

DESIGN AND MANUFACTURING OF SUSTAINABLE BATTERY ELECTRODE WITH HIGH ACTIVE MATERIAL CONTENT

Track Code: 2022-LEE-69590

Categories:

- Materials and Manufacturing

Keywords:

- Conformal Coating
- Electrode Modification
- Lithium-Ion Battery
- Materials and Manufacturing
- Mechanical Flexibility
- Oxidative Chemical Vapor Deposition

Researchers at Purdue University have developed a method of coating a battery electrode to decrease the amount of inactive materials, leading to high active material weight ratio of the battery electrode. Approximately 10% of the electrode weight in lithium ion batteries is comprised by inactive materials. Purdue researchers have eliminated inactive materials by using a modified chemical vapor deposition (CVD) technique that leads to only 1% of the materials being inactive. Additionally, the conjugated polymers deposited onto the electrodes form a barrier between the electrodes and the electrolyte, preventing the formation of undesired interfaces.

Advantages

- High active material ratio
- Effective
- Can coat complex surfaces
- Flexible

Applications

- Batteries

Technology Validation: The optimized cathode exhibits 80% capacity retention after 300 cycles.

People:

- Lee, Sunghwan (Project leader)
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Intellectual Property:

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