

Energy storage electrolyte for new energy



Overview

Researchers at the Department of Energy's Oak Ridge National Laboratory have created a polymer electrolyte material that enables superfast transport of ions, a key breakthrough for solid-state batteries and other energy storage and conversion technologies.

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[Advancements in novel electrolyte materials: Pioneering the future of](#)

We present an in-depth analysis of how the properties of these electrolytes influence energy storage performance. The article highlights the principles and methodologies employed in the

[ORNL Develops Polymer Electrolyte with Superfast Ion Transport](#)

Researchers at the Department of Energy's Oak Ridge National Laboratory have created a polymer electrolyte material that enables superfast transport of ions, a key breakthrough for solid



Explained: Generative AI's environmental impact

MIT News explores the environmental and sustainability implications of generative AI technologies and applications.

[University of Maryland Engineers Design New Electrolytes for](#)

Researchers at the University of Maryland have developed a new electrolyte design strategy that significantly improves the efficiency and stability of aqueous zinc metal batteries,



[Hydrofluorocarbon electrolytes for energy-dense and low-temperature](#)



[Recent Advancements in Gel Polymer Electrolytes for](#)

Since the last decade, the need for deformable electronics exponentially increased, requiring adaptive energy storage systems, especially



[Eutectic Electrolytes as a Promising Platform for Next-Generation](#)

In this Account, we aim to provide a mechanistic understanding of this energy chemistry and an overview of recent progress in the development of eutectic electrolytes for next-generation EES.



[Faster, safer solid-state EV batteries unlocked](#)

The hydrofluorocarbon (HFC) electrolytes in this work provide a feasible approach to building electrochemical systems beyond traditional coordination chemistry.



[New facility to accelerate materials solutions for fusion energy](#)

The new Schmidt Laboratory for Materials in Nuclear Technologies (LMNT) at the MIT Plasma Science and Fusion Center accelerates fusion materials testing using cyclotron proton beam



[The development of next-generation energy storage: an interview with](#)

Consequently, there exists an urgent imperative to develop innovative energy storage systems that synergistically integrate enhanced safety profiles, cost-effectiveness and superior electrochemical

[with new US-made](#)

Comb-like zwitterionic structures creating fast ion pathways in a new polymer electrolyte for solid-state batteries. Andy Sproles/ORNL, US Dept. of Energy A superionic polymer developed by US



[A new approach could fractionate crude oil using much less energy](#)

MIT engineers developed a membrane that filters the components of crude oil by their molecular size, an advance that could dramatically reduce the amount of energy needed for crude oil

[What's the best way to expand the US electricity grid?](#)

Growing energy demand means the U.S. will almost certainly have to expand its electricity grid in coming years. What's the best way to do this? A new study by MIT researchers examines



New ORNL electrolyte lets the ions flow

While solid-state batteries are a clear application for the new electrolyte, many energy technologies also rely on effective ion transport. Flow batteries, fuel cells, grid-level energy storage

[New materials could boost the energy efficiency of microelectronics](#)

MIT researchers developed a new fabrication method that could enable them to stack multiple active components, like transistors and memory units, on top of an existing circuit, which





[How artificial intelligence can help achieve a clean energy future](#)

A look at how AI can be used to help support the clean energy transition by helping to manage power grid operations, plan infrastructure investments, guide the development of novel

Evelyn Wang: A new energy source at MIT

As MIT's first vice president for energy and climate, Evelyn Wang is working to broaden MIT's research portfolio, scale up existing innovations, seek new breakthroughs, and channel



Using liquid air for grid-scale energy storage

Liquid air energy storage could be the lowest-cost solution for ensuring a reliable power supply on a future grid dominated by carbon-free yet intermittent energy sources, according to a new

[Next-generation geothermal energy: Promise, progress, and challenges](#)

Geothermal energy, a clean, continuous energy source accessible in many locations, has been slow to catch on. Nearly 2,000 years ago, the Romans made extensive use of geothermal



[Hybrid Lithium Electrolytes as Potential Electrolytes for Energy](#)

By bridging the gap between fundamental research and practical implementation, this review provides insights into the future directions of hybrid electrolytes, paving the way for more

[MIT Energy Initiative conference spotlights research](#)

At the MIT Energy Initiative's Annual Research Conference, industry leaders agreed collaboration is key to advancing critical technologies amidst a changing energy landscape.



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