MHz) clock (106). Simultaneously, the same clock (106) is used by a counter 108 to measure the spacing between one or more ZCP times. This permits the correspondence between the sampling times and the angular position of the rotor to be found with a high accuracy which depends upon the clock frequency, and thereby allows calculation of repeatable runout (RRO) and non-repeatable runout (NRRO).
US8603825B2	Sensor for measuring gas permeability of a test material	A sensor for measuring gas permeability of a test material, comprising: an electrically conductive sensing element that comprises a water and/or oxygen sensitive material, wherein the reaction of said material with water or oxygen when the sensing element is contacted with water and/or oxygen results in a change in the electrical conductivity of the sensing element, and two electrodes electrically connected to the sensing element.
US8603917B2	Method of processing a wafer	According to embodiments of the present invention, a method of processing a wafer is provided. The wafer includes a plurality of through-wafer interconnects extending from a frontside surface of the wafer to a backside surface of the wafer. The method includes removing a part of wafer material of the back-side such that a portion of the wafer material between the through-wafer interconnects is removed, thereby exposing a portion of the through-wafer interconnects, forming a layer of low-k dielectric material between the through-wafer interconnects, and planarizing the layer of low k dielectric material such that a surface of the portion of the through-wafer interconnect is exposed.
SG194332A1	Accelerometers and methods of fabricating thereof	The present invention is directed to an accelerometer including a pivot arm having a first end region and a second end region opposite to the first end region; a pivot coupled to the pivot arm; an annular predefined mass having a peripheral part coupled to the first end region or the second end region of the pivot arm, a first capacitive sensor located at the first end region of the pivot arm; and a second capacitive sensor located at the second end region of the pivot arm such that the pivot is arranged between the first capacitive sensor and the second capacitive sensor, wherein the predefined mass is configured to move in response to an acceleration force along a predefined direction; and wherein the first and second capacitive sensors are configured to determine a differential capacitance value relating to the acceleration force. Method of fabricating an accelerometer is also disclosed.FIG. 5A
US8583225B2	System and method for detecting skin penetration	A system and method for detecting skin penetration. The system comprises an invasive component for penetrating the skin; a dummy electrode for making contact with the surface of the skin; at least one penetrating electrode disposed in the invasive component; and a Wheatstone bridge circuit; wherein a resistance across the dummy electrode and the penetrating electrode constitutes one of the resistive legs of the Wheatstone bridge circuit and skin penetration of the invasive component is detected based on a differential output voltage from the Wheatstone bridge circuit.
US8545746B2	Method of making a substrate having multi-layered structures	A method of making a substrate having multi-layered structures thereon, the method comprising the steps of (a) applying a mold having an imprint forming surface to the substrate to form an array of imprint structures that projects from the substrate; and (b) applying a lateral force that is substantially normal to said projecting imprint structures to cause said imprint structures to move angularly towards said substrate and thereby form a pattern of multi-layered structures thereon.
SG193092A1	Semiconductor photomultiplier device	5 According to embodiments of the present invention, a semiconductor photomultiplier device is provided. The semiconductor photomultiplier device includes a substrate having a front side and a back side, a common electrode of a first conductivity type adjacent to the back side, and a cell including an active region of a second conductivity type adjacent to the front side, and a contact region of the second conductivity type adjacent to the front10 side, the contact region being spaced apart from the active region by a separation region.Figure 3B

US8537353B2	Sensor chip for biological and chemical sensing	A sensor chip comprising:a micro/nanofluidic channel;at least one nanostructure provided in said channel along an optical path for the transmission of a light beam;a light transparent element disposed along the optical path and arranged to allow transmission of light onto said nanostructure; anda non-transparent element surrounding at least a portion of said optical path to at least partially reduce light scatter from the optical path.
US8524174B2	Fluid cartridge, pump and fluid valve arrangement	A fluid cartridge, comprising a channel layer within which at least one circumferentially sealed fluid channel is formed, the channel layer comprising a substrate and an elastic layer fixedly arranged on the substrate, wherein the substrate has a rigidity being greater than that of the elastic layer, and wherein the at least one fluid channel is defined on at least one side thereof by the elastic layer
US8518559B2	Arylamine compounds and electronic devices	There is provided conductive organic arylamine compounds. The compounds may be prepared as films and such films may be used as a hole transporting layer, an emissive layer or an electron transporting layer in organic light emitting devices
US8508306B2	Relaxation oscillator	A relaxation oscillator and a method for offset cancellation in a relaxation oscillator. The relaxation oscillator comprises two comparator units, each comparator unit comprising a comparator element and a memory element; and a switch control generator coupled to each of the comparator units; wherein each comparator unit, in a reset state, stores an input-offset voltage on the memory element under the control of the switch control generator such that, in a comparison state, the input-offset voltage is applied to both inputs of the comparator for implementing an offset-free threshold.
US8496946B2	Antimicrobial hydrogels, methods of preparation thereof, and articles therefrom	A covalently crosslinked hydrogel comprises a) three or more divalent poly(alkylene oxide) chains P covalently linked at respective first end units to a branched first core group C′, b) three or more divalent poly(alkylene oxide) chains P″ covalently linked at respective first end units to a branched second core group C″, the chains P″ comprising respective second end units which are covalently linked to between 0% and 100% of respective second end units of chains P′ by divalent linking groups L″, and c) at least one pendant cationic block copolymer chain A′-B′. A′-B′ comprises i) a divalent block A′ comprising a poly(alkylene oxide) backbone chain having an end unit covalently linked to a second end unit of one of the chains P′ by a divalent linking group L′, and ii) a monovalent block B′ comprising a first repeat unit, the first repeat unit comprising a backbone carbonate group and a cationic side chain group.
US8496796B2	Composite films comprising carbon nanotubes and polymer	A process for forming a composite film on a substrate comprises providing a suspension comprising an ionised polymer and functionalised carbon nanotubes in a solvent, at least partially immersing the substrate and a counterelectrode in the suspension, and applying a voltage between the substrate and the counterelectrode so as to form the composite film on the substrate. Electrical charges on the polymer and on the nanotubes have the same sign and the voltage is applied such that the charge on the substrate has the opposite sign to the charge on the polymer and the nanotubes.
US8470891B2	Biodegradable block polymers for drug delivery, and methods related thereto	A biodegradable block copolymer is disclosed, comprising a hydrophilic block derived from a polyether alcohol; and a hydrophobic block comprising a first repeat unit derived by ring opening polymerization of a first cyclic carbonyl monomer initiated by the polyether alcohol, the first repeat unit comprising a side chain moiety comprising a functional group selected from the group consisting of i) urea groups and ii) mixtures of urea groups and carboxylic acid groups. No side chain of the hydrophobic block comprises a covalently bound biologically active material. The block copolymer self-assembles in water forming micelles suitable for sequestering a biologically active material by a non-covalent interaction, and the block copolymer is 60% biodegraded within 180 days in accordance with ASTM D6400.
US8470211B2	Ferroelectric ceramic material with a low sintering temperature	The present invention provides new ferroelectric ceramic materials which can be sintered at a temperature lower than that of the conventional ferroelectric ceramic materials and upon sintering, devices formed of the new ferroelectric ceramic materials possesses excellent piezoelectric properties which are suitable for many industrial applications. The ferroelectric ceramic material includes a composition with a general formula of wPb(Ni1/3Nb2/3)O3-xPb(Zn1/3Nb2/3)O3-yPb(Mg1/3Nb2/3)O3-zPbZrO3-(1−w−x−y−z)PbTiO3, in which 0<w<1, 0<x<1, 0≦y<1, 0<z<1, w+x+y+z<1, and 0.5≦w+x+y. A method of preparing a ferroelectric ceramic material includes preparing MgNb2O6, ZnNb2O6 and NiNb2O6 powder precursors, mixing the precursors with PbO, TiO2 and ZrO2 to form a mixture and calcining the mixture.
US8463371B2	System and method for processing brain signals in a BCI system	A system and method for processing brain signals in a BCI system. The method of processing brain signals in a BCI system includes the steps of processing the brain signals for control state detection to determine if a subject intends to use the BCI system; and processing the brain signals for command recognition if the control state detection method determines that the subject intends to use the BCI system.
US8450105B2	Mechanically reversible gel	A process for making a gel comprising combining a silanol species comprising at least two silanol groups per molecule and a hydrophilic hydroxyl species comprising at least two hydroxyl groups per molecule. The gel is capable of being converted to a liquid by application of a mechanical shear force and the liquid is capable of being converted to the gel in the absence of the mechanical shear force.

US8446947B2	Method for encoding a digital signal into a scalable bitstream; method for decoding a scalable bitstream	A method for encoding a digital signal into a scalable bitstream comprising quantizing the digital signal, and encoding the quantized signal to form a core-layer bitstream, performing an error mapping based on the digital signal and the core-layer bitstream to remove information that has been encoded into the core-layer bitstream, resulting in an error signal, bit-plane coding the error signal based on perceptual information of the digital signal, resulting in an enhancement-layer bitstream, wherein the perceptual information of the digital signal is determined using a perceptual model, and multiplexing the core-layer bitstream and the enhancement-layer bitstream, thereby generating the scalable bitstream. A method for decoding a scalable bitstream into a digital signal comprising de-multiplexing the scalable bitstream into a core-layer bitstream and an enhancement-layer bitstream, decoding and de-quantizing the core-layer bitstream to generate a core-layer signal, bit-plane decoding the enhancement-layer bitstream based on perceptual information of the digital signal, and performing an error mapping based on the bit-plane decoded enhancement-layer bitstream and the de-quantized core-layer signal, resulting in an reconstructed transformed signal, wherein the reconstructed transformed signal is the digital signal.
US8442836B2	Method and device of bitrate distribution/truncation for scalable audio coding	Embodiments of the invention provides a method and device for assigning bitrates to a plurality of channels in a scalable audio encoding/truncation process. Different bitrates are assigned to different channels in the scalable audio encoding/truncation process.
US8436334B2	Fabrication of phosphor free red and white nitride-based LEDs	A multiple quantum well (MQW) structure for a light emitting diode and a method for fabricating a MQW structure for a light emitting diode are provided. The MQW structure comprises a plurality of quantum well structures, each quantum well structure comprising: a barrier layer; and a well layer having quantum dot nanostructures embedded therein formed on the barrier layer, the barrier and the well layer comprising a first metal-nitride based material; wherein at least one of the quantum well structures further comprises a capping layer formed on the well layer, the capping layer comprising a second metal-nitride based material having a different metal element compared to the first metal-nitride based material.
SG188757A1	A method for forming a piezoelectric device	A Method For Forming A Piezoelectric Device AbstractThere is provided a method for forming a piezoelectricdevice comprising the steps of: (a) depositing a first electrode layer; (b) depositing a piezoelectric material layer on the first electrode layer to thereby cover the first electrode layer while leaving a region of the firstelectrode layer uncovered; (c) depositing a second electrode layer on the piezoelectric material layer; (d) depositing a piezoelectric material layer on the second electrode layer to thereby cover the second electrode layer while leaving a region of the second electrodelayer uncovered; and (e) repeating steps (a) to (c), and optionally step (d), to build multiple repeating first electrode layers separated from the second electrode layers by piezoelectric material layers, wherein all of the uncovered regions of the first electrode layersconverge at a point A to integrally form a first electrode and all of the uncovered regions of the second electrode layers converge at a point B to integrally form a second electrode in which point A is displaced at a distance from point B.(Fig. 1(S) and Fig. 1(t))
US8433009B2	Method for determining as to whether a received signal includes a data signal	A method of determining as to whether a received signal includes a data signal is provided. The method provided includes determining a first value based on a cyclic auto-correlation of the received signal and determining a second value based on the cyclic auto-correlation of the received signal. The method provided further includes determining as to whether a received signal includes a data signal based on a comparison of the first value and the second value.
US8421058B2	Light emitting diode structure having superlattice with reduced electron kinetic energy therein	A light emitting diode structure and a method of forming a light emitting diode structure are provided. The structure includes a superlattice comprising, a first barrier layer; a first quantum well layer comprising a first metal-nitride based material formed on the first barrier layer; a second barrier layer formed on the first quantum well layer; and a second quantum well layer including the first metal-nitride based material formed on the second barrier layer; and wherein a difference between conduction band energy of the first quantum well layer and conduction band energy of the second quantum well layer is matched to a single or multiple longitudinal optical phonon energy for reducing electron kinetic energy in the superlattice.
US8410165B2	Aldehyde conjugated flavonoid preparations	There is provided a method of conjugating a polymer containing a free aldehyde group with a flavonoid in the presence of an acid catalyst, such that the polymer is conjugated to the C6 or C8 position of the flavonoid A ring. The resulting conjugates may be used to form delivery vehicles to deliver high doses of flavonoids, and may also be used as delivery vehicles to deliver an additional bioactive agent.
US8389277B2	Forming cell structure with transient linker in cage	In a method of forming a cellular structure, cells and a transient linker are supplied to a volume partially enclosed by a cage. The linker facilitates initial attachment of adjacent cells to form a cell aggregate. The cage defines distributed openings that are sized to retain the cell aggregate. A fluid comprising a cell culture medium is supplied to the volume. The fluid is withdrawn from the volume through the openings. Aggregated cells retained in the volume are cultured to form a cell structure. A cell culturing device is provided which comprises a conduit and a cage in the conduit. A fluid flows in the conduit. The fluid comprises the cells, the transient linker and the cell culture medium. The cage retains aggregated cells formed in the fluid, and defines distributed openings that allow the fluid to flow through.
US8379751B2	Method of transmitting data to a receiver	A method of transmitting data to a receiver, wherein the data is transmitted using a plurality of sub-carriers, is provided. The method provided includes determining, for each sub-carrier and for each of a plurality of combinations of the sub-carrier and an antenna of a plurality of antennas to be used for transmitting the data, a transmission characteristic of a transmission of the sub-carrier using the antenna; and selecting, for each sub-carrier, an antenna of the plurality of antennas to be used for the transmission of the sub-carrier based on the transmission characteristic of the transmission of the sub-carrier between the antenna and the receiver.

