

### Noticias

La Oficina Española de Patentes y Marcas (OEPM) publicó el día 4 de enero de 2021 en su página Web un Informe sobre [“Tecnologías en el sector de la Automoción 2008-2019”](#). El informe refleja una tendencia al alza de invenciones relacionadas con las tecnologías de “Propulsión híbrida-eléctrica” y “Vehículo autónomo” así como un aumento en el número de matriculaciones de vehículos híbridos y eléctricos.

El 27 de enero de 2021 supimos a través del Ministerio de Industria, que dos empresas españolas (Ferroglobe y Little Electric Cars) participarán en el [Proyecto Importante de Interés Común Europeo \(IPCEI\) sobre baterías](#) que aprobó la Comisión Europea el día anterior. En el proyecto participan un total de 12 países europeos.

El 25 de febrero tuvo lugar el seminario online gratuito [«Metrología para una industria digital, sostenible y limpia»](#), organizado por el Centro Español de Metrología (CEM), con motivo de la Semana de la Industria Europea. Dicho seminario contó con la participación de un panel de expertos europeos de la industria, universidad y centros metrologicos nacionales. La empresa [ZIV](#) habló sobre los Sistemas de Recarga de Vehículo Eléctrico. Casos de Uso y Normativa Aplicable.

El 4 de marzo, la ministra de Industria, Comercio y Turismo, Reyes Maroto, anunció durante su intervención en el 28º Congreso Federal UGT-FICA, la creación de un consorcio público-privado, con SEAT-Volkswagen e Iberdrola – abierto a otros socios para montar la [primera fábrica de baterías en España](#).

El pasado 22 de marzo, la empresa sueca [Nova Innovation](#), líder en energía mareomotriz, anunció el desarrollo del primer punto de carga de vehículos eléctricos (EV) que se alimenta directamente de una fuente de energía proveniente de las mareas. El nuevo punto de carga de vehículos eléctricos, está ubicado en las costas de Bluemull Sound, en el puerto de Cullivoe, en la isla de Yell (Escocia).

### [BOLETINES OEPM](#)

NIPO: 116-19-009-9

## CONTENIDO:

- **TECNOLOGÍAS VEHICULARES**
  - [Baterías](#)
  - [Supercondensadores](#)
  - [Sistemas de recuperación de energía, p.ej. frenos regenerativos](#)
  - [Máquinas eléctricas](#)
  - [Convertidores, inversores](#)
- **INFRAESTRUCTURAS DE CARGA**
  - [Recarga de baterías](#)
  - [Cambio de baterías](#)

## Solicitudes de Patente Publicadas

Los datos que aparecen en la tabla corresponden a una selección de las solicitudes de patentes publicadas durante el trimestre. Se puede acceder al documento completo haciendo doble clic sobre el mismo.

### BATERÍAS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
<a href="#">WO 2021006125 A1</a>	SUMITOMO METAL MINING CO	Positive electrode active material for lithium-ion secondary cell, and lithium-ion secondary cell
<a href="#">WO 2021006161 A1</a>	MURATA MANUFACTURING CO	Secondary battery
<a href="#">WO 2021010231 A1</a>	MURATA MANUFACTURING CO	Solid-state battery
<a href="#">WO 2021025443 A1</a>	LG CHEMICAL LTD	Battery case for secondary battery, and pouch-type secondary battery
<a href="#">WO 2021006583 A1</a>	LG CHEMICAL LTD	Separator for secondary battery, and secondary battery comprising same
<a href="#">WO 2021006516 A1</a>	SAMSUNG SDI CO LTD	Secondary battery
<a href="#">WO 2021021772 A1</a>	TERAWATT TECH INC	Anode-free solid state battery having a pseudo-solid lithium gel layer
<a href="#">WO 2021025321 A1</a>	LG CHEMICAL LTD	Battery pack with fixing bar, and electronic device and automobile comprising same
<a href="#">WO 2021054110 A1</a>	IBIDEN CO LTD	Heat insulation sheet for battery pack, and battery pack
<a href="#">WO 2021002712 A1</a>	LG CHEMICAL LTD	Battery module, and battery pack and power storage device including same
<a href="#">WO 2021003299 A1</a>	SABIC GLOBAL TECHNOLOGIES BV	Hybrid energy-absorption for vehicle battery pack frames
<a href="#">WO 2021006124 A1</a>	SUMITOMO METAL MINING CO	Positive electrode active material for lithium-ion secondary cell, and lithium-ion secondary cell
<a href="#">WO 2021015436 A1</a>	LG CHEMICAL LTD	Vehicle battery fire detection device and detection method
<a href="#">WO 2021006129 A1</a>	SUMITOMO METAL MINING CO	Positive electrode active material for lithium ion secondary batteries, and lithium ion secondary battery
<a href="#">WO 2021006529 A1</a>	LG CHEMICAL LTD	Battery cell and battery module
<a href="#">WO 2021014441 A1</a>	ZUTA CAR LTD	Electric batteries cooling system
<a href="#">WO 2021015006 A1</a>	HITACHI SHIPBUILDING ENG CO	Electric device unit
<a href="#">WO 2021013695 A1</a>	VOLKSWAGEN AG	Method for operating a battery of a parked motor vehicle, and motor vehicle
<a href="#">WO 2021022130 A1</a>	3M INNOVATIVE PROPERTIES CO	Thermal barrier material for a rechargeable electrical energy storage system
<a href="#">WO 2021025470 A1</a>	LG CHEMICAL LTD	Battery pack with integrated mechanical and electrical fixing structure of battery modules
<a href="#">WO 2021025374 A1</a>	LG CHEMICAL LTD	Battery pack having movable busbar assembly, and secondary battery comprising same
<a href="#">WO 2021014899 A1</a>	PANASONIC IP MAN CO LTD	Monitoring device, management system, and management method
<a href="#">WO 2021015425 A1</a>	LG CHEMICAL LTD	Battery module and battery pack including same
<a href="#">WO 2021010085 A1</a>	MURATA MANUFACTURING CO	Secondary battery
<a href="#">WO 2021000511 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Negative current collector, negative pole piece, electrochemical apparatus, battery module, battery pack and device
<a href="#">WO 2021001300 A1</a>	SOLVAY SPECIALTY POLYMERS IT	Process for preparing a coated battery separator
<a href="#">WO 2021002711 A1</a>	LG CHEMICAL LTD	Battery pack and power storage device comprising same
<a href="#">WO 2021011275 A1</a>	HONEYWELL INT INC	Electrolyte solution for a lithium ion cell
<a href="#">WO 2021025512 A1</a>	BTL ADVANCED MAT CO LTD	Aluminum pouch film for secondary battery, and method for producing same
<a href="#">WO 2021024630 A1</a>	SANYO ELECTRIC CO	Battery
<a href="#">WO 2021053976 A1</a>	SUMITOMO ELECTRIC INDUSTRIES	Battery monitoring system, battery module, battery management device, management method, and vehicle
<a href="#">WO 2021002417 A1</a>	MURATA MANUFACTURING CO	Composite molded body and method for producing same, battery pack, electric tool, and electric vehicle

