

BOLETÍN DE VIGILANCIA TECNOLÓGICA E INTELIGENCIA COMPETITIVA

ALMACENAMIENTO DE ENERGÍA

MARZO - ABRIL 2023



BATTERYPLAT

ÍNDICE

NOTICIAS

1. Navigating the Solid-State Battery Hype: An Industry-Driven Assessment of P... 2
2. New SLAC-Stanford Battery Center targets roadblocks to a sustainable energy... 2
3. Laser Technology for Energy-Efficient Production of Battery Cells Coupled w... 3
4. Dynamic energy management using batteries and photovoltaics 3
5. USPS will order 9,250 Ford E-Transit EVs and 14,000 EV chargers 4

EMPRESAS Y MERCADOS

6. ElevenEs opens Europe's first LFP battery cell manufacturing facility 5
7. CATL unveiled its carbon neutrality plan 5
8. Pilot recycling plant uses fruit peels to break down metal waste in lithium... 6
9. Fortum Battery Recycling receives permit to start battery recycling opera-t... 6
10. Enel X and MIDAC Join Forces to Build Italy's First Major Recycling Plant f... 7

PATENTES

11. Manufacturing method of core assembly for battery, core assembly for batter... 8
12. Negative electrode material and preparation method therefor, and lithium-io... 8
13. Self-heating control method and self-heating control system of charging and... 9
14. Power battery heating device, electric vehicle and temperature adjusting sy... 9
15. An inverter for an energy capture and storage system 10
16. Battery electric system having switchable architecture with thermal runaway... 10
17. Capacity Regenerable Excess Electrolyte ZN Ion Battery 11
18. Combined Energy Storage Turbine and Simple Cycle Peaker System 11
19. Device for the storage of thermal energy of solar origin based upon multipl... 12
20. Floating generator that harnesses the energy from waves to produce usable e... 12
21. Folding wave-energy-harvesting mechanism for underwater vehicle 13
22. Ground fault monitoring system for an energy storage system 13
23. Heater flow path for a thermal energy storage system 14
24. High structure carbon black for energy storage and conversion applications 14

ÍNDICE

25. Joint bidirectional energy-storage device, robot joint structure and robot	15
26. Magnetic flywheel energy management system and method	15
27. Method and apparatus for displaying charging capacity of battery, and elect...	16
28. Rechargeable manganese-ion battery and preparation method therefor	16
29. Thermal energy storage and retrieval system	17
30. Thermal energy storage cell	17
31. Apparatus and relative method for winding strips of material for the produc...	18
32. Energy storage system and method of boosting an electrical power for output...	18
33. Storage battery control device, energy storage system, and storage battery ...	19

PUBLICACIONES CIENTÍFICAS

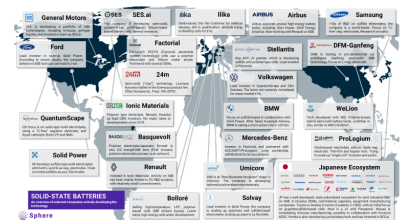
34. Electricity Price Prediction for Energy Storage System Arbitrage: A Decisio...	20
35. A synthesis parameter of molten salt nanofluids for solar thermal energy st...	20
36. Insights on the applications of metal oxide nanosheets in energy storage sy...	21
37. A Security-Constrained Optimal Power Management Algorithm for Shipboard Mic...	21
38. Predicted Performance Bounds of Thermochromism Assisted Photon Transport fo...	22
39. Switched Moving Boundary Modeling of Phase Change Thermal Energy Storage Sy...	22
40. Mobile Energy Storage in Power Network: Marginal Value and Optimal Operatio...	23

NOTICIAS

Navigating the Solid-State Battery Hype: An Industry-Driven Assessment of Potential and Limitations

Publicada en <https://sphere-energy.eu/>, 19/04/2023.

The emergence of the Solid-State Battery (SSB) has created much excitement in the battery market due to its potential to be a big step forward for energy storage technologies. With their ability to offer significant improvements in capacity and charging speed while enhancing safety, SSBs are a highly anticipated development within the industry



[ver más...](#)

New SLAC-Stanford Battery Center targets roadblocks to a sustainable energy transition

Publicada en <https://www6.slac.stanford.edu>, 13/04/2023.

