

## Curated Research Articles

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- **Facet-Engineered Na<sub>2</sub>FeSiO<sub>4</sub> Cathodes Realizing Zero-Strain Operation and Ultra-Stable Sodium Storage** — score: 1.000 The article discusses a novel method for stabilizing the P213 phase of Na<sub>2</sub>FeSiO<sub>4</sub> (NFS) cathodes in sodium-ion batteries by using a bio-based diol technique, enhancing Na<sup>+</sup> transport and achieving zero-strain cycling. This facet-engineered design optimizes structural stability and conductivity through defect engineering and the integration of nanocarbon, resulting in high reversible capacity and excellent performance in pouch-cell configurations, highlighting its potential for scalable applications in durable energy storage solutions. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **[ASAP] Unexpected Role of Vanadium Dissolution in Activating Anion Redox Chemistry in Aqueous Zn–V<sub>2</sub>O<sub>5</sub> Batteries** — score: 1.000 The study explores the previously unrecognized impact of vanadium dissolution on anion redox reactions in aqueous Zn–V<sub>2</sub>O<sub>5</sub> batteries, suggesting that vanadium plays a crucial role in enhancing battery performance. This finding could lead to improved designs for more efficient energy storage systems. Journal: *ACS Energy Letters: Latest Articles (ACS Publications)*
- **Mechanistic Considerations for Battery Charging Protocol Design** — score: 1.000 The article reviews the intersection between fast-charging protocols for lithium-ion batteries and the fundamental mechanisms governing electrode behavior and performance during charging. It emphasizes the importance of understanding degradation processes, ionic transport, and thermal dynamics in designing effective charging strategies, while proposing an integrated approach that combines real-time diagnostics and advanced modeling techniques to optimize future battery charging systems. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Harnessing Thermodynamic Decoupling in Ion Intercalation Chemistry to Unlock Unprecedented Energy Storage** — score: 1.000 This study introduces a new approach to ion intercalation chemistry by utilizing thermodynamic decoupling to enhance the activation of low-expansion materials, overcoming the limitations of mechanical degradation seen with conventional high-expansion materials. By proposing two quantitative descriptors that balance the conflict between ion-host binding strength and phase stability, the researchers demonstrate significant advances in energy storage capabilities, particularly achieving a Na-ion capacity of 163 mAh g<sup>-1</sup> with minimal expansion, thereby setting a new benchmark for material design in energy storage applications. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **[ASAP] Depth-Resolved Lithium Isotope Fractionation as a Diagnostic of Interphase Evolution and Degradation in Lithium-Ion Batteries** — score: 1.000 The article presents a study on the depth-resolved lithium isotope fractionation in lithium-ion batteries, suggesting it can be used as a diagnostic tool to understand interphase evolution and degradation. This method provides insights into the chemical processes occurring within the batteries, potentially leading to improved performance and longevity. Journal: *ACS Energy Letters: Latest Articles (ACS Publications)*
- **Synergistic Engineering of Hollow Nanospherical Structure and Closed-Pore in Hard Carbons for Ultra-Stable and High-Utilization Sodium Storage** — score: 1.000 The article presents a novel approach to enhance sodium-ion battery performance through a salt-mediated micelle interfacial polymerization method, resulting in hard carbons with a dual-architecture of hollow nanospherical structures and closed pores. This design significantly improves sodium ion storage capacity, rate capability, and cycling stability, achieving a remarkable capacity of 324 mA g<sup>-1</sup> and a minimal volume expansion during prolonged cycling, thereby establishing a new framework for multi-scale engineering in energy storage materials. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Resolving the Anti-freezing/Self-healing Trade-off in Zn-Ion Batteries with a Zn<sup>2+</sup>-Anchored Dynamic Quaternary Hydrogen-Bond Network for Extreme-Temperature Operation** — score: 1.000 This study introduces a novel eutectogel electrolyte for zinc-ion batteries that resolves the conflicting demands of anti-freezing and self-healing capabilities. By integrating strong Zn<sup>2+</sup>

coordination with a dynamic hydrogen-bond network, the electrolyte remains unfrozen at  $-75^{\circ}\text{C}$  and can self-heal within 10 minutes at  $-20^{\circ}\text{C}$ , while significantly enhancing battery performance and stability over a wide temperature range. The innovative design addresses key challenges in the commercialization of zinc-ion batteries, promoting their practical application. Journal: *Wiley: Advanced Energy Materials: Table of Contents*