<a href="#">WO 2021001108 A1</a>	IEE SA	Thermal runaway detection of automotive traction batteries employing force-sensing resistor (fsr) pressure sensor
<a href="#">WO 2021006128 A1</a>	SUMITOMO METAL MINING CO	Positive electrode active material for lithium ion secondary batteries, and lithium ion secondary battery
<a href="#">WO 2021004860 A1</a>	FOGMAKER INT AB	Fire suppression arrangement
<a href="#">WO 2021006626 A1</a>	LG CHEMICAL LTD	Battery module, battery rack comprising such battery module, and power storage device
<a href="#">WO 2021014872 A1</a>	GS YUASA INT LTD	Current measuring device, method for measuring current, energy storage device, and resistor
<a href="#">WO 2021010626 A1</a>	LG CHEMICAL LTD	Lithium-sulfur secondary battery
<a href="#">WO 2021025313 A1</a>	LG CHEMICAL LTD	Battery module having plurality of cylindrical battery cells, battery pack comprising same, and automobile
<a href="#">WO 2021053930 A1</a>	AISAN IND	Assembled battery and joining method
<a href="#">WO 2021002710 A1</a>	LG CHEMICAL LTD	Battery pack including connection plate, electronic device, and automobile
<a href="#">WO 2021002128 A1</a>	GS YUASA INT LTD	Power storage device
<a href="#">WO 2021002384 A1</a>	SHOWA DENKO KK	Lithium ion secondary battery
<a href="#">WO 2021005277 A1</a>	ARKEMA FRANCE	Use of 2,3,3,3-tetrafluoropropene for heating a lithium battery
<a href="#">WO 2021010321 A1</a>	TOYOTA JIDOSHOKKI KK	Positive electrode active material in which aluminum is dispersed uniformly
<a href="#">WO 2021024728 A1</a>	GS YUASA INT LTD	Power storage device
<a href="#">WO 2021001500 A1</a>	UMICORE NV	Lithium nickel manganese cobalt composite oxide as a positive electrode active material for rechargeable lithium ion batteries
<a href="#">WO 2021001970 A1</a>	SHOWA DENKO MAT CO LTD	Electrolyte sheet and secondary battery
<a href="#">WO 2021006383 A1</a>	KOREA ELECTRIC TERMINAL CO LTD	Electrical connection device for battery module
<a href="#">WO 2021006520 A1</a>	IUCF HYU	Cathode active material for lithium secondary battery, method for manufacturing same, and lithium secondary battery comprising same
<a href="#">WO 2021024629 A1</a>	SANYO ELECTRIC CO	Battery
<a href="#">WO 2021054273 A1</a>	NIPPON ELECTRIC GLASS CO	Method for manufacturing positive electrode material for electricity storage device
<a href="#">WO 2021001013 A1</a>	VOLVO TRUCK CORP	Improved management of an energy storage system of a vehicle
<a href="#">WO 2021013696 A1</a>	VOLKSWAGEN AG	Method for treating a battery of a parked motor vehicle, and motor vehicle
<a href="#">WO 2021009115 A1</a>	EVONIK OPERATIONS GMBH	Use of polymeric-inorganic nanoparticle compositions as heat transfer fluids in battery or other electrical equipment systems
<a href="#">WO 2021010605 A1</a>	LG CHEMICAL LTD	Lithium secondary battery
<a href="#">WO 2021006127 A1</a>	SUMITOMO METAL MINING CO	Manufacturing method for positive electrode active material for lithium-ion secondary battery
<a href="#">WO 2021004354 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Lithium-ion secondary battery and related preparation method therefor, battery module, battery pack, and device
<a href="#">WO 2021010092 A1</a>	SUMITOMO ELECTRIC INDUSTRIES	Battery information management system, node, management method, recording method, and computer program
<a href="#">WO 2021009116 A1</a>	EVONIK OPERATIONS GMBH	Use of nanoparticle compositions as heat transfer fluids in battery or other electrical equipment systems
<a href="#">WO 2021010335 A1</a>	DENSO CORP	Battery temperature adjustment device
<a href="#">WO 2021025520 A1</a>	LG CHEMICAL LTD	Battery pack cover having uneven surface structure and battery pack comprising same
<a href="#">WO 2021001402 A1</a>	NIDEC GPM GMBH	Temperature control device for a battery bank module
<a href="#">WO 2021002385 A1</a>	SHOWA DENKO KK	Lithium-ion secondary cell
<a href="#">WO 2021003679 A1</a>	NINGDE AMPEREX TECHNOLOGY LTD	Cathode sheet and electrode assembly having same
<a href="#">WO 2021005969 A1</a>	PANASONIC IP MAN CO LTD	Management device and power supply system for vehicles
<a href="#">WO 2021009632 A1</a>	3M INNOVATIVE PROPERTIES CO	Battery module thermal management system
<a href="#">WO 2021018961 A1</a>	SOGEFI AIR & COOLING	Battery cooling module and device, and corresponding battery
<a href="#">WO 2021001046 A1</a>	VOLVO TRUCK CORP	A method for controlling electrical connection of battery packs
<a href="#">WO 2021005276 A1</a>	ARKEMA FRANCE	Use of 2,3,3,3-tetrafluoropropene for cooling a battery having an oxide-type positive electrode
<a href="#">WO 2021007183 A1</a>	BRAMBILLA NICOLO	Electrodes for energy storage devices
<a href="#">WO 2021014871 A1</a>	GS YUASA INT LTD	Power storage element management device, power storage device, and relay
<a href="#">WO 2021020743 A1</a>	SAMSUNG SDI CO LTD	Secondary battery

