



## TECHNOLOGY

# Single Material All Solid-State Lithium-ion Battery

## OVERVIEW

### Background:

The current all-solid-state Li-ion batteries consist of three distinct components: an anode, an electrolyte, and a cathode. In addition, current collectors are also used to ensure electron transport through the electrodes and the external circuit. The anode, cathode, and electrolyte normally use three different materials due to the stringent different requirements for each component. Despite excellent safety, the current bulk-type all-solid-state lithium-ion batteries suffer from low power density, and poor cycle life.

### Innovation:

Researchers at the University of Maryland have developed a new all-solid-state lithium-ion battery made of a single material. The use of a single material that acts as an electrolyte, an anode, and a cathode eliminates one of the main challenges facing current all-solid-state Li-ion batteries: the highly-resistive interface between the electrodes and electrolyte.

## APPLICATIONS

Energy storage

## ADVANTAGES

High power

High energy

Long cycling

## CONTACT INFO

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## Additional Information

## INSTITUTION

University of Maryland, College Park

## PATENT STATUS

Pending

## CATEGORIES

- Devices
- Engineering

- Power Electronics
- Microelectronics

## **EXTERNAL RESOURCES**

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