US8377570B2	Poly(arylenevinylene) and poly(heteroarylenevinylene) light emitting polymer and polymer light-emitting devices	The invention provides novel luminescent poly(arylenevinylene) and poly(heteroarylenevinylene) polymers. The polymers of the invention may be prepared as films and such films may be used as an emissive layer in polymeric light emitting devices. In one embodiment, a bulky aryl group is attached at position (2) of at least one phenylene ring of a poly(phenylenevinylene) backbone. In another embodiment, the bulky aryl is attached at position 3 of at least one 5-membered heteroarylene ring of a poly(heteroarylenevinylene) backbone.
US8350087B2	Biodegradable thermogelling polymer	There is provided a polymer comprising blocks of at least one polyethylene glycol) block, at least one poly(propylene glycol) block and at least one poly(hydroxybutyrate) block. Also provided is a method of making the polymer and a method of using the polymer
US8343773B2	Array of microcapsules for controlled loading of macromolecules, nanoparticles and other nanoscale items and a method of fabricating it	The invention provides a microcapsule array comprising a plurality of microcapsules immobilized on a surface, optionally in microwells in said surface. Each of the microcapsules comprises an outer layer or shell defining a microcapsule interior, said outer layer having a permeability towards a nanoscale species which is dependent on an environmental condition to which said array is exposed.
US8334454B2	Thin film photovoltaic device	The present invention provides a thin film photovoltaic device and a method of forming a thin film photovoltaic device. The thin film photovoltaic device has a substrate, a thin film layer formed on the substrate and first and second electrodes formed on one side of the thin film layer. By applying an electric field over the first and second electrodes, the thin film layer is polarized in a direction parallel to the surface plane of the film. Upon exposure to light, the thin film layer converts light energy into electricity. According to the method, a thin film layer is formed on a substrate. A first electrode and a second electrode are formed on one side of the thin film layer. By applying an electric field over the first and second electrodes, the thin film layer is polarized in a direction parallel to the surface plane of the film.
US8329319B2	Phase change magnetic material	The invention relates to a phase change magnetic composite material for use in an information recording medium, said material comprising a phase change material component, and a ferromagnetic material component, wherein said material exhibits both magnetic effects and phase change effects, and is usable for optical media, phase change random access memory (PCRAM) devices, magnetic random access memory (MRAM) devices, solid state memory devices, sensor devices, logical devices, cognitive devices, artificial neuron network, three level device, control device, SOC (system on chip) device, and semiconductors.
US8323572B2	Measuring device	A measuring device includes a first substrate; and a second substrate bonded on the first substrate. The second substrate has at least two inflow ports, at least two outflow ports, and an injection port. The two inflow ports, the two outflow ports, and the injection port penetrate the second substrate. The first substrate includes partition wall portions opposing to each other, and forming a first cavity between the partition wall portions, and forming at least two second cavities close against one of the partition wall portions. Each second cavity is provided adjacent to the first cavity. Through holes are provided in the respective partition wall portions to connect the first cavity and the second cavity to each other, and the through holes are adapted to capture an object to-be-tested introduced in the first cavity.
US8320491B2	Method and system for encoding a data matrix and method and system for decoding an encoded data matrix	According to one embodiment of the invention, a method for encoding a data matrix having at least a first component and a second component is provided wherein the value of the first component is determined, the number of bits to be used for encoding the second component is selected based on the value of the first component, the second component is encoded using the selected number of bits, and the first component is encoded.
US8315297B2	Method, device and computer program for classifying a received signal	An embodiment of the invention provides a method for classifying a received signal. The method includes determining a covariance matrix of signal values of the received signal, and determining an eigenvalue matrix of the covariance matrix. The eigenvalue matrix includes the eigenvalues of the covariance matrix. A first function is determined from at least one eigenvalue of the eigenvalues of the covariance matrix. A second function is determined from at least one eigenvalue of the eigenvalues of the covariance matrix, wherein the second function is different from the first function. Dependent from a comparison between a value of the first function and a value of the second function, the received signal is classified into a signal comprising data or into a noise signal.
US8278725B2	Micromechanical structure and a method of fabricating a micromechanical structure	A micromechanical structure and a method of fabricating a micromechanical structure are provided. The micromechanical structure comprises a silicon (Si) based substrate; a micromechanical element formed directly on the substrate; and an undercut formed underneath a released portion of the micromechanical element; wherein the undercut is in the form of a recess formed in the Si based substrate.
US8259783B2	Method of determining as to whether a received signal includes an information signal	A method of determining as to whether a received signal includes an information signal is provided. The method provided includes determining a covariance matrix from a received signal and transforming the covariance matrix into a transformed covariance matrix, wherein the transformation is configured such that the transformed covariance matrix is a non-diagonal matrix in case the received signal includes the information signal, wherein the non-diagonal matrix includes non-zero non-diagonal matrix elements. The method provided further includes determining a first function using at least one of the non-zero non-diagonal matrix elements of the transformed covariance matrix, determining a second function using at least one matrix element of the transformed covariance matrix, wherein the second function is different from the first function, and determining as to whether a received signal includes an information signal based on a comparison of a value of the first function and a value of the second function.

US8259897B2	Computed tomography method and apparatus for centre-of-rotation determination	A method and apparatus is disclosed for determining the central ray of scanning an object on a detector in a computer tomography system. The method comprises producing a fan beam of x-rays at a fixed x-ray source and detecting the x-rays at the detector. The scanning projection data of the object under examination is received and the object is rotated under examination using a manipulator. After calculating the opposite projection pixel position and projection angle for each pixel, a mismatching is measured between the grey levels of all pixels and their calculated opposite projection pixels with a set of assumed central ray, and identifying the minimum of the measurement as the true central ray.
US8241850B2	Methods and compositions for isolating nucleic acid sequence variants	The invention is drawn to isolating sequence variants of a genetic locus of interest using a modified iterative primer extension method. The nucleic acids analyzed are generally single stranded and have a reference sequence which is used as a basis for performing iterative single nucleotide extension reactions from a hybridized polymerization primer. The iterative polymerization reactions are configured such that polymerization of the strand will continue if the sequence of the nucleic acid being analyzed matches the reference sequence, whereas polymerization will be terminated if the nucleic acid being analyzed does not match the reference sequence. Nucleic acid strands that have mutations can be isolated using a variety of methods and sequenced to determine the precise identity of the mutation/polymorphism. By performing the method on both strands of the nucleic acid being analyzed, virtually all possible mutations can be identified.
US8218694B2	Method for transmitting a digital signal, method for receiving a digital signal, transmitter and receiver	A transmitter (106) for transmitting a signal, the signal comprising a plurality of signal values, the signal values being grouped to at least one signal value block. The transmitter comprises a pre-transformation unit (101) adapted to process each signal value block by a pre-transformation to produce a block of modulation symbols, wherein the pre-transformation comprises a phase rotation of the signal block values, which corresponds to the multiplication of the signal value block with a phase rotation matrix. The transmitter also comprises a modulation unit (102) adapted to modulate at least one carrier signal based on the modulation symbols and a sending unit (104) adapted to send the modulated carrier signal.
US8213754B2	Optical splitter, combiner and device	An optical splitter, a combiner and a device. The optical splitter comprises a first longitudinal waveguide for receiving an incoming light wave; at least first and second pairs of output waveguides, the output waveguides of each pair being disposed on opposite sides of the first waveguide; wherein each of the output waveguides of each pair comprises a longitudinal portion disposed parallel to the first waveguide and such that optical power is coupled from the first waveguide into the respective longitudinal portions and the longitudinal portions of output waveguides of the first and second pairs are displaced along a length of the first waveguide; wherein each of the output waveguides of each pair further comprises a substantially S-shaped portion continuing from the respective longitudinal portions and such that optical power coupling between the respective S-shaped portions of output waveguides of the first and second pairs is substantially inhibited.
SG180386A1	Implantable device for detecting variation in fluid flow rate	According to embodiments of the present invention, an implantable device for detecting variation in fluid flow rate is provided. The implantable device includes: a substrate having an active element arrangement; a sensor arrangement having a first portion that is mechanically secured and a second portion that is freely deflectable, the sensor arrangement in electrical communication with the active element arrangement, wherein the active element arrangement is configured to detect changes in deformation of the sensor arrangement and produce an output in response to the detected changes; and at least one inductive element mechanically coupled to the substrate and in electrical communication with the active element arrangement, wherein the inductive element is adapted to power the active element arrangement through inductive coupling to an excitation source, and wherein the inductive element is adapted to transmit the output associated with the detected changes in the sensor.
SG181335A1	A method of determining as to whether a received signal includes a data signal	-
SG180675A1	Obtaining data for automatic glaucoma screening, and screening and diagnostic techniques and systems using the data	A non-stereo fundus image is used to obtain a plurality of glaucoma indicators. Additionally, genome data for the subject is used to obtain genetic marker data relating to one or more genes and/or SNPs associated with glaucoma. The glaucoma indicators and genetic marker data are input into an adaptive model operative to generate an output indicative of a risk of glaucoma in the subject. In combination, the genetic indicators and genome data are more informative about the risk of glaucoma than either of the two in isolation. The adaptive model may be a two-stage model, having a first stage in which individual genetic indicators are combined with respective portions of the genome data by first adaptive model modules to form respective first outputs, and a second stage in which the first outputs are combined by a second adaptive mode. Texture analysis is performed on the fundus images to classify them based on their quality, and only images which are determined to meet a quality criterion are subjected to an analysis to determine if they exhibit glaucoma indicators. Also, the images are put into a standard format. The system may include estimating the position of the optic cup by combining results from multiple optic cup segmentation techniques. The system may include estimating the position of the optic disc by applying edge detection to the funds image, excluding edge points that are unlikely to be optic disc boundary points, and estimating the position of an optic disc by fitting an ellipse to the remaining edge points.