<a href="#">WO 2021025513 A1</a>	BTL ADVANCED MAT CO LTD	Aluminum pouch film for secondary battery, and manufacturing method therefor
<a href="#">WO 2021000503 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Negative electrode current collector, negative electrode plate, electrochemical apparatus, battery module, battery pack, and device
<a href="#">WO 2021015469 A1</a>	LG CHEMICAL LTD	Power storage device
<a href="#">WO 2021021773 A1</a>	TERAWATT TECH INC	Cylindrical anode-free solid state battery having a pseudo-solid lithium gel layer
<a href="#">WO 2021010625 A1</a>	LG CHEMICAL LTD	Lithium-sulfur secondary battery
<a href="#">WO 2021024563 A1</a>	MURATA MANUFACTURING CO	Secondary cell, cell pack, electronic device, electric tool, and electric vehicle
<a href="#">WO 2021025521 A1</a>	LG CHEMICAL LTD	Copolymer for polymer electrolyte, gel polymer electrolyte comprising same, and lithium secondary battery
<a href="#">WO 2021033476 A1</a>	SANYO ELECTRIC CO	Power supply device, and electric vehicle and electrical storage device each equipped with same
<a href="#">WO 2021039773 A1</a>	PANASONIC IP MAN CO LTD	Battery charging module, battery exchange device, and battery device
<a href="#">WO 2021039508 A1</a>	DEXERIALS CORP	Protection element, battery pack
<a href="#">WO 2021036791 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Positive electrode material for sodium ion battery, preparation method therefor and related sodium ion battery, battery module, battery pack and device thereof
<a href="#">WO 2021052572 A1</a>	VOLVO TRUCK CORP	A modular energy storage system
<a href="#">WO 2021034420 A1</a>	BRIDGESTONE AMERICAS INC	Structural composites for battery enclosure
<a href="#">WO 2021039241 A1</a>	PANASONIC IP MAN CO LTD	Lithium secondary battery
<a href="#">WO 2021045039 A1</a>	NIPPON ELECTRIC GLASS CO	Solid electrolyte sheet and method for producing same
<a href="#">WO 2021049193 A1</a>	KOBE STEEL LTD	Battery case for electric vehicle
<a href="#">WO 2021049134 A1</a>	HITACHI LTD	Battery monitoring device and battery system
<a href="#">WO 2021049376 A1</a>	MURATA MANUFACTURING CO	Battery, electronic device, and electric tool
<a href="#">WO 2021025072 A1</a>	APB CORP	Method for manufacturing lithium ion cell
<a href="#">WO 2021024673 A1</a>	GS YUASA INT LTD	Power storage device
<a href="#">WO 2021029652 A1</a>	LG CHEMICAL LTD	Positive electrode for lithium secondary battery, and lithium secondary battery comprising same
<a href="#">WO 2021039468 A1</a>	FUJIFILM CORP	Composition containing inorganic solid electrolyte, sheet for all-solid secondary batteries, all-solid secondary battery, method for manufacturing sheet for all-solid secondary batteries, and method for manufacturing all-solid secondary battery
<a href="#">WO 2021039947 A1</a>	FUJIFILM CORP	Inorganic solid electrolyte-containing composition, sheet for all-solid-state secondary batteries, all-solid-state secondary battery, method for producing sheet for all-solid-state secondary batteries and method for producing all-solid-state secondary battery
<a href="#">WO 2021041554 A2</a>	BOURNS INC	Connector with integrated thermal cutoff device for battery pack
<a href="#">WO 2021039510 A1</a>	DEXERIALS CORP	Protective element and battery pack
<a href="#">WO 2021045223 A1</a>	APB CORP	Lithium-ion battery module
<a href="#">WO 2021025349 A1</a>	LG CHEMICAL LTD	Anode, manufacturing method therefor, and secondary battery comprising same
<a href="#">WO 2021037904 A1</a>	EVONIK OPERATIONS GMBH	Mixed lithium transition metal oxide containing pyrogenically produced zirconium-containing oxides
<a href="#">WO 2021045987 A1</a>	TERAWATT TECH INC	Systems and methods of making solid-state batteries and associated solid-state battery anodes
<a href="#">WO 2021011151 A2</a>	ZHANG SANPEI	Battery with sulfur-containing electrode
<a href="#">WO 2021020237 A1</a>	MURATA MANUFACTURING CO	Secondary battery, battery pack, electronic device, electric tool, electric airplane and electric vehicle
<a href="#">WO 2021025370 A1</a>	L&F CO LTD	Cathode active material for lithium secondary battery
<a href="#">WO 2021029115 A1</a>	MURATA MANUFACTURING CO	Secondary battery, battery pack, electronic device, electric tool, and electric vehicle
<a href="#">WO 2021039043 A1</a>	MURATA MANUFACTURING CO	Solid-state battery
<a href="#">WO 2021036955 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Negative pole piece, lithium secondary battery, and device with lithium secondary battery
<a href="#">WO 2021048054 A1</a>	KIRCHHOFF AUTOMOTIVE D GMBH	Battery housing comprising a spacer
<a href="#">WO 2021025479 A1</a>	L&F CO LTD	Secondary battery active material

