

# Nicaragua introduces solid-state battery project

What is a solid-state battery (SSB)?

The solid-state battery (SSB) is a novel technology that has a higher specific energy density than conventional batteries. This is possible by replacing the conventional liquid electrolyte inside batteries with a solid electrolyte to bring more benefits and safety.

Will EV batteries be able to compete with solid-state batteries?

EV lithium-ion batteries like these may face serious competition from solid-state batteries with higher capacities and faster charging--if, that is, the technology improves and the economics pan out. Image credit: Shutterstock/IM Imagery. But while costs continue to decline, progress on performance could soon slow or halt.

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That research and development has started to bear fruit in a new class of devices called solid-state batteries. Typically, these batteries aren't completely solid like a silicon chip; most contain small amounts of liquid.

What is the difference between a lithium-ion battery and a solid-state battery?

Fig. 5. The difference between a lithium-ion battery and a solid-state battery . Conventional batteries or traditional lithium-ion batteries use liquid or polymer gel electrolytes, while Solid-state batteries (SSBs) are a type of rechargeable batteries that use a solid electrolyte to conduct ion movements between the electrodes.

Will solid-state batteries win?

"I believe solid-state batteries will win eventually," says Halle Cheeseman, program director at the US Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E), which has funded some of the research. "The question is when." The answer is uncertain.

How many articles are published on solid-state batteries in 2022?

Figure 1 shows the ever-increasing number of published research articles with the topic on solid-state batteries (SSBs), in which almost an exponential growth is illustrated in yearly columns. In comparison to 255 articles in 2012, the number of articles has expanded by 10 times to 2581 in 2022.

Solid-state battery technology company Factorial Inc. introduced Solstice, an all-solid-state battery set to achieve an energy density of up to 450Wh/kg. Solstice incorporates a novel dry cathode design for more efficient ...

In Nicaragua, the technical cooperation agreement was signed to carry out the studies of the Battery Energy Storage System Applications (BESS) project in the National ...

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A graphene-based quasi-solid-state lithium-oxygen battery with a 3D porous graphene cathode, a redox mediator-modified gel polymer electrolyte, and a porous ...

Solid-state lithium batteries exhibit high-energy density and exceptional safety performance, thereby enabling an extended driving range for electric vehicles in the future. ...

Chan is currently investigating two projects pertaining to different aspects of solid-state batteries with Yoon Hwa and Nick Rolston, assistant professors of electrical ...

LiCAP Technologies, Inc. expanded a portfolio of technologies compatible with the proprietary Activated Dry Electrode™ process, unveiling a cost-effective and sustainable ...

A full charge could be as fast as filling a tank with gas. That would make EV ownership much more feasible for those who can't plug in at home. In principle, solid-state ...

At room temperature, the all-solid-state battery achieved a discharge capacity of 160 mAh g<sup>-1</sup> after 100 cycles at 0.1 C. Electrolytes with different morphologies are also ...

In the framework of building a European value chain for EV batteries, the French state is supporting Solvay as part of a wider EU package to boost battery innovation in ...

The project brings together 13 entities from the continent and one from Canada - under the coordination of CIC energiGUNE - with the aim of developing high energy density ...

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Discover the future of electric vehicles as we explore the exciting landscape of solid-state batteries! This article delves into the technology's potential, comparing it with ...

Solid-state batteries (SSBs) offer significant improvements in safety, energy density, and cycle life over conventional lithium-ion batteries, with promising applications in ...

Factorial Introduces Solstice(TM), an All-Solid-State Battery with Mercedes-Benz as a Key Customer and Development Partner. Factorial Inc. (Factorial), an industry leader in ...

Project co-PI Ben Zahiri, who is a Research Assistant Professor in MRL and MatSE, explains that with a solid electrolyte, all the interfaces within the battery are solid-against-solid. "The ...

To foster the above objective, conventional and non-renewable fossil fuels are gradually being replaced by

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renewable energy technologies [2].However, adopting renewable energy sources ...

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