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# High-voltage Lithium Metal Battery with Dilute Weakly Solvated Ether Electrolyte

**A weakly solvated ether electrolyte enables safer, long-life lithium metal cells at high voltages.**

Lithium metal batteries are a promising approach for increasing the energy density of batteries; however, they can suffer from poor cyclability, dendritic deposition, and cathode electrolyte interface problems. Researchers at Purdue have developed ether-based electrolytes that are cost effective, improve the anodic stability of ethers at high-voltage and enhance the oxidation stability of the battery. This technology overcomes the limitations of existing ether-based electrolytes that hinder their practical applications in high-voltage conditions.

**Technology Validation:**

- Ultra-high coulombic efficiency (99.90 %, 4.3 V) seen after stable cycling within a practical LMB.

**Advantages**:

- Better anode and cathode compatibility with high ionic conductivity as well as small interfacial resistance when used in an LMB

- High performance of high-voltage Li metal batteries seen, especially at low temperatures.

**Applications**:

- Â¬Lithium Metal Batteries

**TRL:** 3

**Intellectual Property:**

**Technology ID**
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**Category**
Energy & Power Systems/Energy Storage
Semiconductors/Fabrication & Process Technologies

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