- **In Situ Measurement of Oxygen Vacancy Dynamics and Surface Exchange Reactions in Oxide Electrode under Solid Electrochemical Cell Operating Conditions** — score: 0.900 This study presents an innovative in situ electrochemical framework to measure oxygen vacancy dynamics and surface exchange reactions in solid oxide electrochemical cells (SOCs) under realistic operating conditions. By applying a bias modulation technique, the researchers effectively quantify the oxygen vacancy concentration and surface exchange coefficients simultaneously, revealing critical insights into the coupled behavior of these parameters and their impact on electrode degradation while maintaining bulk thermodynamics stability. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Catalyzed anionic redox in sulfide electrolytes for high-energy all-solid-state organic batteries** — score: 0.900 The study presents a novel approach to all-solid-state organic batteries by utilizing controlled chemical reactivity at solid-solid interfaces to facilitate reversible sulfur anionic redox in sulfide electrolytes. This process significantly improves the capacity and stability of organic electrode materials, introducing new design principles that harness interfacial chemistry to boost the energy density of sustainable battery technologies. Journal: *Joule*
- **Streamlined Precise Delamination and Structural Restoration of Spent LiFePO<sub>4</sub> Cathode Materials** — score: 0.900 The study introduces a novel bi-phase electron-rich reagent (BER) designed for the efficient delamination and structural restoration of spent LiFePO<sub>4</sub> cathode materials, achieving over 99% separation efficiency and significant capacity recovery. The reusable reagent enhances sustainability and economic viability in battery recycling by integrating delamination and regeneration into a single process, yielding substantial improvements in both material performance and cost-effectiveness. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Multiple-Center Cation Ordering Mitigates Voltage Decay and Hysteresis in Sodium Layered Oxides** — score: 0.900 The study presents a novel engineering approach for sodium-layered oxide cathodes by creating multiple-center honeycomb ordering that integrates different motifs (LiMn<sub>6</sub>, MgMn<sub>6</sub>, and NiMn<sub>6</sub>) in the P2-Na<sub>0.67</sub>Ni<sub>0.33</sub>Mn<sub>0.67</sub>O<sub>2</sub> structure. This design effectively mitigates voltage decay and hysteresis during oxygen redox processes, achieving a stable performance with 134 mAh g<sup>-1</sup> capacity and 93.36% retention after 400 cycles, thus enhancing the potential of sodium-ion batteries for high-energy applications. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Suppresses Vanadium Dissolution via Superlattice Strategy for Practical Zinc-Vanadium Batteries with Ultralong Lifespan at Low Current Density** — score: 0.800 The article presents a novel Superlattice-V<sub>2</sub>O<sub>5</sub> cathode for aqueous zinc-vanadium batteries, designed to mitigate vanadium dissolution and improve cycle stability at low current densities. By enhancing interlayer spacing and ion diffusion, the superlattice structure allows for high specific capacity (445.1 mAh g<sup>-1</sup>) and exceptional longevity, achieving more than 750 cycles without the vanadium shuttle effect and 2800 cycles at a higher mass loading. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Entropy-Stabilized NASICON Cathodes Enabling Efficient V<sub>4+</sub>/V<sub>5+</sub> Redox and Unprecedented Cycling Durability for Sodium-Ion Batteries** — score: 0.800 The article presents a novel sodium-ion battery cathode, Na<sub>3.18</sub>V<sub>1.7</sub>(CrAlMgMnCu)<sub>0.3</sub>(PO<sub>4</sub>)<sub>3</sub>, which enhances the V<sub>4+</sub>/V<sub>5+</sub> redox reaction through controlled co-doping to improve electronic conductivity and stability. This cathode achieves a significant energy density of approximately 425 Wh kg<sup>-1</sup> and demonstrates remarkable cycling durability, retaining 95.9% capacity after 5000 cycles at high rates, thus advancing the development of efficient sodium-ion batteries. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **[ASAP] Lithium and Sodium Intercalation with Multielectron Redox in Vacancy Ordered and Vacancy Disordered Cation-Deficient Anti-NASICON Niobium(V) Phosphates**

— score: 0.800 This article explores the multielectron redox processes of lithium and sodium intercalation in both vacancy ordered and disordered cation-deficient anti-NASICON niobium(V) phosphates. It investigates the structural and electrochemical characteristics that influence the insertion mechanisms and capacity of these materials, contributing to advancements in rechargeable battery technology. Journal: *Journal of the American Chemical Society: Latest Articles (ACS Publications)*