<a href="#">WO 2021000504 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Positive electrode current collector, positive electrode piece, electrochemical device, battery module, battery pack, and apparatus
<a href="#">WO 2021020151 A1</a>	MURATA MANUFACTURING CO	Secondary battery
<a href="#">WO 2021025382 A1</a>	LG CHEMICAL LTD	Lithium secondary battery having improved cycle characteristics
<a href="#">WO 2021041919 A1</a>	SPARKCHARGE INC	Battery module with smart electronic isolation systems
<a href="#">WO 2021043493 A1</a>	SOLVAY	Sulfide-based solid composite electrolyte film
<a href="#">WO 2021044883 A1</a>	MAXELL HOLDINGS LTD	All-solid-state battery negative electrode and all-solid-state battery
<a href="#">WO 2021049668 A1</a>	APB CORP	Method for manufacturing lithium-ion battery recyclable electrode active material, method for manufacturing solution containing metal ion, and lithium-ion battery
<a href="#">WO 2021048555 A1</a>	NEXEON LTD	Electroactive materials for use in metal-ion batteries
<a href="#">WO 2021048492 A1</a>	VALEO SYSTEMES THERMIQUES	Device for regulating the temperature of an electrical element by means of a dielectric fluid
<a href="#">WO 2021016181 A1</a>	US GOV SEC NAVY	Zinc electrode improvements
<a href="#">WO 2021019651 A1</a>	SHOWA DENKO MAT CO LTD	Linking-seat welding device and linking-seat welding method
<a href="#">WO 2021025164 A1</a>	MITSUBISHI CHEM CORP	Nonaqueous electrolytic solution and nonaqueous-electrolytic-solution battery
<a href="#">WO 2021027743 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Negative electrode pole piece, lithium-ion battery and apparatus
<a href="#">WO 2021039119 A1</a>	PANASONIC IP MAN CO LTD	Nonaqueous electrolyte secondary battery
<a href="#">WO 2021048028 A1</a>	CAPACITE	Electric battery for a vehicle
<a href="#">WO 2021049541 A1</a>	DENSO CORP	Battery temperature adjustment device
<a href="#">WO 2021053277 A1</a>	PSA AUTOMOBILES SA	Heat exchange plate for a battery
<a href="#">WO 2021002619 A2</a>	LG CHEMICAL LTD	Battery module and battery pack including same
<a href="#">WO 2021014975 A1</a>	SUMITOMO WIRING SYSTEMS	Battery wiring module
<a href="#">WO 2021020235 A1</a>	MURATA MANUFACTURING CO	Secondary battery, battery pack, electric tool, electric aircraft and electric vehicle
<a href="#">WO 2021018398 A1</a>	WEBASTO SE	Reduction of high-voltage interferences in a battery system for electric vehicles
<a href="#">WO 2021029650 A1</a>	LG CHEMICAL LTD	Cathode for lithium secondary battery and lithium secondary battery comprising same
<a href="#">WO 2021044291 A1</a>	DENSO THERMAL SYSTEMS SPA	System for integrated control of the temperature of a battery and of an interior air conditioning apparatus in a vehicle
<a href="#">WO 2021049477 A1</a>	KANEKA CORP	Li ion conductor and method for producing same
<a href="#">WO 2021048894 A1</a>	TOSHIBA KK	Insulating member, battery, battery pack, vehicle, and manufacturing method of battery
<a href="#">WO 2021055950 A1</a>	UNIV LELAND STANFORD JUNIOR	Aqueous rechargeable battery based on formation reaction anodes
<a href="#">WO 2021015461 A1</a>	LG CHEMICAL LTD	Battery module and battery pack including same
<a href="#">WO 2021021600 A1</a>	TERAWATT TECH INC	Interfacial bonding layer for an anode-free solid-state-battery
<a href="#">WO 2021020277 A1</a>	MURATA MANUFACTURING CO	Secondary battery, battery pack, electronic device, electric tool, electric airplane and electric vehicle
<a href="#">WO 2021032385 A1</a>	BOSCH GMBH ROBERT	Method for matching data of a first control unit with a second control unit to determine accurate predictive values
<a href="#">WO 2021039820 A1</a>	AIST	Phosphorus-containing low crystallinity vanadium sulfide
<a href="#">WO 2021049648 A1</a>	ASAHI CHEMICAL IND	Nonaqueous electrolyte solution and nonaqueous electrolyte secondary battery
<a href="#">WO 2021001501 A1</a>	UMICORE NV	Lithium nickel manganese cobalt composite oxide as a positive electrode active material for rechargeable lithium ion batteries
<a href="#">WO 2021014996 A1</a>	MURATA MANUFACTURING CO	Battery, battery pack, electronic device, electric vehicle, electricity storage device, and electric power system
<a href="#">WO 2021019728 A1</a>	SHOWA DENKO MAT CO LTD	Method for manufacturing negative electrode material for lithium ion secondary battery and method for manufacturing lithium ion secondary battery
<a href="#">WO 2021018675 A1</a>	SENIOR UK LTD	Contra flow channel battery heat exchanger
<a href="#">WO 2021025544 A1</a>	LG CHEMICAL LTD	Polymer for gel polymer electrolyte, and gel polymer electrolyte and lithium secondary battery, each comprising same
<a href="#">WO 2021039355 A1</a>	GS YUASA INT LTD	Method for correcting state-of-charge estimation value of power storage element, management device of power storage element, and power storage element

