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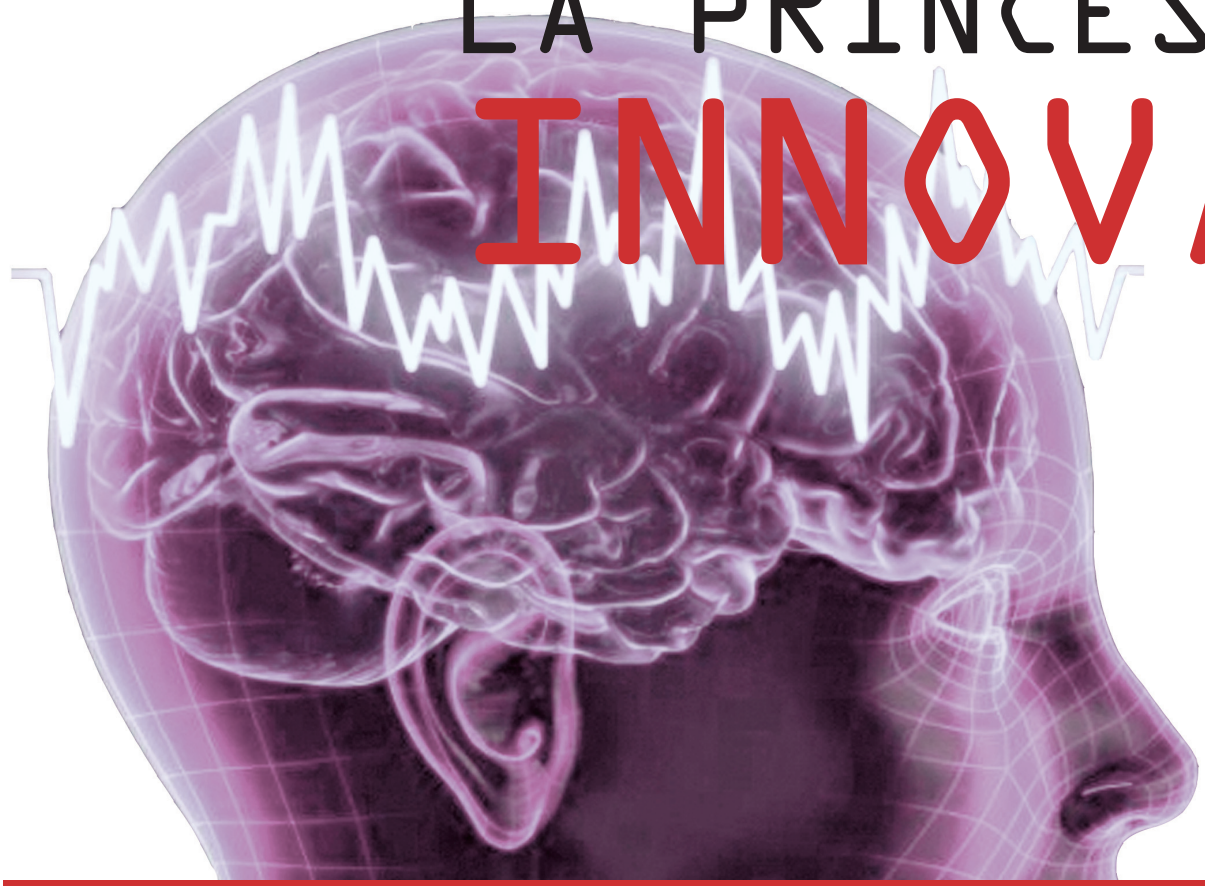
Nuevas Tecnologías en Neurociencias

LA PRINCESA INNOVA



Boletín de Vigilancia Tecnológica

IP INSTITUTO DE INVESTIGACIÓN SANITARIA
SaludMadrid Hospital Universitario de La Princesa

itemas isciii

Presentación

Queridos amigos:

Dra. Carmen Suárez
Coordinadora de la
Unidad de Innovación

Es para mí una satisfacción, como Coordinadora de la Unidad de Innovación del Hospital Universitario de La Princesa, presentaros el Boletín de Vigilancia Tecnológica.
¿Por qué este Boletín? Parafraseando la Guía de Buenas Practicas en Gestión de la Innovación realizada por la de Plataforma ITEMAS: "El entorno en general y el sector salud en particular es cada vez más complejo, competitivo y cambiante. El conocimiento útil caduca rápidamente. Como consecuencia, necesitamos instrumentos que nos permitan anticiparnos a los cambios y tomar decisiones en menor tiempo. Desde ITEMAS se apuesta por la innovación como herramienta fundamental no sólo para hacer más sostenible el Sistema Nacional de Salud sino también más competitivo y accesible, apoyando el desarrollo de la cultura innovadora necesaria para facilitar la integración del entorno científico con la industria en el campo de la tecnología médica".

La Princesa Innova es un Boletín de Vigilancia Tecnológica, con periodicidad trimestral, que analizará la innovación en aquellos sectores que puedan interesar a los investigadores y profesionales sanitarios del IIS del Hospital Universitario de La Princesa. Por este motivo, cada número estará enfocado a un área determinada de la innovación sanitaria de nuestro IIS. En este primer número, nos hemos centrado en **Nuevas Tecnologías en Neurociencias**, área estratégica en nuestro hospital y muy activa en el campo de la innovación.

La Princesa Innova se compone de dos bloques bien diferenciados:

1. Una sección de patentes subclasificadas por categorías tecnológicas. Para acceder al contenido completo de la patente hay que clicar sobre el número de solicitud de cada patente [+] que enlazará con el documento publicado en la base de datos esp@cenet®.
2. Una sección de noticias sobre la innovación del área sanitaria. Para acceder a la noticia completa se puede clicar sobre la misma.

Confiamos que esta iniciativa se convierta en una herramienta para impulsar la Innovación en La Princesa.

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Patentes

Categoría n. 1: TECNOLOGÍAS APLICADAS AL ICTUS

Diagnosis of acute strokes

A method of evaluating patients suspected of suffering from an acute stroke, the method comprising: a) obtaining signals of impedance plethysmography (IPG), photoplethysmography (PPG) or both, in the patient; b) processing the one or more signals to obtain one or more measures of cerebral hemodynamics of the patient; and c) applying a rule to match said measures to a disease indication or choice of therapy or both, for the patient

EP20090748147 [+]

Decision support tool for stroke patients

An automated system and method for assisting in decision making for the treatment of stroke patients is provided, and specifically for assisting a physician whether the patient should be administered a drug or transferred to another hospital to undergo an endovascular thrombectomy procedure. A variety of factors are input into the system with limited human intervention and a tool automatically determines the probability of whether the patient will have a better outcome if transferred or not. The factors include clinical factors, imaging factors and time to transfer factors. The tool includes processes for automatically determining several imaging factors, including the determination of clot length, collateral blood flow, the presence of forward blood flow within and around the clot, and the clot permeability. The tool has capability to continuously update the treatment protocol and other output results using current clinical, health system or other relevant information or feedback.

WO2015CA00589 [+]

Categoría n. 2: TECNOLOGÍAS APLICADAS A LAS CEFALEAS

Device for electrotherapeutical treatment of tension headaches

The device has an electric circuit supplying low voltage electric pulses to contact electrodes (11, 12). An electrode support allows excitation of afferent paths of supratrochlear and supraorbital nerves of an ophthalmic branch of a trig eminal nerve independently from a subject i.e. patient. The circuit includes a programmable signal generator for generating pulses with a duration between 150-450 microseconds, with a maximum increase in intensity of 0 to 20 milliamperes at a rate less than or equal to 40 microamperes per second and with a step up in intensity not exceeding 50 microamperes. An independent claim is also included for a method for treating headaches.