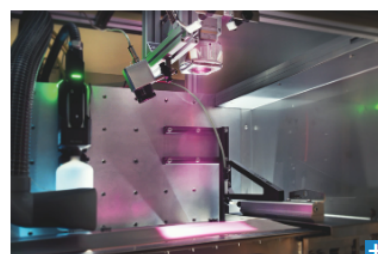
The center at SLAC aims to bridge the gaps between discovering, manufacturing and deploying innovative energy storage solutions. Menlo Park, Calif. – The Department of Energy’s SLAC National Accelerator Laboratory and Stanford University today announced the launch of a new joint battery center at SLAC. It will bring together the resources and expertise of the national lab, the university and Silicon Valley to accelerate the deployment of batteries and other energy storage solutions as part of the energy transition that’s essential for addressing climate change.

[ver más...](#)

Laser Technology for Energy-Efficient Production of Battery Cells Coupled with Improved Performance

Publicada en <https://www.fraunhofer.de>, 03/04/2023.

High-performance battery cells are a crucial prerequisite for electrifying the mobility sector. With this in mind, researchers at the Fraunhofer Institute for Laser Technology ILT in Aachen have developed innovative laser-based technologies for producing lithium-ion batteries — which, in comparison with those produced conventionally, can be charged more quickly and have a longer service lifetime.

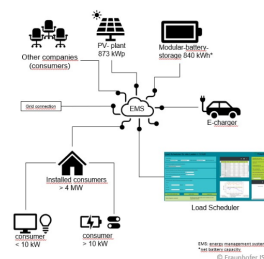


[ver más...](#)

Dynamic energy management using batteries and photovoltaics

Publicada en <https://www.fraunhofer.de>, 01/03/2023.

One challenge facing the widespread adoption of renewable energies is the fluctuating output of photovoltaic systems — for energy-intensive companies, this means that their distribution networks are rapidly becoming inadequate. Fraunhofer researchers have developed a solution that combines power from renewable sources with electricity from the public grid and uses batteries to compensate for fluctuations.



[ver más...](#)

USPS will order 9,250 Ford E-Transit EVs and 14,000 EV chargers

Publicada en <https://www.theverge.com>, 01/03/2023.

The US Postal Service is buying 9,250 Ford E-Transit battery-electric vehicles and 14,000 EV charging stations from three different suppliers as part of its plans to electrify a large portion of its mail delivery fleet. In an announcement post on Tuesday, the agency said it hasn't finalized plans for where the vehicles and infrastructure will be deployed but intends to "begin building out its charging infrastructure across a minimum of 75 locations within the next 12 months."



[ver más...](#)

EMPRESAS Y MERCADOS

ElevenEs opens Europe's first LFP battery cell manufacturing facility

Publicada en <https://elevenes.com>, 23/04/2023.

ElevenEs's first industrial facility dedicated to LFP battery cell production is fully operational. The production site, located in Subotica, Serbia, specializes in producing high-quality LFP prismatic cells which are shipped to customers for sample A and B testing across a variety of applications, including electric cars, buses, trucks and energy storage systems.

[ver más...](#)

CATL unveiled its carbon neutrality plan

Publicada en <https://www.prnewswire.com>, 18/04/2023.

SHANGHAI, April 18, 2023 /PRNewswire/ -- On April 18, CATL announced its plan to achieve carbon neutrality in its core operations by 2025 and across the battery value chain by 2035 at the 20th Shanghai International Automobile Industry Exhibition (Auto Shanghai).



[ver más...](#)

Pilot recycling plant uses fruit peels to break down metal waste in lithium batteries

Publicada en <https://www.channelnewsasia.com>, 23/03/2023.

SINGAPORE: A recycling plant in Singapore is turning spent lithium batteries into useful metals, with the help of discarded fruit peels. Nanyang Technological University (NTU) researchers who developed the technology of using fruit peels to tackle battery waste are working with local battery recycling and processing firm Se-cure Waste Management on the pilot project.

[ver más...](#)

Fortum Battery Recycling receives permit to start battery recycling operations in Germany

Publicada en <https://www.fortum.com>, 16/03/2023.