<a href="#">WO 2021019726 A1</a>	SHOWA DENKO MAT CO LTD	Method for producing negative electrode material for lithium ion secondary batteries and method for producing lithium ion secondary battery
<a href="#">WO 2021025079 A1</a>	MURATA MANUFACTURING CO	Positive electrode active material, positive electrode, and secondary battery
<a href="#">WO 2021024732 A1</a>	DENSO CORP	Battery management device, battery management method, and battery management program
<a href="#">WO 2021025128 A1</a>	DENSO CORP	Temperature regulator
<a href="#">WO 2021025473 A1</a>	LG CHEMICAL LTD	Upper part cooling-type battery pack
<a href="#">WO 2021039242 A1</a>	PANASONIC IP MAN CO LTD	Lithium secondary battery
<a href="#">WO 2021040033 A1</a>	SUMITOMO METAL MINING CO	Positive electrode active material for lithium ion secondary battery, and lithium ion secondary battery
<a href="#">WO 2021041124 A1</a>	ENEVATE CORP	Method and system for improved performance of silicon anode containing cells through formation
<a href="#">WO 2021039509 A1</a>	DEXERIALS CORP	Protection element and battery pack
<a href="#">WO 2021039950 A1</a>	FUJIFILM CORP	Inorganic solid electrolyte-containing composition, sheet for solid-state secondary batteries, solid-state secondary battery, and methods for producing solid-state secondary battery and sheet for solid-state secondary batteries
<a href="#">WO 2021045172 A1</a>	NUVOTON TECH CORPORATION JAPAN	Power storage system, power storage device, and charging method
<a href="#">WO 2021049032 A1</a>	TOSHIBA KK	Battery, battery pack, and vehicle
<a href="#">WO 2021025107 A1</a>	CENTRAL GLASS CO LTD	Method for producing lithium difluorophosphate, method for producing difluorophosphate ester, lithium difluorophosphate, method for producing nonaqueous electrolyte solution, and method for producing nonaqueous secondary battery
<a href="#">WO 2021029597 A1</a>	SAMSUNG SDI CO LTD	Electrode assembly and secondary battery comprising same
<a href="#">WO 2021039178 A1</a>	PANASONIC IP MAN CO LTD	Non-aqueous electrolyte secondary battery
<a href="#">WO 2021020805 A1</a>	LG CHEMICAL LTD	Composite anode active material, manufacturing method of same, anode comprising same, and secondary battery
<a href="#">WO 2021038862 A1</a>	SHOWA DENKO MAT CO LTD	Electrolyte sheet, method for producing same and secondary battery
<a href="#">WO 2021020139 A1</a>	MURATA MANUFACTURING CO	Secondary battery, battery pack, electronic device, electric tool, electric aircraft and electric vehicle
<a href="#">WO 2021029534 A1</a>	LG CHEMICAL LTD	Iron oxyhydroxynitrate having phosphoric acid anion-adsorbed surface, preparation method therefor, cathode comprising iron oxyhydroxynitrate having phosphoric acid anion-adsorbed surface for lithium secondary battery, and lithium secondary battery comprising same
<a href="#">WO 2021039018 A1</a>	HITACHI LTD	Temperature estimation method, deterioration state estimation method, and lifespan prediction method for secondary battery module, temperature estimation device, deterioration state estimation device, and lifespan prediction device for secondary battery module, and charging device
<a href="#">WO 2021045084 A1</a>	SHOWA DENKO KK	Heat exchanger
<a href="#">WO 2021049309 A1</a>	NIPPON CHEMICAL IND	Method for producing modified lithium-cobalt-based composite oxide particles
<a href="#">WO 2021062081 A1</a>	UNIV CALIFORNIA	Composite graphene energy storage methods, devices, and systems
<a href="#">WO 2021019041 A1</a>	INNOLITH TECH AG	Rechargeable battery cell
<a href="#">WO 2021033852 A1</a>	SM LAB CO LTD	Positive active material, preparation method therefor, and lithium secondary battery comprising positive electrode comprising same
<a href="#">WO 2021033940 A1</a>	SAMSUNG SDI CO LTD	Rechargeable battery
<a href="#">WO 2021040392 A1</a>	LG CHEMICAL LTD	Electrolyte for lithium secondary battery, and lithium secondary battery comprising same
<a href="#">WO 2021039778 A1</a>	PANASONIC IP MAN CO LTD	Battery charging module, battery replacement device, and battery device
<a href="#">WO 2021024942 A1</a>	MURATA MANUFACTURING CO	Secondary battery, battery pack, electronic device, power tool, electrically powered aircraft, and electric vehicle
<a href="#">WO 2021033469 A1</a>	MURATA MANUFACTURING CO	Secondary battery
<a href="#">WO 2021049820 A1</a>	LG CHEMICAL LTD	Battery rack and power storage device comprising same
<a href="#">WO 2021020413 A1</a>	PANASONIC IP MAN CO LTD	Battery
<a href="#">WO 2021040900 A1</a>	STAFL SYSTEMS LLC	Location-determinant fault monitoring for battery management system

