A patented technology for lithium batteries is

Are battery recycling technologies based on a global patent analysis?
Conclusions This study conducted a comprehensive global patent analysis on battery recycling technologies,focusing on secondary batteries across Korea,China,and the United States. The findings reveal significant differences in patent activities and technological focuses among these countries.

Which country has the most patents in battery manufacturing?
China's large number of patents in battery manufacturing processes contrasts with the USA's focus on electrochemical cell construction and storage systems,while Korea shows significant activity in waste battery technology.

What is a lithium-ion battery?
A lithium-ion battery is a type of rechargeable battery. It includes a positive electrode with a positive current collector,a first active material,and a second active material. The battery also includes a negative electrode with a negative current collector and a third active material,where the third active material is a lithium titanate material.

Do battery recycling patents exist in Korea and China?
As such, the market and technology for battery recycling in Korea, China, and the United States are fully expanding. However, it is not easy to find a paper that analyzes in-depth battery recycling patents in Korea, China, and the United States.

Are alternative battery chemistries getting more patents?
Between 2012-2021,the number of patent families filed in CPC class H01M10/054,13which relates to alternative battery chemistries,has steadily increased. The trends follow those seen for redox flow and solid-state battery technology,with a steady growth in the number of patent families filed in this class.

Where is the battery technology patent race now?
Based on the information available,the battery technology patent race is intensifying among South Korea,China,and the USA,with significant developments and strategic moves observed in each country .

The lithium-ion battery (LIB) is the leapfrog technology for powering portable electrical devices and robust utilities such as drivetrains. LIB is one of the most prominent success stories of modern battery electrochemistry in the last two decades since its advent by Sony in 1990 [[1], [2], [3]].LIBs offer some of the best options for electrical energy storage for high ...

Lithium-ion batteries (LIBs) is now a cornerstone technology to curb carbon emission by enabling electric vehicles and grid-scale energy storage. However, LIBs are highly materials-intensive, the cost and availability

of the key materials, especially the lithium-containing cathode materials, are critical for the goal of decarbonization. High ...

As the drive towards renewable energy use gains pace, there has been an increase in global patent filings relating to battery technology. While lithium-ion batteries currently dominate the battery market, they have several ...

Lithium (Li) is critical to this transition due to its use in nuclear fusion as well as in rechargeable lithium-ion batteries used for energy storage for electric vehicles and renewable energy harvesting systems. As a result, the ...

As the drive towards renewable energy use gains pace, there has been an increase in global patent filings relating to battery technology. While lithium-ion batteries currently dominate the battery market, they have several disadvantages.

This study reveals distinct emphases on technologies such as lithium-ion and waste battery recycling, highlighting notable differences in patent activities among key companies and countries. China"s large number of patents in battery manufacturing processes contrasts with the USA"s focus on electrochemical cell construction and storage ...

So in this article, let"s take a quick look at the lithium-ion battery alternatives on the horizon. But first, let"s recap how modern batteries work and the many problems plaguing the technology.

5 ???· Li-Cycle has advanced its patented Spoke & Hub Technologies for lithium-ion battery recycling, aiming to achieve up to 95% recovery rate of critical materials. Redwood Materials ...

Sustainable lithium. Patented scalable, electrochemical modules to recover your critical metals. Closed-loop recovery. Take charge of your critical metal supply chain with in-house recovery of battery-grade metals. Validated and scalable. ...

NOCO Genius G3500: The NOCO Genius G3500 is a versatile charger that supports both lead-acid and lithium-ion batteries. Its smart technology automatically detects battery chemistry and adjusts the charging accordingly. This model is ideal for Dyna Super Glide owners who may want to switch to lithium-ion batteries in the future. Optimate 4: The Optimate ...

6 ???· In this review, technical options are discussed that are being evaluated by key solid-state / semi-solid lithium-ion battery companies towards the launch of commercial products for various applications, in particular electronics and EVs.

5 ???· The patented technology, titled "Adaptive Charging Protocol for Fast Battery Charging and Fast

A patented technology for lithium batteries is

Charging System Implementing This Protocol," features Yazami"s innovative "Non-Linear Voltage" method. This approach drastically reduces the time required to fully charge lithium batteries, enabling charging times as short as 15 minutes--or ...

International Battery Metals (IBAT) built and operated the first commercial Direct Lithium Extraction (DLE) facility in North America. We are the only modular DLE operation in the world, and our agile technology is available now to bring battery-grade, more sustainable, lithium online for EVs, energy storage, and electronics.

5) Lithium-sulphur batteries. Lithium-sulphur batteries have the potential for higher energy density when compared to traditional lithium-ion batteries, opening up the potential for longer driving ranges. Proponents add that they are safer than their lithium-ion counterparts, offering enhanced safety features during charge and discharge cycles.

We propose the significance of patent claims in the technological trajectory of lithium battery manufacturing (LBM-Tra) research. And we construct a more robust attention ...

1983: Akira Yoshino develops and patents an improved battery. The lithium in the anode is replaced by petroleum coke and combined with the lithium cobalt oxide cathode. 1991: first safe lithium-ion battery is launched. 2020: patent for ...

Web: https://doubletime.es