EP20080447012 [+]

Patentes

Treatment of headaches by electrical stimulation

Systems and methods are described, including a system for electrostimulation. The system includes a patch (22), including a plurality of electrodes (24a, 24b), and a mobile device (28). A processor (30) of the mobile device is configured to receive an input from a subject (20) that indicates that the subject is experiencing a headache, and, in response to the input, while the patch is coupled to the subject, wirelessly communicate a control signal that causes the electrodes to stimulate the subject. Other embodiments are also described.

WO2016IB50104 [+]

Categoría n. 3: TECNOLOGÍAS DE TELEMEDICINA EN NEUROCIENCIAS

Systems, environment and methods for evaluation and management of autism spectrum disorder using a wearable data collection device

The systems, environment, and methods, described herein support evaluation of an individual for ASD while in the home environment. Through data collected by a wearable data collection device donned by the individual, eye contact with the caregiver, verbal interaction, and repetitive verbalizations and motions of the head and body may be tracked and objectively quantified during evaluation. Further, the wearable data collection device may support monitoring of brain activity and other physiology which, in turn, may be analyzed by the systems and environment described herein during evaluation to recognize patterns that predict evaluation outcome and other clinical features. Various software modules and tools supported by the wearable data collection device provide training, ongoing progress tracking, and management solutions for individuals living with ASD.

US201414511039 [+]

Hybrid system for treating mental and emotional disorders with responsive brain stimulation

A closed-loop brain computer interface (BCI) system for treating mental or emotional disorders with responsive brain stimulation is disclosed. The system includes an implanted module including a processor configured to process neural data acquired from one or more electrodes in communication with one or more brain regions of a patient. The implanted module is configured to deliver stimulation to electrodes in contact with the brain regions. An interface is in wireless communication with the implanted module and configured to receive the neural data from the implanted module. A controller processes the patient's brain and body signals to provide patient intentional control over the stimulation applied to the one or more electrodes and to control the stimulation.

WO2015US27042 [+]

Patentes

Categoría n. 4: DISPOSITIVOS WEARABLES DE EEG

Head-mounted display EEG device

Methods, systems, and devices are disclosed for monitoring electrical signals of the brain. In one aspect, a system for monitoring electrical brain activity associated with visual field of a user includes a sensor unit to acquire electroencephalogram (EEG) signals including a plurality of EEG sensors circumnavigating the head of a user, and a head-mounted frame for docking a personal electronic device over the user's eyes to present visual stimuli, in which the visual stimuli is configured to evoke EEG signals exhibited by the user, in which the assessment indicates if there is a presence of visual field defects in the user's visual field.

WO2016US31394 [+]

Dual-purpose sleep-wearable headgear for monitoring and stimulating the brain of a sleeping person

A dual purpose sleep wearable headgear for both monitoring and stimulating the brain of a sleeping person is disclosed that provides a simple to use and safe platform for wearing consumer-type dual use brain stimulation and monitoring devices during sleep. The headgear enables a user to sleep comfortably while wearing the electronics and related electrodes needed for both EEG monitoring and transcranial electrical stimulation. The headgear can accept and support a miniaturized dual use monitoring/stimulation device on the forehead or the top of the head, where the bulk of the monitoring/stimulation device will not interfere with the user's sleeping position.; The headgear disclosed takes the guesswork out of electrode placement, because the electrodes are prepositioned or are easily adjustable according to a predetermined pattern of electrode placement, and are appropriately sized so as to allow comfortable transcranial stimulation without producing skin irritation, and without awakening the user.

US201414289269 [+]

Patentes

Categoría n. 5: MÉTODOS DE DIAGNÓSTICO BASADOS EN EEG

A novel system and method for person identification and personality assessment based on EEG signal

The present invention relates a novel system and method for person identification and personality assessment based on electroencephalography (EEG) signal. More particularly, this invention relates to a novel method of EEG recording and processing to map the inherent and unique properties of brain in the form of highly specific brain signature to be used as means for person identification and personality assessment.

US2016323000 [+]

Method for analyzing EEG fluctuation signal and equipment thereof

This invention relates to a computer application technique to analyze the brain electricity signal for power spectrum to get a series of data parameters and provide basis for brain function test and disease dialogue.The analysis method comprises the regular power spectrum analysis, computer power fluctuating signal analysis, brain fluctuating graph analysis and S spectrum analysis and the further multi-project analysis. Its analysis device comprises electrode, brain signal amplifier device or brain recording box, personal computer, data processor and terminal processor.