<a href="#">WO 2021039120 A1</a>	GS YUASA INT LTD	Positive electrode active material for nonaqueous electrolyte secondary batteries, method for producing positive electrode active material for nonaqueous electrolyte secondary batteries, positive electrode for nonaqueous electrolyte secondary batteries, nonaqueous electrolyte secondary battery and electricity storage device
<a href="#">WO 2021033510 A1</a>	SUMITOMO ELECTRIC INDUSTRIES	Battery management system, battery device, battery management method, and computer program
<a href="#">WO 2021040388 A1</a>	LG CHEMICAL LTD	Non-aqueous electrolytic solution, and lithium secondary battery comprising same
<a href="#">WO 2021045025 A1</a>	HITACHI METALS LTD	Positive electrode active material for lithium ion secondary batteries, method for producing same, and lithium ion secondary battery
<a href="#">WO 2021049918 A1</a>	LG CHEMICAL LTD	Positive electrode material for secondary battery and lithium secondary battery comprising same
<a href="#">WO 2021020853 A1</a>	LG CHEMICAL LTD	Jelly-roll type electrode assembly comprising anode in which anode mixtures comprising active materials of different compositions are formed on both surfaces of current collector, secondary battery comprising same, and device comprising secondary battery
<a href="#">WO 2021033941 A1</a>	SAMSUNG SDI CO LTD	Rechargeable battery
<a href="#">WO 2021031867 A1</a>	ZHUHAI COSMX BATTERY CO LTD	Electrolyte, preparation method therefor and lithium ion battery
<a href="#">WO 2021024940 A1</a>	MURATA MANUFACTURING CO	Secondary battery, battery pack, electronic device, electric power tool, electric-powered aircraft, and electric-powered vehicle
<a href="#">WO 2021034130 A1</a>	SAMSUNG SDI CO LTD	Ion conductive polymer, and lithium secondary battery electrode and lithium secondary battery which comprise same
<a href="#">WO 2021044968 A1</a>	SHOWA DENKO KK	Copolymer for electrode binder and lithium ion secondary battery
<a href="#">WO 2021050408 A1</a>	UNIV INDIANA TRUSTEES	Porous microstructures for ion storage in high capacity electrodes based on surface segregation-induced separation
<a href="#">WO 2021054723 A1</a>	LG CHEMICAL LTD	Battery management device and method, and battery system including same
<a href="#">WO 2021024961 A1</a>	NEC CORP	Reduced graphene oxide-dihydroxynaphthalene composite material
<a href="#">WO 2021034423 A2</a>	AMPCERA INC	Internally heatable battery, internally heatable battery system, internally heatable battery method, and electric vehicle comprising the same
<a href="#">WO 2021045519 A1</a>	SHIM YOUNG TACK	Method for controlling of battery unit of hybrid vehicle and microgrid
<a href="#">WO 2021033706 A1</a>	APB CORP	Lithium ion battery module and battery pack
<a href="#">WO 2021004461 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Lithium ion battery, and battery module, battery pack and device related thereto
<a href="#">WO 2021051109 A1</a>	NEXTECH BATTERIES INC	Hybrid electrodes for battery cells and methods of production thereof
<a href="#">WO 2021034907 A1</a>	UNIV CARNEGIE MELLON	Lithium metal batteries having anode-free current collectors
<a href="#">WO 2021045222 A1</a>	SANYO CHEMICAL IND LTD	Secondary battery module
<a href="#">WO 2021033939 A1</a>	SAMSUNG SDI CO LTD	Secondary battery
<a href="#">WO 2021031956 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Rechargeable battery, battery module related thereto, battery pack, and device
<a href="#">WO 2021038697 A1</a>	DAICEL CORP	Slurry
<a href="#">WO 2021054581 A1</a>	LG CHEMICAL LTD	Choke bar slot die and slurry coating apparatus comprising same
<a href="#">WO 2021008429 A1</a>	CONTEMPORARY AMPEREX TECHNOLOGY CO LTD	Secondary battery, and battery module, battery pack and device related thereto
<a href="#">WO 2021033942 A1</a>	SAMSUNG SDI CO LTD	Secondary battery
<a href="#">WO 2021040415 A1</a>	LG CHEMICAL LTD	Electrolyte additive for lithium secondary battery, and non-aqueous electrolyte and lithium secondary battery which comprise same
<a href="#">WO 2021040246 A1</a>	TEMPUS INC	Battery monitoring system and method
<a href="#">WO 2021033956 A1</a>	LG CHEMICAL LTD	Battery system and operating method thereof
<a href="#">WO 2021045387 A1</a>	LG CHEMICAL LTD	Battery management device, battery management method, battery pack, and electric vehicle
<a href="#">WO 2021034108 A1</a>	AMOGREENTECH CO LTD	Cooling member for battery module and battery module including same



<a href="#">WO 2021045581 A1</a>	LG CHEMICAL LTD	Method for pre-lithiation/pre-sodiation of negative electrode, pre-lithiated/pre-sodiated negative electrode, and lithium secondary battery comprising same
<a href="#">WO 2021033985 A1</a>	SAMSUNG SDI CO LTD	Electrode assembly and secondary battery including same
<a href="#">WO 2021034145 A1</a>	LG CHEMICAL LTD	Carbon nanotube dispersion solution, negative electrode slurry comprising same, negative electrode, and lithium secondary battery
<a href="#">WO 2021007519 A2</a>	UNIV NORTHWESTERN	Conductive 2d metal-organic framework for aqueous rechargeable battery cathodes
<a href="#">WO 2021013860 A1</a>	NESTE OYJ	Paraffinic products, a method for producing paraffinic products and a use of paraffinic products