Fortum Battery Recycling has received an environmental BImSchG-permit from Landratsamt Heilbronn and starts EV battery recycling operations in Kirchart/Baden-Württemberg, in southern Germany. "We are excited to start our operations in Germany and to bring our superior battery recycling technology to the heart of the European automotive market. Our new Germany-based recycling hub for 'end-of-life' lithium-ion batteries and battery production waste materials will be connected to our brand-new hydrometallurgical recycling facility in Harjavalta, Finland

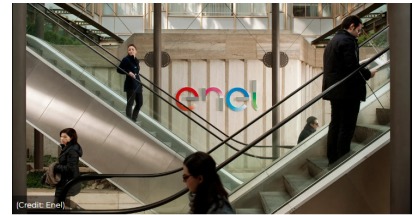


[ver más...](#)

Enel X and MIDAC Join Forces to Build Italy's First Major Recycling Plant for Lithium Batteries

Publicada en <https://www.environmentalleader.com>, 15/03/2023.

Enel X and MIDAC have taken a significant step forward in promoting sustainable energy by engaging in research and development activities to build Italy's first major recycling plant for lithium batteries. This plant will cater to the recycling of lithium batteries used in electric vehicles, industrial systems, and stationary systems.



[ver más...](#)

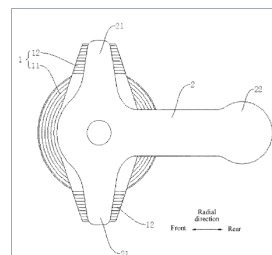
PATENTES

Manufacturing method of core assembly for battery, core assembly for battery, and battery pack

Publicada en <https://worldwide.espacenet.com>, 27/04/2023.

Solicitantes: SHENZHEN HAIRUN NEW ENERGY TECH CO LTD [CN]; XIAMEN HITHIUM ENERGY STORAGE TECH CO LTD [CN]

Provided are a manufacturing method of a core assembly for battery, a core assembly for battery, and a battery pack including the core assembly. The method includes; providing a jelly-roll including a cylindrical main body



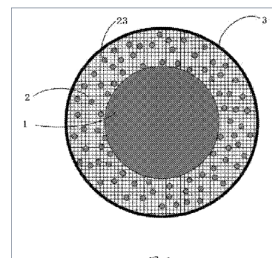
[ver más...](#)

Negative electrode material and preparation method therefor, and lithium-ion battery

Publicada en <https://worldwide.espacenet.com>, 06/04/2023.

Solicitantes: BTR NEW MAT GROUP CO LTD [CN]; DINGYUAN NEW ENERGY TECH CO LTD [CN]

The present application relates to the field of negative electrode materials, and provides a negative electrode material and a preparation method therefor, and a lithium-ion battery.



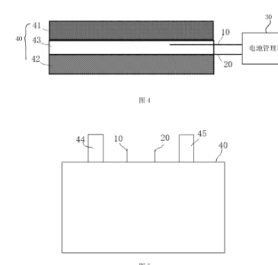
[ver más...](#)

Self-heating control method and self-heating control system of charging and discharging battery

Publicada en <https://worldwide.espacenet.com>, 23/03/2023.

Solicitante: BYD CO LTD [CN]

A self-heating control method and a self-heating control system of a charging and discharging battery. The charging and discharging battery comprises a battery cell (40), a separator (43) is provided between a positive electrode (41) and a negative electrode (42) of the battery cell (40), a reference electrode (10) is correspondingly provided at the separator (43), and a surface electrode (20) is correspondingly provided on the surface of the negative electrode (42) of the battery cell (40).



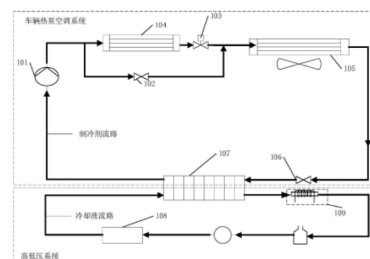
[ver más...](#)

Power battery heating device, electric vehicle and temperature adjusting system of electric vehicle

Publicada en <https://worldwide.espacenet.com>, 03/03/2023.

Solicitante: BYD CO LTD

The invention discloses a power battery heating device, an electric vehicle and a temperature adjusting system of the electric vehicle, the power battery heating device comprises a cooling liquid flow path arranged in a vehicle high-low voltage system, and cooling liquid in the cooling liquid flow path flows through a power battery; and the eddy current heating piece is connected into the vehicle high-low pressure system,



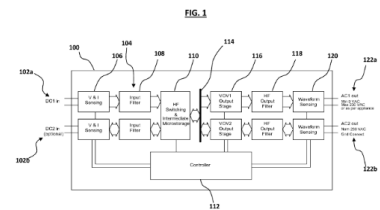
[ver más...](#)

An inverter for an energy capture and storage system

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: EASY PV (AUST) PTY LIMITED

An inverter for use in an energy capture and storage system includes a DC power input configured to receive DC input power from at least one on-site power source. The inverter further includes a common internal DC-bus. At least one variable output inverter stage is coupled to the internal DC-bus, and having a variable AC output configured to supply an AC output power, at a time-averaged voltage that is variable between minimum and maximum levels. At least one grid-tie inverter stage is coupled to the internal DC-bus, and having a grid AC output configured to supply an AC output power to an AC grid.



