What new technologies does Vienna Battery have

What is a TU Wien battery?
A prototype of the battery at TU Wien. Credit: TU Wien Researchers at TU Wien (Vienna) have developed a groundbreaking oxygen-ion battery,which boasts exceptional durability,eliminates the need for rare elements,and solves the problem of fire hazards.

What are the advantages of a new battery technology?
Cobalt or nickel,which are used in many batteries,are not used at all. But perhaps the most important advantage of the new battery technology is its potential longevity: "In many batteries,you have the problem that at some point the charge carriers can no longer move," says Alexander Schmid.

Can ceramic materials be used to make a battery?
"That gave us the idea of investigating whether such materials might also be suitable for making a battery." The ceramic materials that the TU Wien team studied can absorb and release doubly negatively charged oxygen ions.

Can a new battery be used for a smartphone or electric car?
The new battery concept is not intended for smartphones or electric cars,because the oxygen-ion battery only achieves about a third of the energy density that one is used to from lithium-ion batteries and runs at temperatures between 200 and 400 °C. The technology is,however,extremely interesting for storing energy.

Are oxygen-ion batteries the future of energy storage?
The innovative battery concept has already led to a patent application,filed in collaboration with partners in Spain. These oxygen-ion batteries could provide an outstanding solution for large-scale energy storage systems,such as those required to hold electrical energy from renewable sources.

How does a ceramic battery work?
When an electric voltage is applied, the oxygen ions migrate from one ceramic material to another, after which they can be made to migrate back again, thus generating electric current. "The basic principle is actually very similar to the lithium-ion battery," says Prof. Jürgen Fleig. "But our materials have some important advantages."

While lithium-ion batteries have come a long way in the past few years, especially when it comes to extending the life of a smartphone on full charge or how far an electric car can travel on a single charge, they"re not without their problems. The biggest concerns -- and major motivation for researchers and startups to focus on new battery technologies -- are related to ...

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Researchers at the Vienna University of Technology (TU Wien in Austria) have successfully developed an innovative oxygen-ion battery, which is claimed to present several key advantages over conventional lithium-ion ...

TU Wien has now succeeded in developing an oxygen-ion battery that has some important advantages. Although it does not allow for quite as high energy densities as the ...

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Scientists at Vienna University of Technology have invented a new oxygen ion battery chemistry based on ceramic materials. If it degrades, it can be regenerated, therefore it potentially has an ...

Researchers from the Vienna University of Technology (TU Wien) have developed an oxygen-ion battery that purportedly rivals lithium-ion batteries with an "extremely long lifespan,"...

Scientists from Vienna University of Technology say they have created a brand new type of battery. They believe their new oxygen-ion battery, as they call it, has exceptional durability. And moreover it avoids the need for using rare materials, while simultaneously solving the problem of fire hazards. We are excited to share this ...

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Battery technology will play a critical role in the future of the global energy markets, in everything from electric vehicles to grid-scale batteries. Many countries, including the US, have set ambitious climate goals which can only ...

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Every year, we look for promising technologies poised to have a real impact on the world. Here are the advances that we think matter most right now.

TU Wien has now succeeded in developing an oxygen-ion battery that has some important advantages. Although it does not allow for quite as high energy densities as the lithium-ion battery, its storage capacity does not decrease irrevocably over time: it can be regenerated and thus may enable an extremely long service life.

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The main focus of energy storage research is to develop new technologies that may fundamentally alter how we store and consume energy while also enhancing the performance, security, and endurance of current energy storage technologies. For this reason, energy density has recently received a lot of attention in battery research. Higher energy ...

Researchers from the Vienna University of Technology have discovered an interesting new battery technology: the oxygen-ion battery (OIB) based on ceramic materials. Its most attractive feature is an ability to regenerate itself with ambient oxygen, which provides the potential for an extremely long service life.

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Researchers at TU Wien (Vienna) have developed a groundbreaking oxygen-ion battery, which boasts exceptional durability, eliminates the need for rare elements, and solves the problem of fire hazards. Lithium-ion batteries, while commonplace in today"s world - powering everything from electric vehicles to smartphones - aren"t necessarily the optimal solution for ...

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