SOLARSHARE: COMMUNITY-CENTERED ENERGY SHARING FOR ENERGY-RESILIENT URBAN NEIGHBORHOODS

Tech ID: 34128 / UC Case 2025-174-0

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OTHER INFORMATION

CATEGORIZED AS

» **Energy**

» Storage/Battery

» **Materials & Chemicals**

» Chemicals

» Storage

» **Transportation**

» Alternative Propulsion

RELATED CASES

2025-174-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

Modern energy storage systems frequently encounter performance degradation and safety risks due to the limited electrochemical stability of conventional electrolytes, especially when operated at high voltages. To address these critical challenges, UC Berkeley researchers have developed a novel electrolyte that utilizes a versatile architecture where chemical substituents can be precisely modified to tailor the physical and electrochemical properties of the electrolyte for diverse applications. Compared to traditional electrolyte additives, this technology offers superior molecular tunability and enhanced stability, providing a customizable platform that significantly extends the lifespan and efficiency of advanced energy storage devices.

SUGGESTED USES

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Lithium-Ion Batteries: Development of next-generation electrolytes for electric vehicles and consumer electronics.

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Supercapacitors: High-power systems requiring stable electrochemical windows for rapid energy discharge.

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Redox Flow Batteries: Chemical stability enhancement for large-scale grid energy storage applications.

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Electrochemical Sensors: Use in specialized analytical equipment requiring precise ionic conductivity profiles.

ADVANTAGES

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High Tunability: Modular molecular structures allow for the precise customization of substituents to meet specific performance requirements.

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Enhanced Electrochemical Stability: Improves safety and maintains performance integrity under high-voltage operating conditions.

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Versatile Architectures: Provides multiple distinct core structures to accommodate different chemical environments and counter ions.

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Improved Device Efficiency: Potential for optimized ion transport and interface stability within electrochemical cells.

RELATED MATERIALS

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