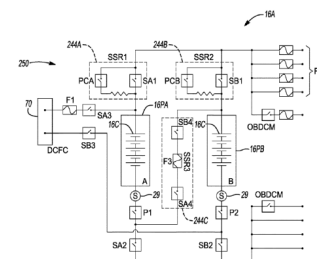
[ver más...](#)

Battery electric system having switchable architecture with thermal runaway protection

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: GM GLOBAL TECHNOLOGY OPERATIONS LLC

A rechargeable energy storage system (RESS) includes a battery controller and battery modules, each respective module having battery cells, a cell sense board, and a semiconductor switch. The switch is connected in parallel with the cells within the respective module, and configured to conduct an electrical current during a thermal runaway propagation (TRP) event in which one or more cells is in an open-circuit state. This action bypasses the module and enables electrical components to be powered by the RESS during the TRP event. A battery electric system includes a direct current (“DC”) voltage bus, an electrical component connected thereto, the battery controller, and the RESS.



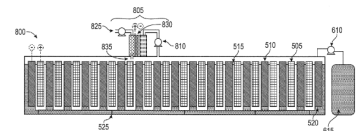
[ver más...](#)

Capacity Regenerable Excess Electrolyte ZN Ion Battery

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: Hunt Energy Enterprises, L.L.C.

Battery systems, methods of in-situ grid-scale battery construction, and in-situ battery regeneration methods are disclosed. The battery system features controllable capacity regeneration for grid-scale energy storage. The battery system includes a battery comprising a plurality of cells. Each cell includes a cathode comprising cathode electrode materials disposed on a first current collector, an anode comprising anode electrode materials disposed on a second current collector, a separator or spacer disposed between the cathode and the anode and an electrolyte to fill the battery in the spaces between electrodes.



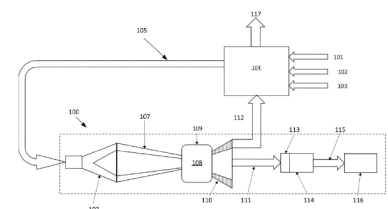
[ver más...](#)

Combined Energy Storage Turbine and Simple Cycle Peaker System

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: Powerphase International, LLC

A system comprises a gas turbine engine. The gas turbine engine has a flow diffuser system, a combustor, a modified compressor section, and a turbine coupled to a shaft. The system includes a low pressure intercooled compressor, a high pressure intercooled compressor, a recuperator, and a compressed air storage tank. The compressed air storage tank is in selective fluid communication with the low pressure intercooled compressor via the high pressure intercooled compressor, and the recuperator. The high pressure intercooled compressor is configured to selectively receive compressed air from the low pressure intercooled compressor and is further configured to selectively compress the compressed air to a highly compressed air for storage in the compressed air storage tank.



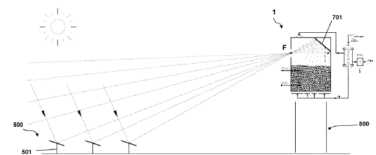
[ver más...](#)

Device for the storage of thermal energy of solar origin based upon multiple reflections

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: MAGALDI POWER S.P.A.

A device is disclosed for the storage and transfer of solar thermal energy which includes a casing having a irradiation opening for the entry of incident solar radiation in a irradiation region of the casing. a bed of fluidizable solid particles received within the casing, and a plurality of reflecting and radiating surfaces arranged within the irradiation region and configured to convey the solar radiation entering through the irradiation opening, after multiple reflections, on the bed of particles.



[ver más...](#)

Floating generator that harnesses the energy from waves to produce usable electrical energy

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: ZIELINSKI, David [US]

A wave-powered floating water pump apparatus comprises a housing operatively connected to a piston capable of reciprocating therein, and an exterior float. The housing interior defines a compression chamber including a compression chamber back valve. The compression chamber back valve opens when the apparatus descends in the ocean, and closes when the float lifts the apparatus.

