

Can artificial intelligence be used to identify solid-state battery electrolyte materials?

Microsoft used the power of its novel AI models to identify and screen suitable materials for solid-state battery electrolyte as part of its Azure Quantum team efforts to use artificial intelligence for spearheading scientific discovery.

Why are solid-state batteries important?

This is important for many reasons. Solid-state batteries are assumed to be safer than traditional liquid or gel-like lithium batteries, and they provide more energy density. Lithium is already relatively scarce, and thus expensive. Mining it is environmentally and geopolitically problematic.

Could a solid-state battery be safer than a liquid battery?

On top of that, it could be used to create a solid-state battery that's safer than today's lithium-ion batteries made with liquid electrolytes that are more prone to overheating. The tricky part is that solid electrolytes generally haven't been as good at conducting energy as their liquid counterparts.

Why do companies need alternative materials to build batteries?

However, the mining process to obtain the element is particularly energy intensive and often causes lasting water and land pollution. It means many companies are looking for alternative materials from which to build batteries. The Pacific Northwest National Laboratory (PNNL) collaborated with Microsoft to do just that.

A new solid electrolyte As proof of concept, a team at Microsoft used Azure Quantum Elements to assess 32.6 million materials for their potential as solid electrolytes. They identified 18 top candidates in less than a ...

Microsoft Corp MSFT on Tuesday said that the company has developed a new battery material in collaboration with a U.S. national laboratory that uses 70% less lithium, ...

Experience all-day battery life and versatility in the AI-powered Surface Pro 2-in-1 device, now available with a new 12-inch PixelSense touchscreen. This detachable laptop turns into an AI ...

The new material is a solid-state electrolyte that uses lithium, sodium, and some other elements, Microsoft said. In comparison with traditional lithium-ion batteries, it uses up to 70%...

Microsoft and the Pacific Northwest National Laboratory (PNNL), a U.S. Department of Energy laboratory, have discovered a new material that could potentially reduce lithium use in batteries by up to 70%.

Samsung SDI has already sent solid-state battery samples to clients and aims to begin mass production by 2027; LG Energy and SK On both plan to introduce solid-state battery tech by 2030.

This exploration dives into the specifics of how Microsoft is applying AI to accelerate the development of solid-state battery materials. We'll examine the current state of solid-state ...

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A groundbreaking material, named N2116, promises to significantly reduce lithium consumption in batteries by up to 70%. Found through the collaborative efforts of Microsoft, the Pacific Northwest National Laboratory ...

The team's computational approach used digital simulations and AI models to analyse over 32 million materials in under a week to identify a new solid-state electrolyte with potential use ...

Through this collaboration, Microsoft and PNNL harnessed AI and cloud-powered HPC to accelerate research aimed at creating new types of battery materials--such as those ...

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Microsoft has worked with a U.S. national laboratory to use artificial intelligence to rapidly identify a material that could mean producing batteries that require 70% less lithium than now, the ...

Researchers in the US have used AI to develop an electrolyte for solid state battery cells that allows both sodium and lithium to be used, reducing the reliance on lithium. The solid state battery material developed at ...

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Discover the transformative world of solid-state batteries in our latest article. Explore how this cutting-edge technology enhances energy storage with benefits like longer lifespans, faster charging, and improved safety ...

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