- **Enhanced d–p orbital hybridization accelerates two-step quasi-solid-state sulfur conversion in sodium–sulfur batteries** — score: 0.800 The research highlights how enhanced d–p orbital hybridization at the Mo C catalyst interface improves the interfacial electronic structure, leading to better adsorption of sulfur intermediates and increased charge transfer. This advancement facilitates a more efficient quasi-solid-state sulfur conversion in sodium–sulfur batteries. Journal: *RSC - Energy Environ. Sci. latest articles*
- **Organic-interhalogen chemistry enables high-voltage bromine redox for stable zinc batteries** — score: 0.800 The article presents a groundbreaking approach to bromine redox chemistry in zinc batteries by introducing a non-corrosive molecular mediator that enhances the Br<sup>3-</sup>/Br<sup>+</sup> redox process. This innovation significantly reduces the kinetic barriers associated with traditional interhalogen formation, leading to improved speed and stability in battery performance. Journal: *RSC - Energy Environ. Sci. latest articles*
- **Thermochemical Crosstalk in Si-C Anodes: Mechanism and Stabilization via a Polymerizable Phosphorus-Based Additive (Adv. Energy Mater. 6/2026)** — score: 0.800 The article explores the stabilization mechanisms of silicon-carbon (Si-C) anodes in lithium-ion batteries through the incorporation of a polymerizable phosphorus-based additive, TPP. This additive forms a dense, inorganic-rich solid electrolyte interphase (SEI) that mitigates volume fluctuations and suppresses undesirable side reactions, ultimately enhancing the electrochemical stability of Si-C anodes. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Thermochemical Crosstalk in Si-C Anodes: Mechanism and Stabilization via a Polymerizable Phosphorus-Based Additive** — score: 0.800 This article discusses the thermal safety challenges of silicon-carbon anodes in lithium-ion batteries, particularly the risk of thermal runaway due to electrolyte reactions. It introduces tripropargyl phosphate (TPP) as an effective additive that mitigates these risks by scavenging protons and forming a stable solid electrolyte interphase (SEI), resulting in higher thermal stability, reduced gas evolution, and improved cycling performance. The findings highlight strategies to enhance the safety of high-energy battery systems. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Chemical factors controlling the behaviour of oxide cathodes in batteries** — score: 0.800 The article highlights the fundamental chemical factors that influence the performance of oxide cathodes in lithium and sodium-ion batteries, moving beyond empirical interpretations. It provides insights for designing more stable and efficient cathodes, potentially enhancing battery technology. Journal: *Nature Energy*
- **Stable Catholyte Interface Enables Practical Operation of Sulfide-Based All-Solid-State Li Metal Batteries (Adv. Energy Mater. 7/2026)** — score: 0.800 The researchers introduce a fluorocarbon-terminated self-assembled monolayer that improves the stability of the catholyte interface in sulfide-based all-solid-state lithium metal batteries. This innovative approach facilitates dry room-compatible processing, enhances the battery's chemical and electrochemical stability, and supports high-performance cycling and long-term stability, positioning these batteries for scalable applications. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Molecular Engineering of Green Saccharide Additives: From Solvation Structure to Interface Micro-Environment for Highly Stable Zinc Metal Anodes** — score: 0.800 The review highlights the potential of green saccharide additives, ranging from monosaccharides to polysaccharides, in enhancing the stability of zinc metal anodes for aqueous zinc-ion batteries. It systematically examines their structure-function relationships, detailing how these additives influence Zn<sup>2+</sup> solvation and interfacial dynamics, while proposing advanced molecular engineering strategies to optimize battery

performance and facilitate industrial adoption. Journal: *Wiley: Advanced Energy Materials: Table of Contents*