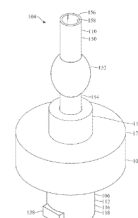


FIG. 1

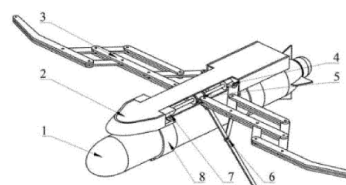
[ver más...](#)

Folding wave-energy-harvesting mechanism for underwater vehicle

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: Shanghai Jiao Tong University

A folding wave-energy-harvesting mechanism for an underwater vehicle includes an underwater-vehicle main body and a wave-energy-harvesting-device main body. The wave-energy-harvesting-device main body includes a hydrofoil assembly and a yaw assembly. The first state of the hydrofoil assembly is a folding state, and the second state is an unfolding state.



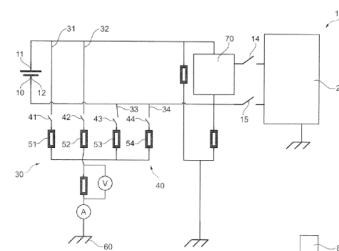
[ver más...](#)

Ground fault monitoring system for an energy storage system

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: Volvo Car Corporation

A ground fault monitoring system includes an isolation monitoring unit, a first main switch, a second main switch and a control unit. the isolation monitoring unit is arrangeable between an energy storage system and a ground element. the switches are arrangeable between the energy storage system and an external energy supply system. the isolation monitoring unit includes a first, second and third switchable resistor branches.



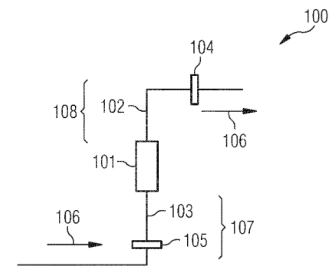
[ver más...](#)

Heater flow path for a thermal energy storage system

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: SIEMENS GAMESA RENEWABLE ENERGY GMBH & CO. KG [DE]

It is described a heater flow path for a thermal energy storage system (100), the heater flow path comprising: a heater system (101) adapted to heat a heat transfer fluid; an on-off valve system (104); and a continuously adjustable valve system (105), wherein the on-off valve system and the continuously adjustable valve system are configured to adapt a throughput of the transfer fluid through the heater system and are arranged, according to a (intended) flow direction (106) of the transfer fluid, both upstream (107), both downstream (108) or one upstream and the other downstream of the heater system (101).



[ver más...](#)

High structure carbon black for energy storage and conversion applications

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: BIRLA CARBON U.S.A., INC. [US]

High structure carbon black, methods for preparing same, and energy storage and conversion devices comprising same.

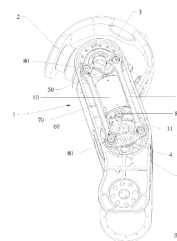
[ver más...](#)

Joint bidirectional energy-storage device, robot joint structure and robot

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: UBTECH ROBOTICS CORP., LTD. [CN]

Provided in the present application are a joint bidirectional energy-storage device, a robot joint structure and a robot. The joint bidirectional energy-storage device comprises a sleeve, a first sliding member, a second sliding member, an elastic element, a first telescopic connecting rod and a second telescopic connecting rod. The first sliding member and the second sliding member are respectively slidably arranged at two ends of the sleeve. The elastic element is pressed between the first sliding member and the second sliding member.



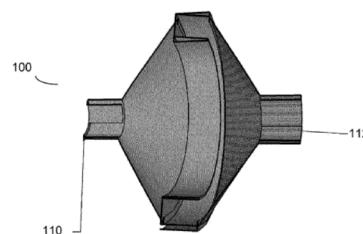
[ver más...](#)

Magnetic flywheel energy management system and method

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: DA GLOBAL ENERGY, INC.

Flywheel based electrical energy management system and device. The device will often comprise at least one shaft mounted flywheel, each flywheel comprising a flywheel mass that contains a plurality of permanent magnets. The flywheel spins within at least one stator comprising a plurality of magnetic pickup coils configured so that the flywheel mass can rotate freely within the stator. The flywheel may be placed in a vacuum chamber and be supported by magnetic bearings. The flywheel shaft(s) are typically connected to one or more axial mounted motor generators, and the system further typically comprises a storage battery and control processor.