SG180364A1	A transmitter with modulation	A transmitter with modulation comprising a phase changing stage having a first switch and a second switch coupled t the first switch, a first transistor and a second transistor individually coupled to the each switch. The transmitter is configured to receive a phase changing signal having a first state and a second state. The first switch is configured t operate in an opposing manner to the second switch such that only the first transistor is configured to be turned on i the first state and only the second transistor is configured to be turned on in the second state upon receipt of the phase changing signal by the switches so as to achieve a change in an output phase of the transmitter when the phase changing signal switches from the first state to the second state.
US8194247B2	SHG quantification of matrix-related tissue dynamic and disease	A microscope for optical imaging of high optical scattering coefficient biological tissue, comprising an optical excitation source for irradiating a scan area of the sample and generating optical emissions, wherein the sample has a first face facing away from the source and a second face facing the source. A two dimensional element for scanning the light over the sample; a focusing element having a numerical aperture NAi to focus the light onto the sample; a first optical condenser to collect light from the first face, the collected light comprising source transmitted light and first optical emission generated in the sample, the condenser having a NA2 larger than NAi; an optical filter to block the transmitted source light; an aperture with a size corresponding to the irradiated area of the sample, the aperture at the conjugate image position of the sample generated by the condenser; and an optical detector collecting light from the first face for detecting the first optical emission from the scan area.
US8180623B2	Integration of a discrete event simulation with a configurable software application	In general terms, the invention can be described as a computer system for enhancing the performance of underlying policies and execution-rules of real-world activities. The computer system includes a demand input section for providing demand information to drive the system. A real-time software application has a series of discrete steps for implementing the underlying policies and execution-rules of the activities and converts the demand information into instructions. A simulation-time operations-simulation model implements the underlying policies and execution-rules of the activities and receives the instructions. A control section includes a synchronization clock which synchronizes the discrete steps of the software application with the operations-simulation model by delaying the execution of some of the discrete steps and which communicates the instructions from the software application to the operations-simulation model. An output section outputs data to enhance the performance of the underlying policies and the execution-rules of the activities.
US8159536B2	Method for detecting desired objects in a highly dynamic environment by a monitoring system	A background image is generated based on a captured image. A data cluster is formed in pixel blocks of the background image using at least one feature of pixels in the pixel blocks. A data cluster formed in each pixel block includes a data distribution having a mean value and a standard deviation from the mean value. After generating the background image, each pixel of a subsequent captured image is compared with the data cluster of a pixel block of the background image to generate a first discrepancy value. A pixel of a subsequent image is compared with a data distribution of another adjacent pixel block of the background image to generate a second discrepancy value. Based on the discrepancy values, the pixels of the subsequent image are regarded as background or foreground pixels in a binary map, in which connected foreground pixels are marked to form a foreground object.
US8155234B2	Method for processing a data signal, data processing unit and computer program product	A method for processing a data signal received via a communication channel is described, comprising determining a first matrix comprising components describing characteristics of the communication channel and inverting the first matrix by sub-dividing the first matrix into at least four sub matrices, inverting a first sub matrix of the four sub matrices generating a second matrix by multiplying a second sub matrix of the four sub matrices with the inverted first matrix and a third sub matrix of the four sub matrices, determining the difference matrix between the second matrix and a fourth sub matrix of the four sub matrices inverting the difference matrix and calculating the inverted matrix based on the inverted difference matrix. The data signal is processed using the inverted first matrix.
US8144827B2	Method for determining a residual frequency offset, communication system, method for transmitting a message, transmitter, method for processing a message and receiver	A method of determining a residual frequency offset between a transmitter and a receiver in a transmission of data via a communication channel, is described, wherein the message is transmitted from the transmitter to the receiver via the communication channel and the message comprises at least one short preamble (201), at least one long preamble (202) and user data (203). The at least one long preamble (202) comprises residual frequency offset determination information based on which the residual frequency offset is determined.
US8126108B2	Method and apparatus for reorientated resconstruction of computed tomography images of planar objects	A system and method for micro computed tomography (CT) reconstruction of position scan data of planar objects, such as stacked integrated circuit chips and/or PCB, that automatically determines object orientation is disclosed for a preferred orientation of the reconstructed images. The object orientation of the sinogram of the scanning data is determined such that the reconstruction may be performed with any starting position. Additionally, planar object scan reconstructions with either a higher resolution in the thickness dimension without increasing the total computation resource or a faster processing speed under a given resolution in the thickness dimension may be achieved. The tilting angle with respect to the rotation axis may also be determined to perform a image rotation after a multi-slice reconstruction or cone-beam reconstruction.
US8114314B2	Electroconductive curable resins	An electroconductive polymer composition comprises a curable liquid thermosetting resin matrix; conductive nano-fibers such as carbon nano-tubes, carbon nano-fibers, metallic nano-fibers or non-conductive nano-fibers with an electrically conductive coating; and a particulate non-conductive phase discontinuously dispersed throughout the thermosetting matrix. The conductive nano-particles are dispersed throughout the matrix whereby when the thermosetting resin is cured, a percolation threshold is established within the thermoset matrix. The particulate non-conductive phase is selected from thermoplastic resin powders or exfoliated particles of nano-clay intercalated with the liquid thermosetting resin.

JP4850418B2	ZCP detection system and method	PROBLEM TO BE SOLVED: To simply and strongly carry out the zero-crossing point (ZCP) detection of a return phase of a sensorless BLDC motor without phase delays, regardless of a motor speed and parameters. ŽSOLUTION: The ZCP detection system has a ZCP level detecting circuit, a pulse generator, a pseudo-ZCP masking signal, and a state comparator. The detection circuit receives a terminal voltage and an intermediate voltage in each phase of a motor and generates ZCP level output, regarding each phase. The ZCP level output has a plurality of ascending/descending ends, corresponding to each ZCP of a phase voltage in each phase of the motor. The pulse generator receives a plurality of the ZCP level output and generates a ZCP pulse signal. The ZCP pulse signal has a plurality of pulses, corresponding to each ascending/descending end of the ZCP level output. The pseudo-ZCP masking signal masks a plurality of pseudo-ZCPs from the ZCP pulse signal, compares the logical value of the ZCP level output corresponding to a plurality of the phases, and generates a genuine ZCP signal. Ž
US8080428B2	Investigation of mucosa dryness conditions	The present invention relates to diagnosis and/or treatment of medical conditions. The present invention relates to new method of diagnosing dry mucosa condition in a subject. The condition may be dry eye. The present invention also provides a method to monitor the efficacy of a treatment of a dry mucosa condition, a method of treating a dry mucosa condition and/or a diagnostic kit for a dry mucosa condition.
US8067506B2	Water-soluble fluorescent particle comprising entangled fluorescent polymer and amphiphilic molecule	Water-soluble fluorescent particles are formed in a simple process. A mixture comprising a solvent, water, a fluorescent polymer dissolved in the solvent, and an amphiphilic molecule is provided. The fluorescent polymer comprises a hydrophobic segment. The amphiphilic molecule comprises hydrophilic and hydrophobic segments. The solvent is removed from the mixture to allow the fluorescent polymer and the amphiphilic molecule to entangle in the presence of water, thus forming the water-soluble fluorescent particles. In the formed particles, the hydrophilic segments of the amphiphilic molecule are entangled with one another, and the hydrophobic segments of the fluorescent polymer and amphiphilic molecule are entangled with one another. The amphiphilic molecule encapsulates the fluorescent polymer and at least some of the hydrophilic segments are exposed to render the particle soluble in water.
SG174181A1	Active manipulator	An active manipulator, a passive rotational joint, and an active prismatic joint. The manipulator comprises a mobile platform; a base platform; at least three active limbs coupled between the mobile platform and the base platform such that the mobile platform is moveable in at least one translational and two rotational directions under the control of the active limbs; each active limb comprising: an active prismatic joint moveable in said one translational direction; a passive rotational joint for accommodating rotational movement of the mobile platform in said two rotational directions.
SG173269A1	A magnetic structure and a magnetic recording medium comprising the same	A MAGNETIC STRUCTURE AND A MAGNETIC RECORDING MEDIUM COMPRISING THE SAME Abstract The invention relates to a magnetic structure comprising a first magnetic layer comprising a soft magnetic material; a second magnetic layer comprising a hard magnetic material; and a coupling layer between the first magnetic layer and the second magnetic layer, wherein the coupling layer comprises a material that switches from an anti-ferromagnetic state to a ferromagnetic state upon heating above a transition temperature. A magnetic recording medium comprising the magnetic structure and a method of manufacturing the same are also provided.Fig. 1
US8003380B2	High throughput cell-based assays fabricated with integrated silicon and cell culture technologies	The present invention relates to articles and methods involving porous materials (e.g., membranes) which may interact with species, such as biological molecules, cells, etc., whereby the species may adhere to or become immobilized with respect to a surface of the porous material or an adhesion layer coating the porous surface. The porous material may be capable of attaching species with control over the positioning and spatial distribution of the species across the surface of the material. Such articles and methods may be useful in, for example, biological assays, biological sensors, or in the culturing of biological cells.
US8003125B2	Injectable drug delivery systems with cyclodextrin-polymer based hydrogels	A cyclodextrin polymer-based injectable composition comprising cyclodextrin, a polymer which is capable of forming a hydrogel with the cyclodextrin, and a pharmacologically effective amount of at least one drug. The polymer is selected from poly(ethylene glycol), derivatives thereon or a copolymer with a poly(ethylene glycol) segment. The copolymer with a poly(ethylene glycol) segment may include a polymer selected from the group consisting of polyesters, polyurethanes, polyamides, polyethers, polysaccharides, poly(amino acid)s, polypeptides, and proteins. The composition may be injected subcutaneously, intramuscularly, intradermally, or intracranially.
US7994946B2	Systems and methods for scalably encoding and decoding data	Systems and methods for scalably encoding and decoding coded data are presented. One exemplary method for scalably coding data includes classifying, based upon at least one predetermined criteria, each of the plurality of data received as either (i) perceptually relevant data or (ii) perceptually irrelevant data. The perceptually relevant data is scalably coded, and the perceptually irrelevant data is non-scalably coded. Subsequently, the scalably coded perceptually relevant data and the non-scalably coded perceptually irrelevant are combined into a coded data stream for transmission.
SG171166A1	Cooperative communication methods and devices	Cooperative communication methods for a wireless communication network (100) and devices configured to perform such methods are disclosed herein. In a described embodiment, the network (100) includes a first communication device (102) and a second communication device (104), each of the communication devices (102,104) being associated with respective users and configured to communicate with a common base station (130). The cooperative communication method comprises the first communication device (102) transmitting a first message to the second communication device (104) for transmission to the base station (130) as a first routed message; and receiving a second message from the second communication device (104) for transmission to the base station (130) as a second routed message. In this way, the transmission is able to achieve diversity gains at the base station (130).

SG171383A1	A light emitting diode structure and a method of forming a light emitting diode structure	A light emitting diode structure and a method of forming a light emitting diode structure are provided. The structure comprises a superlattice comprising, a first barrier layer; a first quantum well layer comprising a first metal-nitride based material formed on the first barrier layer; a second barrier layer formed on the first quantum well layer; and a second quantum well layer comprising the first metal-nitride based material formed on the second barrier layer; and wherein a difference between conduction band energy of the first quantum well layer and conduction band energy of the second quantum well layer is matched to a single or multiple longitudinal optical phonon energy for reducing electron kinetic energy in the superlattice.
SG171165A1	A multiple access communication system	A multiple access communication system is disclosed herein. In a described embodiment, there is disclosed a method of allocating system bandwidth of the communication system and the method comprises, at step (402), dividing the system bandwidth of the multiple access communication system to form resource blocks amongst which there is one or more pairs symmetric at a carrier frequency; at step (404), assigning a value to each resource block based on the channel qualities and the correlation between the resource block and its counterpart resource block symmetric to the carrier frequency; and at step (406), the symmetric resource blocks are mapped to form respective resource groups based on the values for allocation to respective mobile devices for signal transmission.
SG170387A1	A method for forming metal capped substrate imprints	A method for selectively depositing a metal layer on a substrate is provided. The method comprises the steps of:(a) providing a mold having an imprint forming surface coated with said metal layer thereon, wherein said imprint forming surface comprises a first region and a second region, and wherein said first region is dimensioned to have a greater surface area compared to said second region; and(b) contacting said mold to said substrate to form an imprint on said substrate and to simultaneously selectively deposit said metal layer from said first region of said mold to said imprint on said substrate.
SG169724A1	A substrate having a surface thereon for inhibiting adhesion of a target cell thereon and a method of preparing the same	A substrate having a surface for inhibiting adhesion of a target cell thereon, the substrate comprising an array of generally longitudinal projections having a longitudinal axis that extends from the surface of said substrate and having an aspect ratio of at least 2.5, wherein adjacent projections of said array are configured on the substrate such that the projections at least partially inhibit adhesion of a target cell thereon.
SG169473A1	A method for converting a sensor capacitance under parasitic capacitance conditions and a capacitance-to-voltage converter circuit	A method for converting a sensor capacitance under parasitic capacitance conditions and a capacitance-to-voltage (CV) converter circuit for converting a sensor capacitance under parasitic capacitance conditions are provided. The method comprises the step of using a two stage operational amplifier (op-amp) in non-unity-gain configuration, wherein the two stage op-amp is chosen to be unstable in unity-gain configuration for reducing power consumption.
SG169717A1	Powered caster wheel assembly	A powered caster wheel assembly is provided. The assembly comprises a first actuator for driving a wheel; a second actuator for steering the wheel; and a mechanical compensating mechanism coupled between the second actuator and the wheel; wherein the mechanical compensating mechanism is arranged for driving the wheel to counter a driving motion of the wheel induced by steering
SG169161A1	A relaxation oscillator	A relaxation oscillator and a method for offset cancellation in a relaxation oscillator. The relaxation oscillator comprises two comparator units, each comparator unit comprising a comparator element and a memory element; and a switch control generator coupled to each of the comparator units; wherein each comparator unit, in a reset state, stores an input-offset voltage on the memory element under the control of the switch control generator such that, in a comparison state, the input-offset voltage is applied to both inputs of the comparator for implementing an offset-free threshold.
SG168792A1	Vhz for diagnosis and treatment of cancers	We provide VHZ for use in a method of treatment, prophylaxis or alleviation of a cancer in an individual selected from the group consisting of: colon cancer, lung cancer, squamous cell carcinoma including lip, larynx, vulva, cervix and penis cancer, pancreatic cancer, brain cancer, oesophageal cancer, stomach cancer, bladder cancer, kidney cancer, skin cancer, ovary cancer, prostate cancer and testicular cancer. We provide an anti-VHZ agent for the treatment, prophylaxis or alleviation of such a cancer. The anti-VHZ agent may comprise SEQ ID NO:4 or SEQ ID NO: 5, or both.
SG168785A1	Nanocomposites	The invention describes a nanocomposite particle comprising a nanoparticle having a surface comprising a silver salt, and at least one region of metallic gold on said surface. The invention also provides a nanocomposite material comprising said particles and processes for making the nanocomposite material, either by allowing gold in nanoparticles having a silver salt on the surface thereof to at least partially diffuse through the silver salt so as to form at least one region of metallic gold on said surface, or else by depositing metallic gold on the surfaces of nanoparticles having the silver salt on the surface thereof.
SG168624A1	A method of making an imprint on a polymer structure	There is disclosed a method of making an imprint on a polymer structure comprising the steps of: a) providing an imprinted substrate mold having a defined imprinted surface pattern on a first side and a defined imprinted surface pattern on a second side, opposite to the first side; b) pressing a polymer structure against the first side of the imprinted substrate mold to form an imprint thereon; and c) pressing another polymer structure against the second side of the imprinted substrate mold to form an imprint thereon.