CN20031122416 [+]

Categoría n. 6: MICRO ELECTRODOS DE REGISTRO DE SEÑAL CEREBRAL

Optical microsensor and methods for monitoring intracranial pressure

A method is provided for internally monitoring pressure of a patient by transmitting an external light source to an implantable microsensor device. The implantable microsensor device has a microlens, a deflectable membrane responsive to a change in pressure of a surrounding environment within the patient, and an array structure disposed between the microlens and the membrane. The array structure includes a first layer that emits a first wavelength of light and a second layer that emits a second wavelength of light responsive to an external light source, where the first and second wavelengths of light are respectively transmissive through the surrounding environment and distinct from one another. Either the array structure or the microlens translates with the membrane in response to the change in pressure of the surrounding environment.; The implantable microsensor is compatible with medical imaging devices and does not require an internal or external power supply

US2010094164 [+]

Patentes

Wireless intracranial monitoring system

Some embodiments of the present disclosure comprise improved systems and methods for monitoring physiological parameters such as intracranial pressure ("ICP"), intracranial temperature, and subject head position. For example, in some embodiments, an implantable apparatus for measuring ICP can be implanted into a subject skull. The apparatus can comprise an implant body having a hermetically sealed chamber housing a gas at a reference pressure, and a pressure conduction catheter having a proximal end and a distal end, wherein the distal end is configured to extend into the brain through a burr hole in the skull and includes a plurality of ports. A barrier can cover the ports of the distal end of the pressure conduction catheter, wherein the barrier and pressure conduction catheter are filled with a number of gas molecules so that the barrier is not in tension in a predefined range of ICPs.

WO2015US26219 [+]

Categoría n. 7: BRAIN MACHINE INTERFACE (SOFTWARE Y MÉTODOS PARA DETERMINAR LA SEÑAL)

Conducting polymer nanowire brain-machine interface systems and methods

The present invention relates to conducting polymer nanowires and their use in a brain-machine interface which is secure, robust and minimally invasive. In accordance with a first aspect of the present invention, a vascular-based brain-machine interface comprising conducting polymer nanowires is disclosed

EP1880388 [+]

Wireless wearable big data brain machine interface

A wireless wearable high data throughput (big data) brain machine interface apparatus is presented. An implanted recording and transmitting module collects neural data from a plurality of implanted electrodes and wirelessly transmits this over a short distance to a wearable (not implanted) receiving and forwarding module, which communicates the data over a wired communication to a mobile post processing device. The post processing device can send this neural data to an external display or computer enabled device for viewing and/or manipulation. High data throughput is supported by aggregating multiple groups of electrodes by multiple n-channel recording elements, which are multiplexed and then modulated into high frequency wireless communications to the wearable module. Embodiments include use of multiple radiators (multiple polarizations and/or spatially distributed), with beam alignment adjustment.

US2016323000 [+]

Patentes

Categoría n. 8: NUEVOS MÉTODOS PARA MEDIR PIC (PRESIÓN INTRACRANEAL) DE UNA FORMA NO INVASIVA PARA EL PACIENTE

Method and device for measuring intracranial pressure, ICP, in a subject

According to an aspect, there is provided a method for measuring the intracranial pressure, ICP, in a subject, the method comprising detecting whether spontaneous retinal venous pulsations, SRVPs, are occurring in an eye of the subject as the orientation of the head of the subject changes; identifying the orientation of the head of the subject at which SRVPs start to occur or stop occurring; and using the identified orientation of the head of the subject at which SRVPs start to occur or stop occurring to determine the ICP in the subject.