[ver más...](#)

Method and apparatus for displaying charging capacity of battery, and electrical terminal and storage medium

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: ZTE CORPORATION [CN]

A method and apparatus for displaying the capacity of a battery, and an electrical device and a storage medium. The method for displaying the charging capacity of a battery comprises: acquiring a first measured capacity and a first capacity change speed at a first moment, and using the first capacity change speed as the current capacity change speed; calculating and displaying a first capacity according to the first measured capacity and the current capacity change speed, wherein the precision of the first capacity is higher than the precision of the first measured capacity; moreover, periodically updating the current capacity change speed.

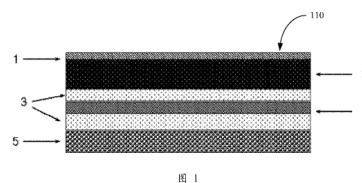
[ver más...](#)

Rechargeable manganese-ion battery and preparation method therefor

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: SHENZHEN INSTITUTES OF ADVANCED TECHNOLOGY [CN]

Provided in the present application is a rechargeable manganese-ion battery. A negative electrode comprises a negative electrode active material, and the negative electrode active material comprises manganese elements; an electrolyte comprises a soluble manganese salt; and a positive electrode comprises a positive electrode active material, and the positive electrode active material comprises a material capable of occluding and releasing manganese ions.



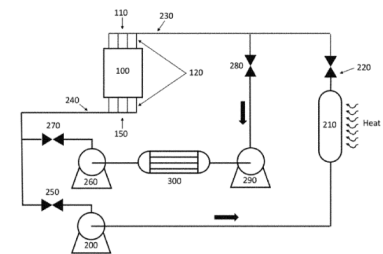
[ver más...](#)

Thermal energy storage and retrieval system

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: Photon Vault, LLC

The foregoing are among the objects attained by the invention which provides, in some aspects, a thermal storage system that includes a first block comprising (i) a bonded aggregate material, and (ii) between 0.01% and 10%, by weight, of graphite. A fluid transport via is disposed on or adjacent at least a portion of an external surface of the first block and is in thermal coupling therewith. The fluid transport via presses against the first block with a force of at least 7 Newtons per meter.



[ver más...](#)

Thermal energy storage cell

Publicada en Tecnologías asociadas a almacenamiento de energía, 02/03/2023.

Solicitante: RESCU.EARTH PTY LTD [AU]

A thermal energy storage cell, comprising a concrete vessel and an eutectic composition, being contained in the concrete vessel and having a phase change range around 500°C to above around 1200°C. A heating element heats the eutectic composition wherein the density and specific heat of the eutectic composition is the highest of any eutectic without substantial expansion and breakages. The cell further comprises a heat absorber such that radiation from the specific heat of the eutectic is absorbed and transferred to an engine or turbine. The absorber comprises tubes containing heat absorbing gases.

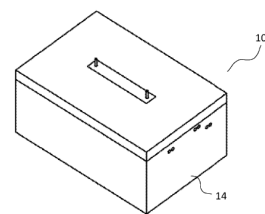


FIG. 1

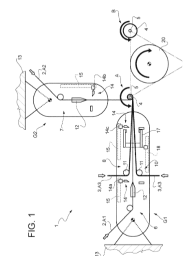
[ver más...](#)

Apparatus and relative method for winding strips of material for the production of electrical energy storage devices

Publicada en Tecnologías asociadas a almacenamiento de energía, 01/03/2023.

Solicitante: MANZ ITALY SRL

Apparatus (1) for winding at least one strip (2, 3) of material for the production of electrical energy storage devices, comprising: a rotatable winding core (5), configured to grip the strip (2, 3) and actuatable to carry it in rotation and thus form a winding (4); a feed unit (6, 7, 8) to feed the strip (2, 3) of material (5); and a handling device (20) configured to move the winding core (5) at least between a winding station (A), at which the winding core (5) is configured to receive the strip (2, 3) in feeding, grip it and wind it about the rotation axis (R), and a second station (B, C)



[ver más...](#)

Energy storage system and method of boosting an electrical power for outputting to a load

Publicada en Tecnologías asociadas a almacenamiento de energía, 01/03/2023.