US7917361B2	Spoken language identification system and methods for training and operating same	A method for training a spoken language identification system to identify an unknown language as one of a plurality of known candidate languages includes the process of creating a sound inventory comprising a plurality of sound tokens, the collective plurality of sound tokens provided from a subset of the known candidate languages. The method further includes providing a plurality of training samples, each training sample composed within one of the known candidate languages. Further included is the process of generating one or more training vectors from each training database, wherein each training vector is defined as a function of said plurality of sound tokens provided from said subset of the known candidate languages. The method further includes associating each training vector with the candidate language of the corresponding training sample.
US7910937B2	Method and structure for fabricating III-V nitride layers on silicon substrates	A method and structure for fabricating III-V nitride layers on silicon substrates includes a substrate, a transition structure having AlGaN, AlN and GaN layers, and a superlattice structure having AlGaN and GaN layers. In the invention, the large lattice mismatch (17%) between GaN and silicon is solved by using AlN as the first buffer layer with a 5:4 coincidence between AlN(0001) and Si(111) lattice to reduce the lattice mismatch to 1.3%.
SG168550A1	High-throughput cell-based assays fabricated with integrated silicon and cell culture technologies	-
US7894516B2	Method for equalizing a digital signal and equalizer	A method for equalizing a digital signal received via at least one communication channel is described, wherein a block of received signal values is processed by a block-iterative equalizer (200). The equalizer comprises a feedback unit (202) and a feed-forward unit (201) each corresponding to the multiplication by a respective matrix. The matrices are updated in the iterative process
SG167445A1	Production of hydroxymethylfurfural	The invention provides a process for making hydroxymethylfurfural comprising exposing a saccharide, e.g. glucose or fructose, to a metal complex of an N-heterocyclic carbene.
SG167194A1	Method and system for maintaining a database of reference images	A method and system for maintaining a database of reference images, the database including a plurality of sets of images, each set associated with one location or object. The method comprises the steps of identifying local features of each set of images; determining distances between each local feature of each set and the local features of all other sets; identifying discriminative features of each set of images by removing local features based on the determined distances; and storing the discriminative features of each set of images.
SG167286A1	Method of making a substrate having multi -layered structures	A method of making a substrate having multi-layered structures thereon, the method comprising the steps of (a) applying a mold having an imprint forming surface to the substrate to form an array of imprint structures that projects from the substrate; and (b) applying a lateral force that is substantially normal to said projecting imprint structures to cause said imprint structures to move angularly towards said substrate and thereby form a pattern of multi-layered structures thereon.
SG167528A1	Method, device, and computer readable medium for determining whether transmission signals are present in received signals	A method is provided for determining whether transmission signals are present in received signals, the method comprising: receiving a first signal via a first radio resource; receiving a second signal via a second radio resource; determining whether a first transmission signal is present in the received first signal based on the received second signal; and determining whether a second transmission signal is present in the received second signal based on the received first signal.
US7876821B2	Method and an apparatus for controlling the rate of a video sequence; a video encoding device	A method for rate control for encoding video sequence, wherein the video sequence includes a plurality of Group Of Pictures, wherein each Group of Picture includes at least and I-frame and an Inter-frame, where the rate control method includes the following steps for the encoding of the Inter-frame in the Group of Picture: determining a desired frame rate based on an available bandwidth of a channel for transmitting the video sequence and an available computational resources for the encoding process; determining a target buffer level based on the desired frame rate and the position of the Inter-frame with respect to the I-frame; and determining a target bit rate based on the target buffer level and the available channel bandwidth, wherein the target bit rate is used for controlling the rate of encoding the video sequence.
US7876670B2	Method for transmitting data, method for receiving data, transmitter, receiver, and computer program products	A method for transmitting data comprising a plurality of bits is described wherein the data is mapped to a plurality of modulation symbols, each modulation symbol comprising at least one more significant bit and at least one less significant bit, at least one parity bit is generated for the plurality of bits and the plurality of bits are mapped to more significant bits of the plurality of modulation symbols and the at least one parity bit is mapped to a least one less significant bit of the plurality of modulation symbols.
US7868492B2	Nano-positioning electromagnetic linear actuator	A flexure for an electromagnetic nano-positioning linear actuator having a support and an actuating body, the flexure comprising: a first resilient end for attaching to the support; a second resilient end for attaching to the actuating body; and a substantially rigid intermediate portion located between the first resilient end and the second resilient end.
SG166631A1	A method and system for classifying brain signals in a bci	A method or system for classifying brain signals in a BCI. The system comprises a model building unit for building a subject-independent model using labelled brain signals from a pool of subjects.
SG166333A1	An electrically conducting structure for a light transmissible device	An electrically conducting structure for a light transmissible device and a method of forming an electrically conducting structure for a light transmissible device are provided. The structure comprises a first transparent conducting material layer formed using first process conditions; at least one other transparent conducting material layer formed directly on the first layer, said at least one other transparent conducting material layer being formed using second process conditions that are different from the first process conditions; and wherein the first layer functions as a buffer layer to reduce adverse effects for the light transmissible device during formation of said at least one other transparent conducting material layer.

SG166436A1	Antifouling compounds and use thereof	The present invention relates to the use of compounds which have the following general formula (I), wherein R1 and R2 are independently selected from optionally substituted aryl, optionally substituted C1 to C12 alkyl and H; and R3 and R4 are independently selected from hydroxy, optionally substituted C1 to C6 alkyl, optionally substituted phenyl and H, in a method of preventing or reducing fouling, particularly in the marine environment. The compounds of the present invention have the considerable advantage of providing the antifouling coating market with an organic alternative to the existing technology which relies heavily on the addition of copper to obtain significant antifouling effects. The compounds we have developed may be used as cheap, easy to prepare additives that do not contain metals and therefore have reduced toxicity in marine environment.
SG165854A1	A method and system for concentration detection	A method and system for concentration detection. The method for concentration detection comprises the steps of extracting temporal features from brain signals; classifying the extracted temporal features using a classifier to give a score x1; extracting spectral-spatial features from brain signals; selecting spectral-spatial features containing discriminative information between concentration and non-concentration states from the set of extracted spectral-spatial features; classifying the selected spectral-spatial features using a classifier to give a score x2; combining the scores x1 and x2 to give a single score and determining if the subject is in a concentration state based on the single score.
SG165550A1	System and method for monitoring water quality	A system and system for monitoring water quality. The system comprises a container for receiving a flow of water to be monitored, the container containing a plurality of fish and configured such that a substantially 3-dimensional group behaviour of the fish is accommodated; a first imaging device disposed above the container for obtaining top view video data of the fish; and means for identifying individual fish based on foreground object detection.
SG165810A1	A portable system and method for remotely accessing data	Embodiments of the present invention provide a portable system and method for accessing data remotely. The system and method include a first module and a second module, each of the modules being associated with the host system, wherein the first module is capable of being connected to the host system and the second module, and the second module is capable of being connected to the remote system to establish a secure communication channel between the first and second modules across the data link to access the data.
US7822456B2	Locating a mid-sagittal plane	Volumes of interest may be defined, within a three-dimensional brain image, for each of three orthogonal directions. Measures, which may, for example, be energy or entropy measures, are determined for slices of the volumes of interest in the three directions. The volume of interest corresponding to the sagittal direction is then identified. The slice, among the slices in the volume of interest corresponding to the identified sagittal direction, having the optical measure is used to define a first estimate of the mid-sagittal plane. The first estimate of the mid-sagittal plane may then be used to build an input to an optimization technique, which operates until a convergence criterion is satisfied, at which point a final estimate of the mid-sagittal plane may be produced. 125
US7811846B2	Semiconductor devices grown in spherical cavity arrays and its preparation method	A method for fabricating an array of semiconductor devices comprising the steps of providing a non-metallic substrate, placing a layer of spheres on said substrate, reducing diameter of the spheres, encapsulating the spheres in a matrix of rigid material, finishing an upper surface of said matrix to expose a portion of said spheres, removing the spheres to form an array of cavities within said matrix, and forming features in said cavities in contact with said substrate so as to form the device.
SG163846A1	Forming glutathione-capped and metal-doped zinc selenide/zinc sulfide core-shell quantum dots in aqueous solution	In a process of forming a capped crystal structure, a precursor solution is heated. The solution comprises a mixture of zinc (Zn) precursor, selenium (Se) precursor, precursor for a dopant, glutathione (GSH), and water. The dopant comprises a transition metal (M). The molar ratio of Zn:Se in the solution may be about 10:3 to about 10:5. The solution is heated for a first period sufficient to allow Zn(M)Se crystal core to form. After the first period of heating, more zinc precursor and GSH are added to the heated solution, and the solution is heated for a second period sufficient to form ZnS crystal shell on the Zn(M)Se crystal core. GSH is added in a sufficient amount to form a GSH layer around the Zn(M)Se/ZnS quantum dot.
SG164084A1	Thienothiophene derivatives	An organic compound represented by the following general formula (I) and characterised by the conjugation of thieno[3,2-b] thiophene, thiophene and phenylene units in the conjugated compound.
US7805001B2	Method and apparatus for determining asymmetry in an image	A method for determining asymmetry in an image such as an MR image of a brain comprises determining a symmetry plane to divide the image into a first part and a second part representative of, for example, the hemispheres of the brain. The probability distributions of voxels against intensities are determined for the first and second parts and histograms of intensities representative of the parts are generated. Compensation is made for any relative shift along a predetermined axis between the histograms. A divergence value based on a distance between the first and second histograms is then calculated and it is determined if the calculated divergence value is greater than a predetermined threshold. A divergence of greater than the predetermined threshold is indicative of asymmetry in the image that may be considered as suspicious for abnormality. There is also disclosed an apparatus for determining asymmetry in an image.

