



Most batteries today use liquid electrolytes that are flammable and toxic | Photo source Pixabay

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## NEW BATTERY USES WOOD-BASED MATERIAL FOR STRONGER, SAFER DESIGN

 SUSTAINABILITY

### The paper-thin material is more resilient to stress and less likely to catch on fire

**Spotted:** Most current batteries use liquid electrolytes, which are flammable, toxic and have a tendency to support growths that cause short circuiting. Now, researchers have created an ion superhighway made from a wood-based material that transports battery power faster with improved efficiency.

Using paper-thin cellulose nanofibrils combined with copper, the solid ion conductor moves molecules between a battery's cathode and anode at a speed and rate of conductivity that could transform the next generation of batteries.

The discovery is part of a collaboration between researchers from Brown University's School of Engineering, and the University of Maryland's Department of Materials Science and Engineering.

Replacing liquid electrolytes with a solid material greatly reduces the potential for chemical environmental damage. And in tests, the new material proved far more flexible and resilient to stress than ceramics, another superconductor frequently tested for use in batteries. Further development of the findings will focus on scalability and consumer access.

Battery innovation is taking many forms. Researchers are experimenting with different aspects of batteries, from size and power source to new materials and designs. Another **solid-state** battery innovation that Springwise has recently spotted is silicon-based, while a **salt-centred** battery is newly available for commercial transport use.

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## **Takeaway:**

The market for batteries is **expected to grow** in the coming decade driven by high demand from the automotive sector. There is therefore a strong incentive to invest in improved battery technology to improve efficiency and environmental safety. This latest research opens up another avenue of exploration. Although the research remains at an early stage, early signs of the efficiency and resilience of this new technology are promising.