Solicitante: AMPD ENERGY LTD

An energy storage system includes an electrical input adapted to connect to an external power source; an electrical output adapted to connect to a load; a power bus connected between the electrical input and the electrical output; and a battery subsystem connected to the power bus. The energy storage system is adapted to be switched between a first mode in which the battery subsystem is recharged by electrical power received from the electrical input via the power bus, and a second mode in which the battery subsystem discharges to boost the electrical power received from the electrical input via the power bus for outputting to the electrical output. The disclosed system and method are especially useful in scenarios where an electrical source may not be suitable for powering a high-demand electrically operated loads or equipment.

[ver más...](#)

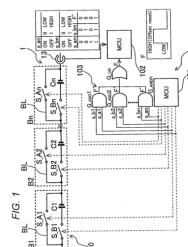
Storage battery control device, energy storage system, and storage battery control method

Publicada en Tecnologías asociadas a almacenamiento de energía, 01/03/2023.

Solicitante: YAZAKI CORP

A storage battery control device for controlling an energy storage system including storage batteries connected in series, bypass units that bypass the storage batteries respectively, and a current sensor that detects a charge and discharge current flowing from or into the storage batteries. Each of the bypass units includes a bypass line that bypasses the storage battery, a bypass switch that connects and cuts off the bypass line, and a cutoff switch that connects and cuts off the storage battery. The storage battery control device is configured to detect a zero current state in a case that both the bypass switch and the cutoff switch are in a cutoff state in at least one of the bypass units, and perform offset correction of the current sensor based on an output of the current sensor when the zero current state is detected.

[ver más...](#)



PUBLICACIONES CIENTÍFICAS

Electricity Price Prediction for Energy Storage System Arbitrage: A Decision-focused Approach

Publicada en <https://arxiv.org/>, 30/04/2023.

Electricity price prediction plays a vital role in energy storage system (ESS) management. Current prediction models focus on reducing prediction errors but overlook their impact on downstream decision-making.

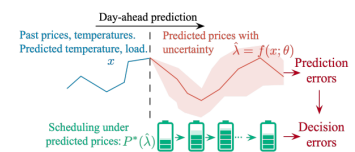


Fig. 1. Day-ahead electricity prediction and ESS arbitrage under predict-then-optimize framework.

[ver más...](#)

A synthesis parameter of molten salt nanofluids for solar thermal energy storage applications

Publicada en <https://www.sciencedirect.com/>, 10/04/2023.

Nanoparticle dispersions at a minute concentration in salt mixtures have recently been reported to significantly increase their specific heat capacity. However, there is a discrepancy between experimental results reported for the same kind of molten salt-nanoparticle mixtures by different research groups.

[ver más...](#)

Insights on the applications of metal oxide nanosheets in energy storage systems

Publicada en <https://www.sciencedirect.com>, 10/04/2023.

Owing to the rising interest in the utilization of renewable energy sources, research studies on optimizing energy storage have gained momentum. Metal oxide nanosheets are one of the most promising materials employed in supercapacitors, batteries, and fuel cells to enhance electrochemical storage efficiency.

[ver más...](#)

A Security-Constrained Optimal Power Management Algorithm for Shipboard Microgrids with Battery Energy Storage System

Publicada en <https://arxiv.org/>, 07/04/2023.

This work proposes an optimal power management strategy for shipboard microgrids equipped with diesel generators and a battery energy storage system. The optimization provides both the unit commitment and the optimal power dispatch of all the resources, in order to ensure reliable power supply at minimum cost and with minimum environmental impact

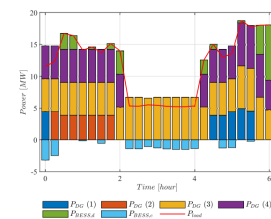


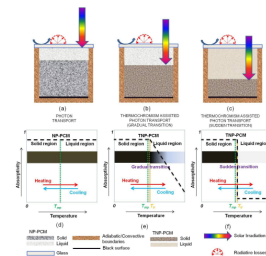
Fig. 5: Simulation results, SC2, DGs and BESS.

[ver más...](#)

Predicted Performance Bounds of Thermochromism Assisted Photon Transport for Efficient Solar Thermal Energy Storage

Publicada en <https://arxiv.org/>, 28/03/2023.

Efficient storage of solar thermal energy is still one of the major bottlenecks in realizing dispatchable solar thermal systems. Present work is a significant step in this direction, wherein, we propose, thermochromism assisted photon transport based optical charging for efficient latent heat storage.