US7791440B2	Microfabricated system for magnetic field generation and focusing	A method of forming, in or on a Si substrate, planar micro-coils with coil windings of high aspect ratio (>3) and a wide variety of geometric shapes. The micro-coils may be formed on a Si substrate and be embedded in a dielectric, or they may be formed in trenches within a Si substrate. The micro-coils may have field enhancing ferromagnetic pillars rising above the micro-coil plane, formed at positions of maximum magnetic field strength and the micro-coils may also include magnetic layers formed beneath the substrate and contacting the pillars to form a substantially closed pathway for the magnetic flux. The substrate may be thinned to membrane proportions. These micro-coils produce strong magnetic fields with strong field gradients and can be used in a wide variety of processes that involve the exertion of strong magnetic forces at small distances or the creation of magnetic wells for trapping and manipulating small particles.
SG163063A1	Discriminating infarcts from artifacts in MRI scan data	An algorithm is proposed to eliminate from MRI images pixels which have been incorrectly identified as corresponding to infarct material. A first technique is to eliminate identified regions which are determined to be similar to the region of the scan which corresponds to the identified region reflected in the mid-sagittal plane (MSP) of the brain. A second technique is to eliminate regions which are determined not to have corresponding identified regions in one or more of the other scans. The combination of two techniques enhances the confidence in the decision of whether a hyperintense region is an infarct or artifact.
US7783132B2	Method and apparatus for atlas-assisted interpretation of magnetic resonance diffusion and perfusion images	The present invention discloses a method for registering a measured MRI volume image with appropriate anatomical and blood supply territory Atlases to enable Atlas information to be mapped onto the measured MRI volume image. The disclosed arrangements provide an efficient method for mapping brain Atlas information (including gross anatomy and blood supply territories) into magnetic resonance perfusion and diffusion images.
US7783090B2	Automatic identification of the anterior and posterior commissure landmarks	The AC and/or PC landmarks are identified in a midsagittal MRI image by firstly identifying structures in the brain (specifically the fornix and/or brainstem) as groups of pixels in a radiological image which have an intensity in ranges defined by one or more thresholds and which obey predefined geometrical criteria. The thresholds are varied until the predefined geometrical criteria are met. Initial estimates of the position of the AC and/or PC are derived from the identified structures. These estimates can be improved in various ways, especially by making use of axial and/or corona/radiological images in planes including, and/or proximate to, the initial estimated position of the AC and/or PC.
US7776250B2	Imprinted polymer support	There is disclosed an imprinted polymer support for solid phase organic synthesis (SPOS). The polymer support being obtainable from a method that comprises providing a substrate and a mold, the mold having a defined surface pattern. A composition is placed between the defined surface pattern of the mold and the substrate. The composition comprises a polymerisation medium with at least one functional monomer and a free radical initiator. The composition is polymerised to form an array of polymer imprints adhered to the substrate.
US7778500B2	Optical fiber strain sensor	An optical fiber strain sensor, a method of fabricating the same, and a method of sensing strain. The method of strain sensing comprises providing an optical fiber having a fiber Bragg grating (FBG) formed therein; subjecting the optical fiber to a strain inducing force such that a grating period in a first portion of the FBG compresses and a grating period in a second portion of the FBG extends; and optically interrogating the FBG to determine a measure of a change in bandwidth of the FBG as a result of the compression and extension of the grating periods in the first and second portion respectively; whereby the measure of the change in the bandwidth is representative of the strain induced.
SG162770A1	Magnetically permeable liquid forged articles	The present invention relates to magnetically permeable alloys, and articles formed by liquid forging of such alloys. More particularly, the invention relates to a liquid forgeable magnetically permeable Al alloy having at least one alloying element selected from the group consisting of. Fe, Ni and Co. The invention also relates to a method of forming an article with the alloy of any one of claims 1 to 4, the method comprising the steps of. (a) pouring the alloy in molten form into a die cavity; and (b) pressurizing the molten alloy with a punch during solidification of the alloy.
US7733008B2	Organic light emitting diodes (OLEDs) including a barrier layer and method of manufacture	An Organic Light Emitting Diode (OLED) which is adapted to inhibit the formation and growth of non-emissive areas known as “dark spots.” The OLED comprises an anode disposed on a substrate, a cathode, an electroluminescent (EL) layer disposed between the anode and the cathode and a hole transport layer disposed between the anode and the EL layer. The OLED has one or more dielectric organic barrier layers disposed between one or more of the OLED's layers. These barrier layers are made from an organic polymer and are adapted to resist permeation by oxygen and moisture and to inhibit metal migration.
US7734556B2	Method and system for discovering knowledge from text documents using associating between concepts and sub-concepts	A method and a system for discovering knowledge from text documents are disclosed, which involve extracting from text documents semi-structured meta-data, wherein the semi-structured meta-data includes a plurality of entities and a plurality of relations between the entities; identifying from the semi-structured meta-data a plurality of key entities and a corresponding plurality of key relations; deriving from a domain knowledge base a plurality of attributes relating to each of the plurality of entities relating to one of the plurality of key entities for forming a plurality of pairs of key entity and a plurality of attributes related thereto; formulating a plurality of patterns, each of the plurality of patterns relating to one of the plurality of pairs of key entity and a plurality of attributes related thereto; analyzing the plurality of patterns using an associative discoverer; and interpreting the output of the associative discoverer for discovering knowledge.

SG160146A1	Methods of forming a nanocrystal	Methods of forming a nanocrystal are provided. The nanocrystal may be a binary nanocrystal of general formula M1A or of general formula M1O, a ternary nanocrystal of general formula M1M2A, of general formula M1AB or of general formula M1M2O or a quaternary nanocrystal of general formula M1M2AB. M1 is a metal of Groups II - IV, Group VII or Group VIII of the PSE. A is an element of Group VI or Group V of the PSE. O is oxygen. A homogenous reaction mixture in a non-polar solvent of low boiling point is formed, that includes a metal precursor containing the metal M1 and, where applicable M2. For an oxygen containing nanocrystal the metal precursor contains an oxygen donor. Where applicable, A is also included in the homogenous reaction mixture. The homogenous reaction mixture is under elevated pressure brought to an elevated temperature that is suitable for forming a nanocrystal.
SG160782A1	Water-soluble fluorescent material with balanced hydrophilicity and hydrophobicity	An amphiphilic molecule comprises a backbone and side chains grafted to the backbone. At least three backbone units are hydrophobic and fluorescent and at least one side chain unit is hydrophilic. The weight ratio within the molecule of backbone and side chain units that are hydrophilic to those that are hydrophobic is from about 1 :4 to about 4:1. To form fluorescent particles, a solution comprising water, an organic solvent and the amphiphilic molecule dissolved in the organic solvent is provided. The concentration of the molecule in the solution is from about 1 to about 1000 CAC, such as about 10 CAC to about 100 CAC, where CAC is the critical aggregation concentration of the amphiphilic molecule. The organic solvent is removed from the solution, thus allowing the amphiphilic molecule to form particles that have a peripheral size from about 10 nm to about 10 microns.
US7715607B2	Automated method for identifying landmarks within an image of the brain	A method is disclosed for obtaining the location of a landmark in an MR image of a brain. In a first step, a region of interest in a plane within the MR image containing the landmark is defined. In a second step, the ROI is binarised into foreground and background voxels based on at least one threshold selected using anatomical knowledge. In a third step a set of object voxels is identified from the foreground voxels, excluding voxels which were only classified as object due to proximity of cortical and non-cortical structures. This can be done by morphological processing which reclassifies voxels which may have been incorrectly classified as object, followed by restoring voxels due to the partial volume effect and/or morphological erosion/opening. In a fourth step, an automatic process is then carried out to identify one or more landmarks in the modified binarised image.
US7709542B2	Proton-exchange composite containing nanoparticles having outer oligomeric ionomer, and methods of forming	A proton-exchange composite includes a polymer matrix formed from a proton-exchange polymer and ionomer particles distributed therein. The polymer has side chains with ionic groups. The particles have an average particle size of less than 20 nm and include an oligomeric ionomer that interacts with the polymer and attracts the ionic groups on its side chains. The composite may be formed by a method in which an initiator is bonded to silica particulates. The initiator is used to initiate polymerization of a precursor monomer to form a salt form of the oligomeric ionomer bonded to the silica particulates, which is then reacted with an acid to produce the oligomeric ionomer, thus forming the ionomer particles. The ionomer particles are dispersed in a solution containing a solvent and the polymer dissolved therein. The solvent is removed. The residue is cured to form the composite.
SG159806A1	Amphiphilic polymer and processes of forming the same	Disclosed are an amphiphilic polymer, its synthesis and uses thereof. The polymer has a hydrocarbon backbone with -COOH side groups. It further has first aliphatic moieties with a main chain of about 3 to about 20 carbon atoms and 0 to about 3 heteroatoms, and second aliphatic moieties that have a main chain of about 3 to about 80 carbon atoms and about 2 to about 40 heteroatoms. The second aliphatic moieties have a copolymerisable group. In the synthesis a maleic anhydride polymer of formula (I) where n is an integer from about 10 to about 10000 and R1 is H or methyl, is reacted with a monofunctional compound with an alkyl chain of about 3 to about 20 carbon atoms and 0 to about 2 heteroatoms, and with an at least bifunctional compound with an alkyl chain of about 3 to about 80 carbon atoms and 0 to about 40 heteroatoms. The functional group of the monofunctional compound and one functional group of the at least bifunctional compound can form a linkage with an anhydride. Another functional group of the at least bifunctional compound, which is not allowed to react with the maleic anhydride polymer, is copolymerisable.
SG160144A1	TAZ/wwtr1 for diagnosis and treatment of cancer	We provide an anti-TAZ agent for the treatment, prophylaxis or alleviation of cancer. We further provide a kit for detecting breast cancer in an individual or susceptibility of the individual to breast cancer comprising means for detection of TAZ expression in the individual or a sample taken from him or her as well as a method of detecting a cancer cell, the method comprising detecting modulation of expression, amount or activity of TAZ in the cell.
SG159879A1	A method and system for generating an entirely well-focused image of a large three-dimensional scene	A method and system for generating an entirely well-focused image of a three-dimensional scene. The method comprises the steps of a) learning a prediction model including at least a focal depth probability density function (PDF), h(k), for all depth values k, from historical tiles of the scene; b) predicting the possible focal surfaces in subsequent tiles of the scene by applying the prediction model; c) for each value of k, examining h(k) such that if h(k) is below a first threshold, no image is acquired at the depth k' for said one tile; and if h(k) is above or equal to a first threshold, one or more images are acquired in a depth range around said value of k for said one tile; and d) processing the acquired images to generate a pixel focus map for said one tile.
US7702190B2	Fiber Bragg grating sensor	An optical fiber strain sensor, a method of fabricating the same, and a method of sensing strain (1200). The method of strain sensing comprises providing an optical fiber having at least a first fiber Bragg grating (FBG) and a second FBG formed therein (1202); subjecting the optical fiber to a strain inducing force such that a grating period in the first FBG compresses and a grating period in the second FBG extends (1204); and optically interrogating the first and second FBG to determine peak reflection wavelengths of the first and second FBGs respectively (1206), whereby a separation between the peak reflection wavelengths of the first and second FBGs is representative of the strain induced.

SG159310A1	Sugar-based surfactant microemulsions containing essential oils for cosmetic and pharmaceutical use	The present invention relates to a thermodynamically stable, biocompatible, environment friendly, and temperature-insensitive microemulsion containing various botanical essential oils, sugar based surfactants, polyhydric alcohols, and an aqueous phase.
SG158997A1	Process for production of aromatic hydrocarbons	The invention aims at providing a process for the production of aromatic hydrocarbons with a molybdenum-containing solid catalyst in which the molybdenum-containing solid catalyst is activated and thereby attains high yield for a long time to enable efficient production of aromatic hydrocarbons from a lower hydrocarbon gas containing methane as the main component. A process for the production of aromatic hydrocarbons which comprises both the preliminary contact step of preliminarily bringing a molybdenum-containing solid catalyst into contact with one or more preliminary contact gases selected from among lower hydrocarbons and hydrogen gas and the reaction step of bringing the resulting catalyst into contact with a raw material gas containing methane as the main component to conduct reaction and thus produce aromatic hydrocarbons, characterized in that the initiation temperature of the preliminary contact is lower than the reaction temperature and the preliminary contact temperature over the period from the initiation to the end does not exceed the reaction temperature.
SG158642A1	Method and apparatus for testing magnetic properties of magnetic media	A method and apparatus for testing a magnetic medium. The method comprises applying a magnetic field of a time-varying strength; directing a polarized optical beam towards a portion of the medium that is in the magnetic field, wherein the optical beam is reflected by a surface of the medium at a point of incidence in the magnetic field; moving the medium relative to the optical beam so as to cause the point of incidence to repeatedly traverse each of a plurality of sectors along a track on the surface; obtaining a series of Kerr signal measurements of the reflected optical beam; grouping measurements into ensembles such that the measurements in an individual ensemble are those obtained while the point of incidence was in a corresponding one of the sectors; and determining at least one magnetic property of at least one of the sectors from the measurements in the corresponding ensemble.
SG159198A1	A system and method for detecting skin penetration	A system and method for detecting skin penetration. The system comprises an invasive component for penetrating the skin; a dummy electrode for making contact with the surface of the skin; at least one penetrating electrode disposed in the invasive component; and a Wheatstone bridge circuit; wherein a resistance across the dummy electrode and the penetrating electrode constitutes one of the resistive legs of the Wheatstone bridge circuit and skin penetration of the invasive component is detected based on a differential output voltage from the Wheatstone bridge circuit.
SG159123A1	Modified catalyst composition for conversion of alcohol to alkene	A catalyst composition for dehydration of an alcohol to prepare an alkene is provided. The catalyst composition comprises a catalyst and a modifying agent which is phosphoric acid, sulfuric acid or tungsten trioxide, or a derivative thereof. A process for preparing an alkene by dehydration of an alcohol is also provided. The process comprises mixing one or more alcohols and optionally water and the catalyst composition.
SG158462A1	Two-photon stereolithography using photocurable compositions	Two-photon stereolithography can be performed using a photocurable material comprising a poly(meth)acrylate having a (meth)acrylate functionality of at least 3 and a molecular weight (MW) of at least 650, a urethane(meth)acrylate having a (meth)acrylate functionality of 2 to 4 and a MW of 400 to 10,000, a di(meth)acrylate made from bisphenol A or bisphenol F; and a photoinitiator. A beam of light is focused to a focus region of the material to induce two-photon absorption in the focus region, and thus polymerization of the material in the focus region. The beam is scanned across said material according to a pre-selected pattern so that the beam is focused to different pre-selected regions, to induce polymerization of the material at the pre-selected regions.
SG158457A1	Device and method for focusing a beam of light with reduced focal plane distortion	A system for focusing a light beam may be used for multi-photon stereolithography. It comprises a collimator or expander for adjusting the beam divergence and a scanner for directing the beam onto a focusing device to focus the beam to a focal point or beam waist and to scan the focused beam. A controller controls adjustment of the beam divergence so that the focal point or beam waist is scanned substantially in a plane. A light source may be provided to generate the light beam. The expander may comprise a diverging lens and a converging lens for expanding the beam to produce a collimated beam. The divergence of the collimated beam is dependent on the distance between the diverging lens and the converging lens, which may be adjusted to adjust the beam divergence. The focusing device may comprise a dry objective lens to focus the collimated beam onto the target material to induce multi-photon absorption in the target material at the beam waist of the focused beam.
US7656319B2	Context-based encoding and decoding of signals	A system for the context-based for the context-based encoding of an input signal includes a domain transform module and a context-based coding module. The domain transform module is operable to convert the input signal into a sequence of transform coefficients c[i]. The context-based coding module includes a bit-plane scanning module, and context modeling module, and a statistical encoding module. The bit-plane scanning module is operable to produce a bit-plane symbol bps [i,bp] for each transform coefficient c[i] and each bit-plane [bp]. The context modeling module is operable to assign one or more context values to each of the received bit plane symbols bps [i,bp]. The statistical coding module is operable to code each of the bit plane symbols bps [i,bp] as a function of one or more of the corresponding context values to produce a context-based encoded symbol stream.
SG157875A1	A method of making a secondary imprint on an imprinted polymer	There is disclosed a method of making an imprint on a polymer structure comprising the step of pressing a mold having a defined surface pattern against the surface of a primary imprint of a polymer structure to form a secondary imprint thereon