- **Stable Catholyte Interface Enables Practical Operation of Sulfide-Based All-Solid-State Li Metal Batteries** — score: 0.800 The article presents a method to stabilize sulfide-based solid electrolytes for all-solid-state lithium metal batteries by applying a fluorocarbon self-assembled monolayer (SAM) on Li<sub>6</sub>PS<sub>5</sub>Cl. This approach enhances both chemical and electrochemical stability, facilitating scalable processing and maintaining high cycling stability at low pressures, ultimately achieving significant capacity retention over extended cycles. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Manipulating the Size of Solid Electrolyte Particles via Spray-Recrystallization: Toward Reliable and High Energy Density All-Solid-State Batteries** — score: 0.800 The article discusses a novel approach using spray-drying to manipulate the particle size distribution of sulfide electrolytes in all-solid-state batteries, enhancing the interfacial contact with cathode materials. This modification significantly improves lithium-ion kinetics and charge transfer efficiency, leading to a high capacity and cycling stability for NCM/SR-LPSCl electrodes, demonstrating the potential for advancing solid-state battery performance. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Gel electrolyte featuring parasitic salt-phobic network enables anode-free lithium batteries with long cycle life and enhanced thermal stability** — score: 0.800 This study introduces a novel gel electrolyte that enhances the performance of anode-free lithium batteries by fostering a stable anion-rich environment, which significantly improves cycling and thermal stability. The research emphasizes the critical role of molecular design in electrolyte solvation to optimize battery efficiency and longevity, providing a strategic direction for the development of advanced lithium battery technologies. Journal: *Joule*
- **[ASAP] Visualizing Dynamic Processes in Energy Materials by Interferometric Scattering Microscopy** — score: 0.800 The article discusses the application of interferometric scattering microscopy to visualize dynamic processes in energy materials, offering a new approach to study their behavior and interactions at the microscale. The research provides insights that could enhance the development and optimization of energy materials for various applications. Journal: *ACS Energy Letters: Latest Articles (ACS Publications)*
- **Reductive Electron Redistribution Enables Ultrafast Charging Magnesium Batteries** — score: 0.800 The article explores the mechanism of solvation sheath rearrangement in magnesium batteries, highlighting how it differs from lithium-ion batteries. This process aids in enhancing the charge kinetics, facilitating the ultrafast charging capabilities of magnesium batteries. Journal: *RSC - Energy Environ. Sci. latest articles*
- **Molecular Design through d-Orbital Induced Electron Redistribution Tailors Li<sup>+</sup> Coordination and Cathode Interfacial Chemistry Towards Stable Ultra-rich Nickel Li Batteries** — score: 0.800 The article discusses a molecular design approach that leverages d-orbital induced electron redistribution to optimize Li<sup>+</sup> coordination and enhance the interfacial chemistry of cathodes in ultra-rich nickel lithium batteries. This innovation aims to improve the stability and performance of these batteries, addressing critical challenges in their development. Journal: *ScienceDirect Publication: Nano Energy*
- **A Laser-Triggered Self-Decomposition Strategy for Engineering Boridene-Supported Metal Nanoparticles With Electronic Metal-Support Interactions** — score: 0.800 The article presents a novel laser-triggered self-decomposition approach for synthesizing MoV nanoparticles on thermally unstable Boridene substrates, enhancing electronic metal-support interactions (EMSI). This catalyst significantly improves lithium-oxygen battery performance, achieving remarkable overpotential and durability, and the method is also applicable to other materials like Mo<sub>2</sub>C MXenes, highlighting its versatility in energy applications. Journal: *Wiley: Advanced Energy Materials: Table of Contents*