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## SUPERCONDENSADORES

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
<a href="#">WO 2021007670 A1</a>	UNIV KINGSTON	Hybrid energy storage device
<a href="#">WO 2021005812 A1</a>	KURITA WATER IND LTD	Power storage device structure
<a href="#">WO 2021039476 A1</a>	UNIV CHIBA NAT UNIV CORP	Electricity storage device
<a href="#">WO 2021039959 A1</a>	FUJIFILM WAKO PURE CHEMICAL CORP	Binder for electricity storage devices improving dispersibility of conductive assistant
<a href="#">WO 2021006069 A1</a>	TORAY ADVANCED FILM CO LTD	Sealant film
<a href="#">WO 2021033537 A1</a>	FUJIFILM CORP	Aluminum foil

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## SISTEMAS DE RECUPERACIÓN DE ENERGÍA; FRENOS REGENERATIVOS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
<a href="#">WO 2021007027 A1</a>	CATERPILLAR INC	Variable speed drive for an accessory drive in a hybrid power system

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## MÁQUINAS ELÉCTRICAS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
<a href="#">WO 2021009428 A1</a>	NIDEC PSA EMOTORS	Method for welding without addition of material
<a href="#">WO 2021005032 A1</a>	BROSE FAHRZEUGTEILE SE & CO KG WUERZBURG	Stator for an electrical machine
<a href="#">WO 2021038451 A1</a>	TEXA DYNAMICS S R L	Electric motor
<a href="#">WO 2021002328 A1</a>	HONDA MOTOR CO LTD	Driving unit
<a href="#">WO 2021014488 A1</a>	YAMAHA MOTOR CO LTD	Series hybrid vehicle
<a href="#">WO 2021011194 A1</a>	AFTON CHEMICAL CORP	Lubricants for electric and hybrid vehicle applications
<a href="#">WO 2021037300 A1</a>	SCHAEFFLER TECHNOLOGIES AG	Torque transmission component having an annular receiving groove for positioning a balancing mass, electric motor, and balancing method
<a href="#">WO 2021010386 A1</a>	NTN TOYO BEARING CO LTD	Electric motor, manufacturing method therefor, and device for vehicle
<a href="#">WO 2021002370 A1</a>	DENSO CORP	Method for manufacturing dynamo-electric machine
<a href="#">WO 2021014067 A1</a>	NIDEC PSA EMOTORS	Electric machine provided with a temperature sensor
<a href="#">WO 2021028192 A1</a>	ZAHNRADFABRIK FRIEDRICHSHAFEN	Electric motor with an air-guiding element
<a href="#">WO 2021047726 A1</a>	SCHAEFFLER TECHNOLOGIES AG	Rotor, electric motor and method for reducing the unbalance of a rotor
<a href="#">WO 2021028403 A1</a>	JOHNSON ELECTRIC ASTI S R L	Ventilation unit and manufacturing process of electrical connection unit of ventilation unit
<a href="#">WO 2021048088 A1</a>	VALEO SIEMENS EAUTOMOTIVE GERMANY GMBH	Hairpin winding of a stator of an electric machine
<a href="#">WO 2021032237 A1</a>	SCHAEFFLER TECHNOLOGIES AG	Electric motor having a cutout in a radial pole edge region
<a href="#">WO 2021038956 A1</a>	MEIDENSHA ELECTRIC MFG CO LTD	Rotor
<a href="#">WO 2021061795 A1</a>	CANOO INC	Fractional slot electric motors with coil elements having rectangular cross-sections
<a href="#">WO 2021048014 A1</a>	MAN TRUCK & BUS SE	Device and method for controlling the temperature of an energy store for electrical energy of a motor vehicle
<a href="#">WO 2021044294 A1</a>	TEXA DYNAMICS S R L	Electric motor for electric vehicle
<a href="#">WO 2021047723 A1</a>	SCHAEFFLER TECHNOLOGIES AG	Electric motor, rotor and method for securing a magnet in a rotor
<a href="#">WO 2021053278 A1</a>	PSA AUTOMOBILES SA	Device for thermal conditioning of high-voltage batteries for hybrid vehicles
<a href="#">WO 2021018669 A1</a>	VITESCO TECH GMBH	Purge pump and vehicle
<a href="#">WO 2021042455 A1</a>	CRRC ELECTRIC VEHICLE CO LTD	Dual-winding permanent magnet motor

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## CONVERTIDORES, INVERSORES