SG156783A1	Ultraviolet detector and dosimeter	A UV light detector is disclosed that has a UV sensing element comprising a substrate and a thin film layer formed on the substrate. The thin film layer is for receiving and converting UV light into electricity for a photovoltaic output. First and second electrodes are formed on one surface of the thin film layer and are configured to form an electric polarization in the thin film layer between the first and second electrodes and to collect the photovoltaic output. There is also an amplifier and an output display. The UV sensing element is configured to collect the photovoltaic output, the amplifier being configured to receive the photovoltaic output from the UV sensing element, the output display being configured to provide a display when UV light is received at the one surface, the display being derived from the photovoltaic output. A UV dosimeter is also disclosed.
SG156272A1	Method and apparatus for reorientated reconstruction of computed tomography images of planar objects	A system and method for micro computed tomography (CT) reconstruction of position scan data of planar objects, such as stacked integrated circuit chips and/or PCB, that automatically determines object orientation is disclosed for a preferred orientation of the reconstructed images. The object orientation of the sinogram of the scanning data is determined such that the reconstruction may be performed with any starting position. Additionally, planar object scan reconstructions with either a higher resolution in the thickness dimension without increasing the total computation resource or a faster processing speed under a given resolution in the thickness dimension may be achieved. The tilting angle with respect to the rotation axis may also be determined to perform a image rotation after a multi-slice reconstruction or cone-beam reconstruction.
US7611840B2	Method and device for the treatment of biological samples	A device for sample tissue disruption and/or cell lysis comprising: a piezoelectric material; and at least a second material in contact with the piezoelectric material; and wherein the second material has an uneven surface on an opposite side to that in contact with the piezoelectric material. The device may be made by assembling at least three layers and membranes for the valves and pumps. The piezoelectric material is actuated by an external voltage source to generate cavitation, which disrupts tissue and/or lyses cells, in particular by a modulated alternative external voltage. The invention further provides a method of disrupting tissue and/or lysing cells in a device. Also provided is a piezoelectric device comprising a piezoelectric material in contact with a second material, and wherein the second material has an uneven surface on an opposite side to that in contact with the piezoelectric material.
SG155625A1	Palladium catalysts	The invention relates to a particulate substance comprising a particulate porous support coupled to a palladium species. The palladium species may comprise palladium nanoclusters. The particulate substance may be used as a catalyst for conducting a carbon-carbon coupling reaction or a reduction.
US7598104B2	Method of forming a metal contact and passivation of a semiconductor feature	A method of forming a metal contact and passivation of a semiconductor feature, and devices made using the method. The method comprises the steps of forming a dielectric mask on a semiconductor substrate utilising photolithography processes; etching the semiconductor substrate such that one or more features are formed underneath respective portions of the dielectric mask; depositing a passivation layer on the substrate with the dielectric mask in place above the features; subjecting the substrate to an etchant such that the dielectric mask is etched at a higher rate than the passivation layer, whereby portions of the passivation layer deposited on the dielectric mask are lifted off from the substrate; and depositing a metal layer on the substrate including over the remaining passivation layer and exposed portions of the features.
SG154711A1	A system and method for processing brain signals in a BCI system	A system and method for processing brain signals in a BCI system. The method of processing brain signals in a BCI system comprises the steps of processing the brain signals for control state detection to determine if a subject intends to use the BCI system; and processing the brain signals for command recognition if the control state detection method determines that the subject intends to use the BCI system.
KR100915462B1	A sensor for measuring gas permeability of a test material	A sensor for measuring gas permeability of a test material, comprising: an electrically conductive sensing element that comprises a water and/or oxygen sensitive material, wherein the reaction of said material with water or oxygen when the sensing element is contacted with water and/or oxygen results in a change in the electrical conductivity of the sensing element, and two electrodes electrically connected to the sensing element.
SG153752A1	Method and system for learning HPC for human detection in video data	A method and system for learning human perspective context (HPC) for human detection in video data and a data storage medium having computer code means for instructing a computing device to execute a method of learning HPC for human detection in video data. The method comprises the steps of selecting a plurality of samples based on human detection from the video data; categorizing a camera tilt' angle into one of two or more categories based on the selected samples; and learning the HPC from the selected samples; wherein the samples are filtered based on the categorization of the camera tilt angle prior to learning the HPC, a model calculation for the HPC is based on the categorization of the camera tilt angle, or both. Preferably, the method of learning the HPC comprises a model estimation - data tuning (ME-DT) algorithm. Advantageously, the learned HPC is applied for efficient and accurate human detection.
SG152486A1	Method for detecting surface plasmon resonance	There is disclosed a method and system for detecting a surface plasmon resonance associated with a fluid sample. The method includes the step of providing a piezoelectric substrate having at least two electrodes thereon, wherein at least one of said electrodes is coupled to a fluid sample. A light beam is transmitted toward the fluid sample to induce a oscillation frequency in the piezoelectric substrate. The oscillation frequency from said electrodes is then measured during transmittance of the light to detect the surface plasmon resonance associated with the fluid sample.

SG152706A1	Apparatus for processing a sample in a liquid droplet and method of using the same	The invention provides an apparatus and a method of processing a biological and/or chemical sample in a liquid droplet. The apparatus comprises a processing compartment, which is defined by a reservoir and an immobilisation member. The processing compartment is further adapted to accommodate a medium, which is immiscible with the liquid droplet, and of a lower surface energy than the liquid of the liquid droplet. The reservoir is defined by a circumferential wall and a base. The immobilisation member is arranged within the reservoir and comprises a surface that is patterned in such a way that it comprises at least one predefined immobilisation area. The predefined immobilisation area within the patterned surface is of a higher surface energy than the medium. Furthermore the at least one predefined area is of a higher surface energy than the remaining surface and of a sufficient width in the plane of the surface to allow, in said hydrophobic medium, the immobilisation of the liquid droplet or the hydrophilic area via hydrophilic-hydrophilic or hydrophobic-hydrophobic interactions. The remaining surface is of at most about the same surface energy as the medium. In the method of the invention the medium is disposed into the apparatus, such that the predefined immobilisation area is entirely covered by the medium. The liquid droplet is disposed onto the predefined immobilisation area, whereby the liquid droplet is immobilised thereon via hydrophilic-hydrophilic or hydrophobic-hydrophobic interactions. A process is performed on the biological and/or chemical sample in said liquid droplet.
US7532763B2	Method and a device for processing bit symbols generated by a data source; a computer readable medium; a computer program element	A method for processing bit symbols generated by a data source, in particular a video, still image or audio source, comprising the following steps of constructing a plurality of bit-planes from the data source, each bit-plane comprising a plurality of bit-plane symbols; scanning the bit-plane symbols of each bit-plane to generate a binary string of bit-plane symbols; and encoding the binary string of the bit-plane symbols using a statistical model, wherein the statistical model is based on statistical properties of a Laplacian probability distribution function which characterizes the data source.
SG150228A1	Chemically ordered perpendicular recording media	A chemically ordered perpendicular recording medium and a method for forming the medium are provided. The method includes depositing an underlayer on a substrate. The under layer has a (002) orientation. A buffer layer is deposited on the underlayer. The buffer layer has a (002) orientation. A magnetic recording layer is then deposited on the buffer layer. The underlayer and the magnetic recording layer have a lattice misfit to induce strain energy during forming of the magnetic recording layer. The strain energy forms the magnetic recording layer with chemically ordered structure at a substrate temperature of below about 400 degrees.
SG150219A1	Power supply device and system	A power supply device and system have an electrically polarized element in which a remnant electrical polarization is formed and retained. Electrodes are formed on the electrically polarized elements and the remnant electrical polarization generates an electrical potential on the electrodes. Electrical circuits are coupled to the electrically polarized element to control the external electric charges attracted and distributed on the electrodes, for establishing the electrical potential on the electrodes. The electrodes can output electric currents by controlling the external electric charges distribution. The electrically polarized element may be made of ferroelectric material, including a ferroelectric bulk ceramic, ferroelectric multilayer ceramic, ferroelectric single crystal, ferroelectric thin film, ferroelectric thick film and ferroelectric polymer, and all the other materials with electric polarization retained therein. Power supply devices and systems made according to the present invention have very long standby time, small in size and efficient for many applications including RF systems.
SG150620A1	Modulators of candida hyphal morphogenesis and uses thereof	The invention relates to modulation of fungal morphology between yeast-to-hyphal growth transition by controlling muramyl-L-alanine concentration and uses thereof.
US7514360B2	Thermal robust semiconductor device using HfN as metal gate electrode and the manufacturing process thereof	This invention relates to a semiconductor device making use of a highly thermal robust metal electrode as gate material. In particular, the development of Hafnium Nitride as a metal gate electrode (or a part of the metal gate stack) is taught and its manufacturing steps of fabrication with different embodiments are shown.
US7511807B2	Method and apparatus for detection of inclusion in glass	Inclusions in a transparent panel (5) are detected by placing a light transmissive interface (3) in contact with the panel (5), and transmitting a beam of light (1) through interface (3) into panel (5). Within the panel (5), the light beam (7) propagates along a path including total internal reflections at surfaces of panel (5). When the light beam (1) intercepts inclusions (10) or other defects at least some of it is scattered, and leaves the panel (5). This scattered light is then observed. Thus, a large zone of the panel (5) can be inspected, with light only being detected in the case that it arises from scattering by inclusions or other defects.
US7511909B2	Sector based timing recovery for a readback signal	A method and a signal processing unit are proposed, for converting an asynchronous discrete-time signal to a synchronous discrete-time signal by performing sector-based timing recovery. The timing recovery includes aligning an initial portion of the asynchronous discrete-time signal to a first portion of a predetermined signal, and a later portion of the asynchronous discrete-time signal to a second portion of a predetermined signal. Optionally, the method and signal processing unit further perform sector based gain control, and sector-based removal of any dc component.
SG150045A1	Self-powered in-pipe fluid meter and piping network comprising a plurality of such fluid meters	A self-powered in-pipe fluid meter to be mounted inside of a pipe carrying a fluid therein. The fluid meter comprises at least one sensing unit capable of measuring one or more parameters of the fluid inside of the pipe; a telemetric data transmission unit capable of telemetrically transmitting data including a measured fluid parameter to a host terminal and/or another fluid meter; and at least one fluid-driven power source unit capable of generating power from the fluid flow within the pipe and supplying power to the sensing unit and/or the transmission unit.