- Tailoring zinc-ion deep eutectic electrolytes through dual regulation of solvation shell volume and solvent polarity — score: 0.700 The article discusses the modification of zinc-ion deep eutectic electrolytes (DEEs) by adjusting the solvation shell volume and solvent polarity, leveraging their Lewis acid-base and hydrogen-bonding properties. This approach aims to enhance performance in zinc-ion batteries, addressing critical challenges in energy storage applications. Journal: *RSC - Energy Environ. Sci. latest articles*
- Suppressed lithium plating in graphite anodes enabled by tailoring the interfacial lithium concentration — score: 0.700 The study investigates a novel approach to enhance the stability of graphite anodes by applying a sulfurized polyacrylonitrile (SPAN) coating. This coating creates a lithium-rich layer that amplifies the concentration gradient of lithium, facilitating faster solid diffusion within the graphite and effectively reducing lithium plating at high current densities. Journal: *Joule*
- [ASAP] Constructing Functional Lithium-Ion Transport Interfaces by In-Situ Growth and Transformation on Chemical Vapor Deposition-Derived Silicon–Carbon Anode Materials — score: 0.700 The article discusses the development of effective lithium-ion transport interfaces through an in-situ growth and transformation process applied to silicon-carbon anode materials created via chemical vapor deposition. This innovative approach aims to enhance the performance and efficiency of lithium-ion batteries. Journal: *Journal of the American Chemical Society: Latest Articles (ACS Publications)*
- [ASAP] Cobalt-Doping Unlocks Copper Self-Healing Chemistry in Copper Hexacyanoferrate for Long-Cycling Aqueous Mg-Ion Storage — score: 0.700 The study demonstrates that cobalt doping in copper hexacyanoferrate enhances self-healing properties, significantly improving the material's performance for long-cycle aqueous magnesium-ion storage. This advancement addresses the challenges of material degradation over time in energy storage applications. Journal: *Journal of the American Chemical Society: Latest Articles (ACS Publications)*
- [ASAP] Suppressing Cation Mixing and Gliding-Induced Degradation in LiNiO<sub>2</sub> Cathodes through the Interplay of Mg Doping and W Passivation — score: 0.600 The study investigates the enhancement of LiNiO<sub>2</sub> cathodes' stability by incorporating magnesium (Mg) doping and tungsten (W) passivation to reduce cation mixing and slippage-related degradation. These modifications improve the electrochemical performance and longevity of cathodes, addressing critical challenges in lithium-ion battery technology. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*
- Deeply Understanding Functional Separators in Different pH Aqueous Zinc-Based Batteries: Design Principles, Modification Strategies, Opportunities, and Challenges — score: 0.600 This review examines functional separators in aqueous zinc-based batteries (AZBBs), focusing on their design principles and effectiveness across various pH environments. It discusses challenges such as dendrite growth and side reactions, presenting specific modification strategies to enhance battery stability and outlining future directions for commercialization. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- Redefining dry electrode architecture — score: 0.600 The article discusses a novel dry electrode architecture that addresses limitations in traditional slurry-based processing, particularly in high-energy-density batteries. By molecularly engineering the carbon-binder network, this new design achieves stable high-voltage performance while avoiding the need for alterations in active materials or electrolytes. Journal: *Nature Energy*
- Unraveling inhomogeneous rocksalt growth in Ni-rich cathode materials for Li-ion batteries — score: 0.600 The article investigates the complexities of rocksalt structure development in nickel-rich cathode materials for lithium-ion batteries, highlighting the implications of inhomogeneous growth on the performance and stability of these materials. The study aims to enhance understanding, thereby potentially improving the design of more efficient battery systems. Journal: *ScienceDirect Publication: Energy Storage Materials*
- [ASAP] Combating Phase Segregation in Earth-Abundant Pyrite Cathodes for High-

**Energy-Density Lithium–Metal Batteries** — score: 0.600 The article discusses strategies to address phase segregation in pyrite-based cathodes, which are composed of abundant Earth materials, to enhance their performance in high-energy-density lithium-metal batteries. The findings aim to improve the stability and efficiency of these batteries, making them a more viable option for energy storage solutions. Journal: *Journal of the American Chemical Society: Latest Articles (ACS Publications)*