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
<a href="#">WO 2021001785 A1</a>	ABB SCHWEIZ AG	MVDC link-powered battery chargers and operation thereof
<a href="#">WO 2021014666 A1</a>	HITACHI LTD	Current measurement unit and power conversion device
<a href="#">WO 2021049091 A1</a>	HITACHI POWER SEMICONDUCTOR DEVICE LTD	Electric power conversion device and railway vehicle electric system
<a href="#">WO 2021014363 A1</a>	ECO HOME AS	System and method for reusing an electric vehicle battery
<a href="#">WO 2021053746 A1</a>	DENSO CORP	Power conversion device
<a href="#">WO 2021006539 A1</a>	LG INNOTEK CO LTD	Inductor and DC converter including same
<a href="#">WO 2021014512 A1</a>	DENSO CORP	Power converter
<a href="#">WO 2021037433 A1</a>	BOSCH GMBH ROBERT	Control method for a DC-DC converter and DC-DC voltage converter
<a href="#">WO 2021006275 A1</a>	DENSO CORP	Power supply system
<a href="#">WO 2021008810 A1</a>	SIEMENS MOBILITY GMBH	Vehicle comprising a standby power supply device and method for operating same
<a href="#">WO 2021001406 A1</a>	VITESCO TECH GMBH	Vehicle electrical system
<a href="#">WO 2021032557 A1</a>	SIEMENS AG	Drive system of a diesel-electric vehicle
<a href="#">WO 2021007199 A1</a>	KARMA AUTOMOTIVE LLC	Switched reluctance motor control
<a href="#">WO 2021023460 A1</a>	BOSCH GMBH ROBERT	DC voltage converter and method for operating a DC voltage converter
<a href="#">WO 2021039277 A1</a>	HITACHI AUTOMOTIVE SYSTEMS LTD	Discharge control circuit, and electric power converting device
<a href="#">WO 2021039157 A1</a>	HITACHI AUTOMOTIVE SYSTEMS LTD	Power conversion device
<a href="#">WO 2021044490 A1</a>	DENSO CORP	Electric power converter
<a href="#">WO 2021020115 A1</a>	HITACHI LTD	Control device and electric vehicle
<a href="#">WO 2021001924 A1</a>	MITSUBISHI ELECTRIC CORP	Power module and manufacturing method therefor
<a href="#">WO 2021043911 A1</a>	UNIV DER BUNDESWEHR MUENCHEN	Charging system for electric vehicles
<a href="#">WO 2021052534 A1</a>	SCHAEFFLER TECHNOLOGIES AG	Circuit for discharging an energy store of a drive system
<a href="#">WO 2021048944 A1</a>	DENSO CORP	Power converter and electric vehicle
<a href="#">WO 2021049230 A1</a>	HITACHI AUTOMOTIVE SYSTEMS LTD	Power conversion device and method for controlling power conversion device
<a href="#">WO 2021053166 A1</a>	ABB SCHWEIZ AG	Current balancing in power semiconductors of a DC/DC converter
<a href="#">WO 2021033489 A1</a>	NIDEC CORP	Motor control device, and motor control method
<a href="#">WO 2021037540 A1</a>	BOSCH GMBH ROBERT	Control device for a DC-to-DC converter, DC-to-DC converter, and method for controlling a DC-to-DC converter
<a href="#">WO 2021050377 A1</a>	KARMA AUTOMOTIVE LLC	A method to improve output current harmonic distribution in a segmented drive system
<a href="#">WO 2021045608 A1</a>	HAQUE MUHAMMAD REAZUL	Smart assembly and method for unlimited power generation using series of rotatable members
<a href="#">WO 2021033295 A1</a>	MITSUBISHI ELECTRIC CORP	Power conversion device
<a href="#">WO 2021043844 A1</a>	VOLKSWAGEN AG	Battery system for a motor vehicle, and motor vehicle having an exchangeable battery
<a href="#">WO 2021034651 A1</a>	MAGNA INT INC	Charger for in plug-in electric vehicles

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## RECARGA DE BATERÍAS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
<a href="#">WO 2021038473 A1</a>	TE CONNECTIVITY CORP	Heat exchanger for a power connector
<a href="#">WO 2021000784 A1</a>	BYD CO LTD	Energy conversion apparatus and vehicle
<a href="#">WO 2021020817 A1</a>	LG CHEMICAL LTD	Battery state prediction device and battery state prediction method
<a href="#">WO 2021051086 A1</a>	ENEL X NORTH AMERICA INC	High power bidirectional grid connected charger with split battery architecture
<a href="#">WO 2021019135 A1</a>	KANDIN PATRICE	Device for an electrical plug provided with a winding means
<a href="#">WO 2021027648 A1</a>	BYD CO LTD	Electric vehicle, and integrated controller and integrated control system thereof
<a href="#">WO 2021044956 A1</a>	PANASONIC IP MAN CO LTD	Power conversion system, cable support device, and power converter
<a href="#">WO 2021044958 A1</a>	PANASONIC IP MAN CO LTD	Power conversion system and cable support
<a href="#">WO 2021016297 A1</a>	KUHMUTE INC	System for use in docking and charging micro-mobility electric vehicles
<a href="#">WO 2021048472 A1</a>	FLAQUIERE GUY	Device for charging the batteries of electric vehicles by induction
<a href="#">WO 2021054892 A1</a>	GRABTAXI HOLDINGS PTE LTD	Controller, electric power system comprising the controller, method of operating the system, and vehicle comprising the system
<a href="#">WO 2021055473 A1</a>	TOYOTA ENG & MFG NORTH AMERICA	Dynamic wireless power transfer base pad
<a href="#">WO 2021041814 A1</a>	SPARKCHARGE INC	Electric vehicle charging apparatus, system and methods
<a href="#">WO 2021049133 A1</a>	HITACHI LTD	Battery control apparatus and on-vehicle battery system
<a href="#">WO 2021047829 A1</a>	BOSCH GMBH ROBERT	Method for guiding electric vehicles
<a href="#">WO 2021044957 A1</a>	PANASONIC IP MAN CO LTD	Power conversion system, power converter, cable support, estimation method, and program
<a href="#">WO 2021044955 A1</a>	PANASONIC IP MAN CO LTD	Power conversion system and method of constructing power conversion system
<a href="#">WO 2021025629 A1</a>	MINE MOBILITY RES CO LTD	Apparatus, system and method for charging a battery
<a href="#">WO 2021045539 A1</a>	LG CHEMICAL LTD	Battery system and method for controlling battery system

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## CAMBIO DE BATERÍAS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
<a href="#">WO 2021053802 A1</a>	HONDA MOTOR CO LTD	Information processing system, information processing method, electric vehicle, storage medium, and program

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**LANZAMIENTO**



Los ITPs\*\* de la OEPM nos han ahorrado horas de revisión bibliográfica para definir el punto de partida de nuestros proyectos de I+D.



**EJECUCIÓN**



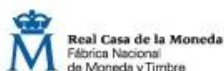
Los ITPs\*\* de la OEPM detectaron solicitudes de patente relevantes cuando estábamos a mitad del proyecto y gracias a ello pudimos reconducir nuestra investigación.



**CONCLUSIÓN**



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