SG150070A1	Recirculating reactor	The invention provides a recirculating reactor for converting a substrate to a product. The reactor comprises a reaction chamber and a recirculation system, said recirculation system comprising a separator. The reaction chamber contains a catalyst, and comprises a chamber body, a chamber inlet and a chamber outlet. The recirculation system is adapted for recirculating liquid from the chamber outlet to the chamber inlet, and the separator is used for separating a by-product from the liquid.
SG150042A1	Detection and localization of vascular occlusion from angiography data	A technique for detecting and localising vascular occlusions in the brain of a patient is presented. The technique uses volumetric angiographic data of the brain. A mid- sagittal plane and/or lines is/are identified within the set of angiographic data. Optionally, the asymmetry of the hemispheres is measured, thereby obtaining an initial indication of whether an occlusion might be present. The angiographic data is mapped to pre-existing atlas of blood supply territories, thereby obtaining the portion of the angiographic data corresponding to each of the blood supply territories. For each territory (including any sub-territories), the asymmetry of the corresponding portion of the angiographic data about the mid-sagittal plane/lines is measured, thereby detecting any of the blood supply territory including an occlusion. The angiographic data for any such territory is displayed by a three-dimensional imaging technique.
SG150012A1	Microfluidic filtration unit, device and methods thereof	A microfluidic filtration unit for trapping particles of a predetermined nominal size present in a fluid is provided. The unit comprises a fluid chamber connected to an inlet for introducing the fluid to be filtered and an outlet for discharging filtered fluid, a filtration barrier arranged within the fluid chamber, said filtration barrier comprising a plurality of pillars arranged substantially perpendicular to the path of fluid flow when fluid is introduced into the fluid chamber, said pillars being aligned to form at least one row extending across said path of fluid flow, wherein each of said at least one row of pillars in the filtration barrier comprises at least one fine filtration section comprising a group of pillars that are spaced apart to prevent particles to be filtered from the fluid from moving between adjacent pillars, and at least one coarse filtration section comprising a group of pillars that are spaced apart to permit the movement of particles between adjacent pillars.
US7502186B2	Disk drive clock tracking circuit, error compensation circuit and method	A clock tracking circuit and method uses a clock compensation signal to compensate for timing marks on a media disk. The clock compensation signal may compensate for at least one of improper clock track closure and written-in jitter of the timing marks used to produce the measured clock signal. The clock compensation signal may be used to control a controllable oscillator used to generate the clock signal that thereby provides a compensated clock signal.
SG149600A1	Compact optical detection system	A detection system is provided, the detection system comprising a light source that generates excitation light having a wavelength sufficient to excite a fluorophore in a sample; an excitation filter positioned along a first line along a path of the excitation light, the excitation filter transmitting the excitation light from the light source; a beam splitter positioned along the first line, the beam splitter reflecting the excitation light transmitted by the excitation filter along a second line toward a mirror positioned on one side of the beam splitter, and passing emitted light reflected along the second line; the mirror, positioned to reflect the excitation light from the beam splitter to the fluorophore in the sample along a third line, normal to both the first and second lines, wherein the mirror further reflects emitted light emitted along the third line, along the second line toward the beam splitter; an emission filter positioned along the second line, on a second side of the beam splitter; and a detector that detects the emitted light transmitted by the emission filter.
SG149281A1	Method and system for context-controlled background updating	A method and system for background updating for adaptive background subtraction in a video signal. The method comprises the steps of defining one or more contextual background representation types; segmenting an image of a scene in the video signal into contextual background regions; classifying each contextual background region as belonging to one of the contextual background representation types; determining an orientation histogram representation (OHR), a principle colour representation (PCR), or both, of each background region; receiving a current image of the scene in the video signal; determining whether respective pixels in image regions of the current image spatially corresponding to the background regions are occluded or exposed; and setting different learning rates for the adaptive background subtraction for pixels that are occluded and for pixels that are exposed respectively.
SG149383A1	Nanowire sensor, nanowire sensor array and method of fabricating the same	A method of fabricating a sensor comprising a nanowire on a support substrate with a first semiconductor layer arranged on the support substrate is disclosed. The method comprises forming a fin structure from the first semiconductor layer, the fin structure comprising at least two supporting portions and a fin portion arranged there between; oxidizing at least the fin portion of the fin structure thereby forming the nanowire being surrounded by a first layer of oxide; and forming an insulating layer above the supporting portions; wherein the supporting portions and the first insulating layer form a microfluidic channel. A nanowire sensor is also disclosed. The nanowire sensor comprises a support substrate, a semiconducting fin structure arranged on the support substrate, the fin structure comprising at least two semiconducting supporting portions and a nanowire arranged there between; and a first insulating layer on a contact surface of the supporting portions; wherein the supporting portions and the first insulating layer form a microfluidic channel.
SG149723A1	Method and apparatus for centre-of-rotation determination in computed tomography images	METHOD AND APPARATUS FOR CENTRE-OF- ROTATION DETERMINATION IN COMPUTED TOMOGRAPHY IMAGES A method and apparatus is disclosed for centre-of-rotation determination in computed tomography (CT) images. The central ray, defined as the projection of the centre of rotation on the detector, is determined with the projection data of the object to be to inspected by measuring the mismatching level of the two object images reconstructed with views 1 to 180 and 181 to 360, respectively. The central ray is determined using a two-step strategy, where the measurement is carried out within a large range and a large step size to obtain a rough value estimate of the central ray, then a smaller search range and smaller step size are used to obtain an accurate value of the central ray. A wire phantom, or a lookup table or the geometrical method may be used to obtain a rough value estimate of the central ray.

US7486548B2	Magnetic memory device	A memory cell for a magnetic memory device comprising a first hard magnetic later having a first fixed magnetization vector; a second hard magnetic later having a second fixed magnetization vector; a first soft magnetic layer having a first alterable magnetization vector and disposed adjacent to the first hard magnetic layer and a second soft magnetic layer having a second alterable magnetization vector and disposed adjacent to the second hard magnetic layer, the first and the second soft magnetic layers are magnetostatically coupled antiparallel to each other to form a flux-closed structure. An electrically conductive layer is disposed between the two soft magnetic layers for passing an electric current therethrough to perform the read and write operations. A magnetic memory device made thereof possesses a higher thermal stability against external thermal fluctuations and in the meantime has a lower power dissipation in writing operations.
SG147934A1	Solution-processed inorganic films for organic thin film transistors	A method for fabricating a sol-gel film composition for use in a thin film transistor is disclosed. The method includes fabricating the sol-gel dielectric composition by solution processing at a temperature in the range 60 °C to 225 °C. The sol-gel film made by the method, and an organic thin-film transistor incorporating the sol-gel film are also disclosed.
SG146376A1	Polyimidazolium salts and poly-nhc-metal complexes	The invention provides a polymeric salt, wherein the monomer unit of the polymeric salt comprises two nitrogen containing heterocyclic groups joined by a rigid linker group. The nitrogen atoms of the heterocyclic groups are disposed so as to enable a polymeric carbene formed by from the polymeric salt to complex with a metal atom. The invention also provides a polymeric metal complex which may be made from the polymeric salt, and which may be used in a Suzuki coupling reaction. The polymeric salt may be used as a heterogeneous organic catalyst for cyanation reaction.
US7407757B2	Genetic analysis by sequence-specific sorting	The invention provides methods for sorting polynucleotides from a population based on predetermined sequence characteristics. In one aspect, the method of the invention is carried out by extending a primer annealed polynucleotides having predetermined sequence characteristics to incorporate a predetermined terminator having a capture moiety, capturing polynucleotides having extended primers by a capture agent that specifically binds to the capture moiety, and melting the captured polynucleotides from the extended primers to form a subpopulation of polynucleotides having the predetermined sequence characteristics. In another aspect, the method of the invention is carried out on a population of tagged polynucleotides so that after a subpopulation is selected, the members of the subpopulation may be simultaneously analyzed using the unique tags on the polynucleotides to convey analytical information to a hybridization array for a readout.
US7368265B2	Selective genome amplification	The invention provides methods and compositions for amplifying selected polynucleotides, especially selected subsets of restriction fragments. Generally, methods of the invention are implemented by ligating adaptors containing at least one promoter sequence to such fragments under conditions that promote the formation of closed single stranded or double stranded structures, which are capable of serving as cyclical templates for transcription.
SG140413A1	Method of deriving mesenchymal stem cells	We describe a method of obtaining a cell culture, the method comprising providing a cell obtained by dispersing a human embryonic stem cell (hESC) colony, or a descendent thereof, and propagating the cell in the absence of a feeder cell layer in a serum free medium comprising FGF2 and optionally PDGF AB. Preferably, the human embryonic stem cell (hESC) colony is dispersed with a dispersing agent which is trypsin.
SG140412A1	Method of deriving progenitor cell line	We disclose a method comprising: (a) providing an embryonic stem (ES) cell; and (b) establishing a progenitor cell line from the embryonic stem cell; in which the progenitor cell line is selected based on its ability to self-renew. Preferably, the method selects against somatic cells based on their inability to self-renew. Preferably, the progenitor cell line is derived or established in the absence of co-culture, preferably in the absence of feeder cells, which preferably selects against embryonic stem cells. Optionally, the method comprises (d) deriving a differentiated cell from the progenitor cell line.
SG137360A1	Method of delivering nucleic acid molecules into embryonic stem cells using baculoviral vectors	There is provided a method of delivering a nucleic acid molecule to an embryonic stem cell, including a human embryonic stem cell, by infecting the embryonic stem cell with a baculoviral vector comprising the nucleic acid molecule. Embryonic stem cells transduced by this method are useful for treating a disease or disorder in a subject.
SG137150A1	Novel water-soluble nanocrystals comprising a polymeric coating reagent, and methods of preparing the same	Disclosed is a water soluble nanocrystal comprising a nanocrystal core comprising at least one metal M1 selected from an element of main group II, subgroup VIIA, subgroup VIIIA, subgroup IB, subgroup IIB, main group III or main group IV of the periodic system of the elements (PSE), at least one element A selected from main group V or main group VI of the PSE, a capping reagent attached to the surface of the core of the nanocrystal, and a water soluble polymer covalently coupled with the capping reagent to form a water soluble polymer shell over the nanocrystal core. Also disclosed are compositions comprising such nanocrystals and uses of such nanocrystals.
KR1020070112823A	Solution processed organometallic complexes and their use in electroluminescent devices	The present invention is to provide the phosphorescence organometallic complex. The complexation of the present invention is made of the film type which further includes the charge transport host material used in the emission layer within the organic light-emitting device. The complexation is 2-*** Dean ligand (in here, the phenyl ring or the pyridine ring, the nonhydrogen substituent of 4 is included) it is one of the detailed example may be referred to the hyper - tree organic iridium complex implied. And the complexation is the substituted 2- phenyl pyridine ligand (here the spiro functional group is included in at least one substituent) it is one of the other detailed example may be referred to the organic iridium complex implied.