[ver más...](#)

Switched Moving Boundary Modeling of Phase Change Thermal Energy Storage Systems

Publicada en <https://arxiv.org/>, 28/03/2023.

Thermal Energy Storage (TES) devices, which leverage the constant-temperature thermal capacity of the latent heat of a Phase Change Material (PCM), provide benefits to a variety of thermal management systems by decoupling the absorption and rejection of thermal energy.

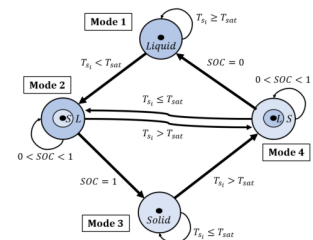


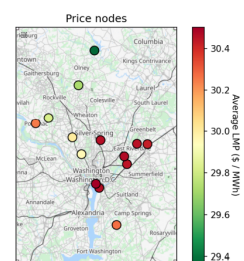
Fig. 4. FSM with switching criteria for the four modes of the MB model.

[ver más...](#)

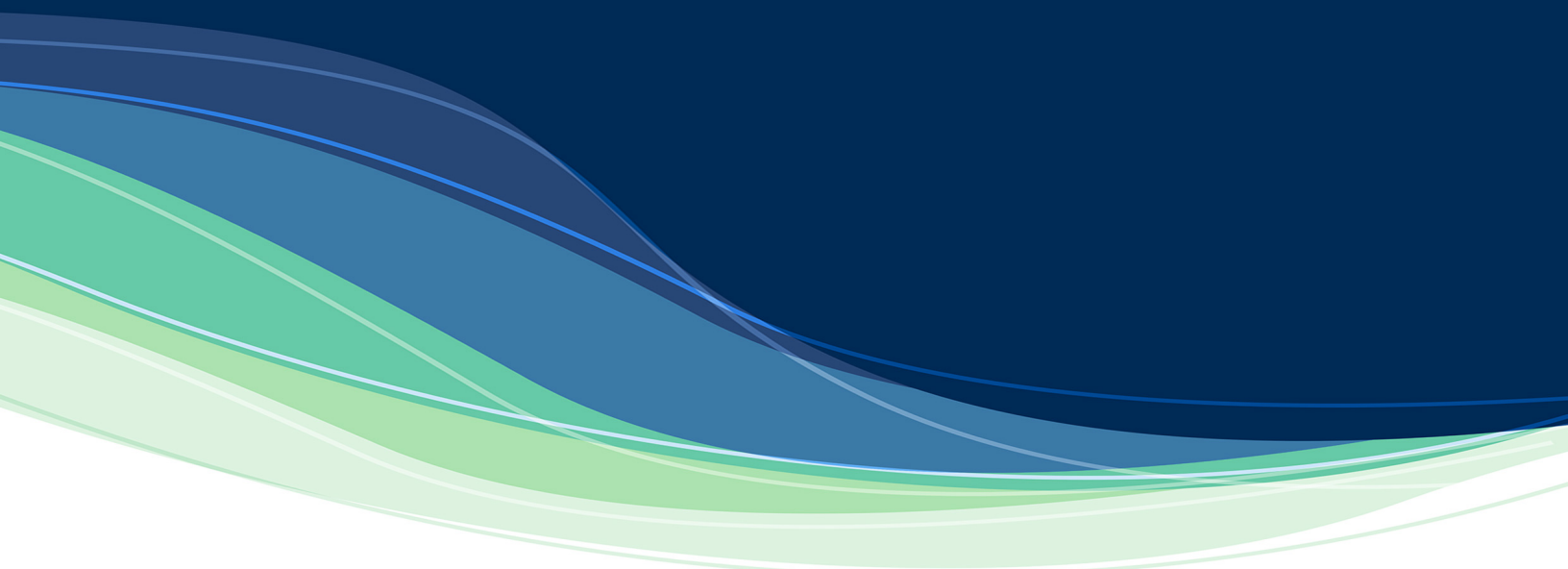
Mobile Energy Storage in Power Network: Marginal Value and Optimal Operation

Publicada en <https://arxiv.org>, 17/03/2023.

This paper examines the marginal value of mobile energy storage, i.e., energy storage units that can be efficiently relocated to other locations in the power network.



[ver más...](#)



Generado con Tecnología VIGIALE©, IALE Tecnología.