- **Mitigating Carbothermal Reduction in Disordered Rock-Salt Cathodes via Direct Electrode-Slurry Carbon Mixing** — score: 0.500 The article discusses a novel approach to improve the performance of disordered rock-salt (DRX) cathodes in lithium-ion batteries by integrating carbon directly into the electrode slurry. This method aims to alleviate the issue of carbothermal reduction, enhancing the cost-effectiveness and energy density of the batteries while eliminating the need for nickel and cobalt. Journal: *RSC - EES Batteries latest articles*
- **[ASAP] High-Entropy Polymeric Electrolytes Facilitating Ion Conduction and Interfacial Desolvation in Low-Temperature Zinc Batteries** — score: 0.500 The article discusses the development of high-entropy polymeric electrolytes that enhance ion conduction and promote interfacial desolvation in low-temperature zinc batteries. This advancement potentially leads to improved performance and efficiency in zinc-based energy storage systems. Journal: *Journal of the American Chemical Society: Latest Articles (ACS Publications)*
- **Durable alloy anode for Na-ion batteries with high volumetric energy density** — score: 0.400 The authors present a novel high-loading tin (Sn) anode for sodium-ion batteries, which incorporates single-walled carbon nanotube networks to enhance stability and longevity. This innovation enables the anode to achieve high capacity while maintaining impressive cycling performance, addressing the common trade-offs in energy density and scalability faced by existing alloy anodes. Journal: *Nature Energy*
- **Bulk doping and grain boundary engineering of Na<sub>3</sub>Zr<sub>2</sub>Si<sub>2</sub>PO<sub>12</sub> electrolyte for wide-temperature, external-pressure-free all-solid-state sodium batteries** — score: 0.400 This article discusses advancements in the bulk doping and grain boundary engineering of Na<sub>3</sub>Zr<sub>2</sub>Si<sub>2</sub>PO<sub>12</sub>, an electrolyte intended for use in all-solid-state sodium batteries. The research aims to enhance performance across a wide temperature range without the need for external pressure, potentially improving the efficiency and practicality of sodium battery technology. Journal: *ScienceDirect Publication: Nano Energy*
- **[ASAP] Stable Room-Temperature Sodium–Sulfur Batteries via In-Situ Cross-Linked Functional Gel Polymer Electrolytes** — score: 0.400 Researchers developed stable sodium-sulfur batteries that operate at room temperature by utilizing in-situ cross-linked functional gel polymer electrolytes. This innovation aims to enhance the performance and longevity of these batteries, potentially impacting energy storage applications significantly. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*
- **Universal strategy of capacity-compensation via electrolyte for Li-ion batteries** — score: 0.400 The article discusses a universal strategy to mitigate initial irreversible capacity loss (ICL) in Li-ion batteries, which hampers their energy and power densities. This approach involves utilizing electrolyte modifications to enhance battery performance by effectively compensating for ICL during the first charging cycle. Journal: *RSC - Energy Environ. Sci. latest articles*
- **Dry electrode architecture design to push energy density limits at the cell level** — score: 0.400 The article discusses the development of dry-processed electrodes that utilize molecularly coupled carbon-binder networks to overcome the limitations of traditional slurry electrodes in lithium batteries. This innovative approach facilitates higher mass and active material loading, allowing for stable high-voltage performance and ultimately increasing the energy density of the batteries. Journal: *Nature Energy*
- **[ASAP] Stabilizing Lithium-Rich Li<sub>1.2</sub>Ni<sub>0.13</sub>Mn<sub>0.54</sub>Co<sub>0.13</sub>O<sub>2</sub> Cathode via Fast-Ionic Li<sub>3</sub>AlF<sub>6</sub> Surface Coating** — score: 0.400 The article discusses a novel approach to enhance the stability of lithium-rich Li<sub>1.2</sub>Ni<sub>0.13</sub>Mn<sub>0.54</sub>Co<sub>0.13</sub>O<sub>2</sub> cathodes by applying a fast-ionic Li<sub>3</sub>AlF<sub>6</sub> coating.

This surface modification aims to improve the electrochemical performance of the cathodes, potentially addressing issues related to capacity fade and cycle life in lithium-ion batteries. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*

- [ASAP] **Structure-Engineered Biomass-Derived Carbon Nanosheets Hosting Atomically Dispersed Iron for Efficient Zn-air Batteries** — score: 0.300 The article discusses the development of biomass-derived carbon nanosheets that are structurally engineered to incorporate atomically dispersed iron, significantly enhancing the performance of zinc-air batteries. This innovative approach aims to improve energy storage efficiency and addresses challenges associated with conventional battery technologies. Journal: *Energy & Fuels: Latest Articles (ACS Publications)*
- [ASAP] **Lithium–Carbon Composite Anodes for Solid-State Lithium Metal Batteries** — score: 0.300 The article discusses the development of lithium–carbon composite anodes designed for solid-state lithium metal batteries, focusing on their structural and electrochemical properties. The findings suggest that these composite anodes can significantly enhance battery performance, addressing common challenges in lithium metal battery technology. Journal: *ACS Energy Letters: Latest Articles (ACS Publications)*
- **Building Catalyst Exploration Highways by Integrating High-Throughput and Machine Learning Technologies** — score: 0.300 The article discusses the integration of high-throughput technologies and machine learning to enhance the discovery of efficient catalysts for energy conversion and storage. It emphasizes the need for new methodologies to overcome the limitations of traditional experimental approaches, proposing future developments in automated screening, *in situ* characterization, and intelligent algorithms to streamline catalyst research and optimize performance. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Practical lithium–organic batteries enabled by an n-type conducting polymer** — score: 0.300 The article discusses the development of a lithium–organic battery utilizing an n-type conducting polymer that demonstrates superior mixed ionic and electronic transport capabilities. This advancement allows for a battery that operates effectively across a broad temperature range while also ensuring improved safety features. Journal: *Nature*
- [ASAP] **One-Step Synthesis of Hollow Prussian Blue Sodium-Ion Battery Cathode Material for Activating Deep Inert Iron** — score: 0.300 The article presents a novel one-step synthesis method for producing hollow Prussian Blue, which serves as a cathode material in sodium-ion batteries. This technique enhances the activation of deep inert iron, potentially improving the efficiency and performance of battery technologies. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*