US201514930221 [+]

Method and system for determining intracranial pressure

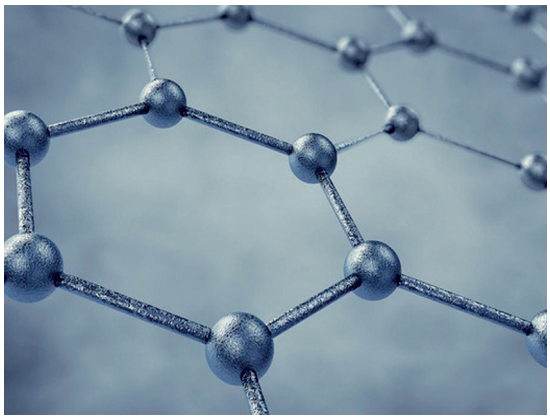
A method and apparatus for determining intracranial pressure, the apparatus comprising: a contact lens (22); a camera (32) for making a plurality of images of at least one eye of a subject; one or more force transducers (24) for controllably applying a force to the eye via the contact lens (22); a support system (26a, 26b, 28a, 28b) for supporting the camera (32), the contact lens and the one or more force transducers (24) against the eye; and a computing device (14) for controlling the force applied to the eye by the force transducers (24) and stabilizing the force by negative feedback.

CA20152941535 [+]

Noticias

Nueva generación de implantes corticales con grafeno para recuperar el habla

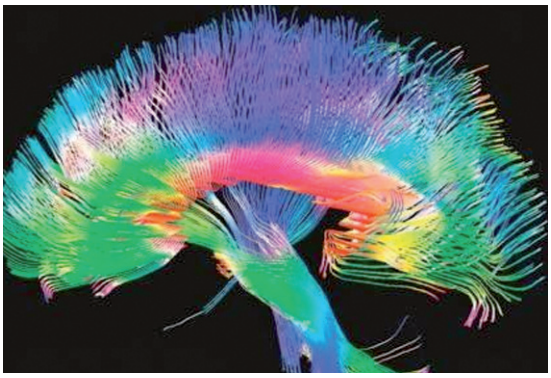
Sinc. La ciencia es noticia
12.01.2017



Se ha presentado en Barcelona el proyecto europeo BrainCom, que con un presupuesto de 8,35 millones de euros aprovechará las propiedades únicas del grafeno y otros materiales orgánicos para desarrollar una tecnología radicalmente nueva de implantes corticales ultraflexibles. Sus resultados ofrecerán soluciones para rehabilitar pacientes con trastornos en el habla gracias a innovadoras interfaces cerebro-ordenador. [+]

Ictus: Surgen nuevas esperanzas

Información
17.01.2017



Un 30% de los pacientes con ictus presenta un problema de discapacidad que impide valerse por sí mismos y que se manifiesta con parálisis, problemas de equilibrio, trastornos del habla y déficits cognitivos (FEI). Actualmente está surgiendo el desarrollo de softwares y sistemas de realidad virtual con enfoque rehabilitador para contribuir a la recuperación de estos pacientes. [+]

Crean un método para detectar las migrañas 40 minutos antes de que aparezcan

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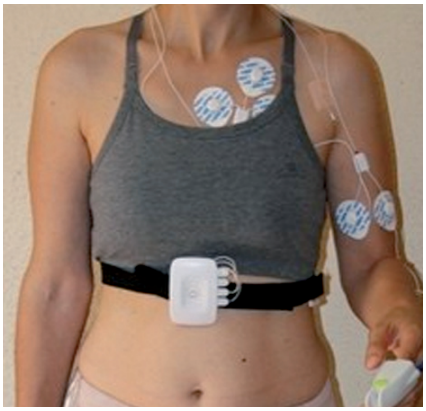
18.02.2017



Investigadores del Center for Computational Simulation, de la Universidad Politécnica de Madrid e investigadores de la Universidad Complutense han creado un método basado en sensores inalámbricos que permite detectar hasta 40 minutos antes la aparición de migrañas. Para realizar el trabajo, que se encuentra en fase piloto, se utilizó un dispositivo comercial de monitorización ambulatoria del cuerpo humano para controlar la temperatura superficial de la piel, sudoración, ritmo cardiaco y saturación de oxígeno. [+]