SG135620A1	Group iii nitride white light emitting diode	A white light-emitting diode is fabricated by metal organic chemical vapor deposition (MOCVD), which can produce a broad band emission covering all the visible range in the spectrum by capping the Indium nitride (InN) and Indium-rich Indium Gallium Nitride (InGaN) quantum dots (QDs) in single or multiple InxGa1-xN/InyGa1-yN quantum wells (QWs) by introducing bursts of at least one of Trimethylindium (TMIn), Triethylindium (TEIn) and Ethyldimethylindium (EDMIn), which serve as nuclei for the growth of QDs in QWs. The diode can thus radiate white light ranging form 400nm to 750nm by adjusting the In burst parameters.
SG134080A1	Methods for assessing suitability of cancer patients for treatment with histone deacetylase inhibitors	This invention is in the field of cancer therapy and provides the use of E2F1 activity for assessing suitability of a cancer patient for treatment with histone deacetylase inhibitors (HDACIs).
SG131719A1	Poly(arylenevinylene) and poly(heteroarylenevinylene) light emitting polymers and polymer light-emitting devices	The invention provides novel luminescent poly(arylenevinylene) and poly(heteroarylenevinylene) polymers. The polymers of the invention may be prepared as films and such films may be used as an emissive layer in polymeric light emitting devices. In one embodiment, a bulky aryl group is attached at position (2) of at least one phenylene ring of a poly(phenylenevinylene) backbone. In another embodiment, the bulky aryl is attached at position 3 of at least one 5-membered heteroarylene ring of a poly(heteroarylenevinylene) backbone.
US7218808B2	Equalizer circuit for a light source	An optical equalizer circuit for a light source, the optical equalizer circuit comprising M optical couplers linked by differential delay lines, wherein coupling ratios for the respective M optical couplers of the equalizer circuit are calculated based on an input signal from the light source and a designed profile the optical input is to be equalized to.
SG130414A1	Nanostructures and method of making the same	A method for fabricating nano-structures comprising providing a substrate for the growth of the nano-structures; providing a template having predetermined nano-patterns; providing at least one layer of mask material between the template and the substrate; transferring the nano-patterns from the template to the layer of mask material; and growing the nano-structures on the substrate in areas exposed through the nano-patterns in the layer of mask material by a bottom-up growth process.
SG129841A1	Transmitter, method for generating a plurality of long preambles and communication device	A transmitter is described which has a determination unit for determining a plurality of symbols (301) such that each symbol (301) comprises a tail component (302) and the plurality is determined in such a way that the tail components (302) are substantially equal and a tone generation unit for arranging the plurality of symbols (301) to form a plurality of long preambles (300) such that the plurality of long preambles (300) are tone-interleaved.
SG129627A1	Method for transmitting a digital data stream, transmitter, method for receiving a digital data stream and receiver	A method for transmitting a digital signal is described, wherein the digital signal is to be transmitted by a plurality of antennas and a 2-domain pre-transformation is carried out, i.e., in course of a pre-transformation modulation symbols assigned to subcarriers having different frequencies and assigned to subcarriers sent by different antennas are linearly combined.
SG128897A1	Nanocomposites and process for their production	The present invention relates to a process of forming a nanocomposite. The process comprises the steps of treating pristine clay with water in order to swell the clay, exchanging the water with an organic solvent while still maintaining the clay in a swollen state, treating the swollen clay with a modifier and then mixing the treated clay with a substance selected from the group consisting of monomers, oligomers and polymers and combinations thereof. Where necessary, the substance is polymerised and the solvent is being removed either prior to, during or after the polymerization.
SG128048A1	Optical interleaver	A three-port optical interleaver for wavelength division multiplexing (WDM) networks is disclosed. The interleaver (100) includes two 3x3 directional couplers (108, 110) linked port-to-port by three differential delay lines (112, 114, 116). An Infinite Impulse Response (IIR) element is disposed in each of two of the delay lines (112, 116). The IIR element may be a ring cavity or an etalon cavity. Optical signals travelling in the three delay lines (112, 114, 116) interfere at the second 3x3 coupler (110) to produce three frequency shifted transmission channel output signals at the output ports of the second 3x3 coupler (110).
SG127355A1	Method and system for word sequence processing	A method and system of conducting named entity recognition. One method comprises selecting one or more examples for human labelling, each example comprising a word sequence containing a named entity and its context; and retraining a model for the named entity recognition based on the labelled examples as training data.
SG127401A1	Imprinting of supported and free-standing 3-d micro-or nano-structures	The present invention is directed to micro- and nano-scale imprinting methods and the use of such methods to fabricate supported and/or free-standing 3-D micro- and/or nano-structures of polymeric, ceramic, and/or metallic materials. In some embodiments, a duo-mold approach is employed in the fabrication of these structures. In such methods, surface treatments are employed to impart differential surface energies to different molds and/or different parts of the mold(s). Such surface treatments permit the formation of three-dimensional (3-D) structures through imprinting and the transfer of such structures to a substrate. In some or other embodiments, such surface treatments and variation in glass transition temperature of the polymers used can facilitate separation of the 3-D structures from the molds to form free-standing micro- and/or nano-structures individually and/or in a film. In some or other embodiments, a "latch-on" assembly technique is utilized to form supported and/or free-standing stacked micro- and/or nano-structures that enable the assembly of polymers without a glass transition temperature and eliminate the heating required to assemble thermoplastic polymers.
SG125786A1	Scaffold and method of forming scaffold by entangling fibres	A porous scaffold is provided, which comprises tangled fibres. A porous scaffold can be formed by applying a fluid to fibres to entangle them. The fibres comprise a polyelectrolyte complex and a cross-linker. The cross-linker links polyelectrolytes within individual fibres and inhibits secondary polyelectrolyte complication between adjacent fibres.

SG125124A1	Enhanced multimode interference coupler	-
US7092692B2	Threshold voltage (Vth), power supply (VDD), and temperature compensation bias circuit for CMOS passive mixer	A biasing circuit for a CMOS passive mixer core to stabilize its conversion gain, linearity and noise figure. The RF inputs are fed differentially from the two RF ports, the LO inputs are fed differentially from the two LO ports, and the IF outputs are obtained at the two IF ports. The biasing circuit comprises a reference current derived from the bandgap voltage and a n-channel MOSFET transistor. The conversion gain is stabilized by keeping the Vgs−Vth value of the passive mixer core almost constant at all process corners, temperature and power supply changes. This is achieved by implementing Vs in such a way that it will increase the same amount as VDD decreases, and that Vs will decrease the same amount as Vth increases.
US7056471B1	Ternary and quarternary nanocrystals, processes for their production and uses thereof	The present invention relates to nanocrystals consisting of a homogeneous ternary or quaternary alloy having the composition M11-xM2xA and M11-xM2xAyB1-y, respectively, a process for its production, as well as to uses of such nanocrystals such as as short wavelength light-emitting devices, and in the detection of analytes, in particular biomolecules.
US7047235B2	Method and apparatus for creating medical teaching files from image archives	A method for retrieving medical images from at least one image archive and creating at least one teaching file; the method including the steps of retrieving at least one medical image from the image archive; storing the at least one medical image in a database; generating a database record for the teaching file; generating the teaching file; saving the teaching file into the database; and generating at least one index of the teaching file.
US7046744B2	Method and apparatus for frequency offset estimation, and system utilizing same	A direct current (DC) offset estimation, frequency offset estimation, and compensation system (200), receives data packet (204) with preamble (206). A DC offset estimator (210) and a frequency offset estimator (212) operate concurrently to produce estimates of DC and frequency offsets of the data packet (204), which are determined from a portion of the preamble (206) as it is received. As the data packet (204) is received, a compensator (214) receives the estimates of DC and frequency offsets and compensates the remaining portion of the data packet (204) to produce a DC and frequency compensated data packet (218). Concurrent operation of the DC estimator (210) and the frequency offset estimator (212) advantageously allows more time to produce the estimates of DC and frequency offsets.
US7034187B2	Poly(aralkyl ketone)s and methods of preparing the same	Disclosed are processes for preparing modifiable poly(aralkyl ketone)s having active methylene group(s) in the main chain comprising reacting an aralkanoic acid or mixtures thereof in the presence of one alkane or aryl sulfonic acid and a condensing agent. Also disclosed are novel modifiable poly(aralkyl ketone)s obtainable by the processes of the inventions.
SG119909A1	Method for gene identification signature (GIS) analysis	An isolated oligonucleotide comprising at least one ditag, wherein the ditag comprises two joined first and second sequence tags, wherein the first tag comprises the 5'-terminus sequence and the second tag comprises the 3'-terminus sequence of a nucleic acid molecule or a fragment thereof. The ditag analysis is useful for gene discovery and genome mapping.
SG118783A1	Thermosensitive polymers for therapeutic use and methods of preparation	A process for preparing a thermosensitive polymer from a microemulsion is provided. The microemulsion comprises a monomer capable of forming a thermosensitive polymer and a polymerizable surfactant. Additional comonomers may be included in the microemulsion to vary the properties of the polymers produced. The resulting thermosensitive polymers may be nanoporous. The polymers according to the invention are suitable for use in medical applications, including use as a wound dressing and for delivery of cells to a graft site.
SG114497A1	A method of fabricating a shallow trench isolation structure with reduced local oxide recess near corner	A structure and a process for manufacturing semiconductor devices with improved oxide coverage on the corners of a shallow trench isolation structure is described. The STI trench is etched using a pad oxide and silicon nitride layers as patterning elements. After trench etch, a thin conformal layer of either amorphous, epitaxial or polysilicon is deposited over the silicon nitride and within the trench and annealed. Where the silicon has been deposited on the silicon bottom and sides of the open trench, the annealing effectively forms a single crystal or epitaxial silicon. Next a silicon oxide liner is grown over the conformal silicon layer. The trench is then filled with silicon oxide, the structure is planarized by either chemical mechanical polishing or etching, and the nitride and pad oxide is removed This leaves a polysilicon film on the vertical edges of the filler oxide which extends slightly above the surface of the silicon substrate. A thermal oxidation step is performed converting the poly film into silicon oxide which slightly extends the STI field oxide into the active device region eliminating any reduced oxide coverage or oxide recesses in the corner regions.
SG112683A1	Ternary and quaternary nanocrystals, processes for their production and uses thereof	The present invention relates to nanocrystals consisting of a homogeneous ternary or quaternary alloy having the composition M11-xM2xAyB1-y, respectively, a process for its production, as well as to uses of such nonocrystals such as short wavelength light-emitting devices, and in the detection of analytes, in particular biomolecules.
SG110980A1	Method and system for discovering knowledge from text documents	A method and a system for discovering knowledge from text documents are disclosed, which involve extracting from text documents semi-structured meta-data, wherein the semi-structured meta-data includes a plurality of entities and a plurality of relations between the entities; identifying from the semi-structured meta-data a plurality of key entities and a corresponding plurality of key relations; deriving from a domain knowledge base a plurality of attributes relating to each of the plurality of entities relating to one of the plurality of key entities for forming a plurality of pairs of key entity and a plurality of attributes related thereto; formulating a plurality of patterns, each of the plurality of patterns relating to one of the plurality of pairs of key entity and a plurality of attributes related thereto; analyzing the plurality of patterns using an associative discoverer; and interpreting the output of the associative discoverer for discovering knowledge.

US6885038B2	Light-emitting polymers and polymer light-emitting diodes	Disclosed are compounds according to formula (I), wherein R′ and R″ are selected from the group consisting of R′=SiR1R2R3 and R″=H; R′=SiR1R2R3 and R″=SiR4R5R6; and R′=Ar1SiR1R2R3 and R″=Ar2SiR4R5R6; R1, R2, R3, R4, R5, and R6 are independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, cycloalkyl, cycloalkenyl, cycloalkynyl, arylalkyl, arylalkenyl, and arylalkynyl; Ar1 and Ar2 are independently selected from the group consisting of arylene, arylenealkylene, arylenealkynylene, heteroarylene, heteroarylenealkylene, heteroarylenealkenylene and heteroarylenealkylene; and n is at least 20. Such compounds may be used as an emissive layer in a polymer light-emitting diode (PLED), which itself may be used in electroluminescent devices.
SG109217A1	Reversal imprint technique	The present invention relates to a method for imprinting a micro-/nano-structure on a substrate, the method comprising (a) providing a mold containing a desired pattern or relief for a microstructure; (b) applying a polymer coating to the mold; and (c) transferring the polymer coating from the mold to a substrate under suitable temperature and pressure conditions to form an imprinted substrate having a desired micro-/nano-structure thereon.
US6850741B2	Method for selecting switched orthogonal beams for downlink diversity transmission	A scheme for selecting two beams in a switched beam antenna system for providing downlink communications in a downlink channel, the switched beam antenna system providing uplink reception and downlink transmission is described. The scheme involves selecting a pair of beams based on the uplink reception of the switched beam antenna system, and determining from the pair of beams a corresponding pair of orthogonal beams. The scheme also involves providing the pair of orthogonal beams as a pair of transmit beams for the downlink transmission of the switched beam antenna system.
US6716661B2	Process to fabricate an integrated micro-fluidic system on a single wafer	Formation of micro-fluidic systems is normally achieved using a multi-wafer fabrication procedure. The present invention teaches how a complete micro-fluidic system can be implemented on a single chip. The invention uses only dry etch processes to form micro-chambers. In particular, it makes use of deep reactive ion etching whereby multiple trenches of differing depths may be formed simultaneously. Buried micro-chambers are formed by isotropically increasing trench widths using an etchant that does not attack the mask so the trenches grow wider beneath the surface until they merge. Deposition of a dielectric layer over the trenches allows some trenches to be sealed and some to be left open. Micro-pumps are formed by including in the micro-chamber roof a layer that is used to change chamber volume either through electrostatically induced motion or through thermal mismatch as a result of its being heated.
SG98465A1	A gain compensation circuit for CMOS amplifiers	A gain compensation circuit that compensates for variations in gain of a high gain, high frequency amplifier due to changes in mobility of transistor and resistor components of the amplifier. The gain compensation circuit includes a current adjustment circuit and a gain factor evaluation circuit. The current adjustment circuit modifies a bias current provided to each amplifier stage of a plurality of amplifier stages that make up the high gain, high frequency amplifier. The modification of the bias current adjusts the gain factor of the amplifier. The gain factor evaluation circuit is in communication with the current adjustment circuit to determine changes in the gain factor of the high gain, high frequency amplifier. From the determination, the gain factor evaluation circuit provides a compensation signal to the current adjustment circuit indicating a modification factor for the biasing current for each amplifier stage.