Curated Research Articles

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- **Entropically Stabilized Compositionally Complex Prussian Blue Analogues in Electrochemical Energy Storage and Catalytic Applications** — score: 1.000 The review discusses how high configurational entropy in Prussian Blue Analogues (PBAs) addresses the limitations faced by conventional PBAs in electrochemical applications, such as battery electrodes and catalysts. It explores the resulting improvements in structural stability, cycle life, and redox activity, while emphasizing the significance of the "cocktail effect" on enhancing performance across various battery types and catalytic processes. The article also examines the relationship between structure and electrochemical properties, offering insights into future advancements in this field. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **[ASAP] Pressure-Aware Operando X-ray Methods Reveal True Mechanistic Pathways in Solid-State Batteries** — score: 1.000 The article discusses advancements in operando X-ray techniques that incorporate pressure awareness, enabling researchers to uncover the true mechanistic pathways in solid-state battery processes. This approach enhances the understanding of how pressure influences battery performance and mechanisms, potentially informing future innovations in battery technology. Journal: *ACS Energy Letters: Latest Articles (ACS Publications)*
- **Chemical Processes in All-Solid-State Li S and Na S Batteries: A Perspective** — score: 1.000 The article examines the intricate chemical processes involved in all-solid-state Li–S and Na–S batteries, highlighting the critical interactions between sulfur, conductive carbon, and sulfide solid electrolytes during both production and usage. It identifies key challenges such as the electrolytes' narrow stability windows and sulfur's low conductivity, and proposes strategies for enhancing performance, ultimately suggesting design principles for developing high-loading and low-pressure battery systems. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **"Ionic Tug-of-War" Effect Decoupling Li+-Coordination Enables High Ion Conductivity and Interface Stability for Solid-State Electrolytes** — score: 1.000 The article presents a novel approach to improving ionic conductivity and interface stability in solid-state electrolytes by employing an "ionic tug-of-war" effect. By grafting Mg2+ ions onto the surface of Li6.4La3Zr1.4Ta0.6O12 fillers, the study shows how competitive coordination reduces Li+ binding with ethylene oxide chains and enhances lithium ion mobility, resulting in higher conductivity and a more stable solid electrolyte interphase (SEI). This strategy demonstrates significant advantages in battery performance, including better rate capability and cycling stability. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Mechanistic Insights into Magnesium Metal Anodes: Interfacial Challenges and Design Principles in Organic and Aqueous Electrolytes** — score: 1.000 This review examines the challenges faced by magnesium metal anodes in rechargeable batteries, specifically addressing issues related to Mg2+ solvation and parasitic reactions that hinder their performance. It offers a comprehensive analysis of interfacial dynamics in both organic and aqueous electrolytes and proposes design strategies to enhance anode efficiency by optimizing electrolyte composition, interface structures, and electrode architecture, ultimately aiming for improved reversibility and scalability in magnesium-based energy storage systems. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Contemporary Trends in Lithium-Sulfur Battery Design: A Comparative Review of Liquid, Quasi-Solid, and All-Solid-State Architectures and Mechanisms** — score: 1.000 This review examines recent advancements and challenges in lithium-sulfur (Li-S) batteries across liquid, quasi-solid, and all-solid-state formats, focusing on improvements in cyclability and commercial viability. It emphasizes the transition to solid-state conversion mechanisms, the significance of electrolyte additives like LiNO3, and outlines necessary research priorities to enhance battery performance, aiming to overcome commercialization barriers and leverage the high energy density potential of Li-S technologies. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Anion-Defect Engineering in Transition Metal Compounds for Lithium–Sulfur Batteries:**

Current Progress, Mechanistic Insights, and Future Directions — score: 1.000 The article reviews the use of anion-defect engineering in transition metal compounds to enhance lithium-sulfur (Li-S) battery performance by improving polysulfide management and lithium interface stability. It outlines recent advancements, describes the mechanisms underlying these improvements, and highlights future research directions aimed at overcoming existing challenges and facilitating practical applications in energy storage. Journal: *Wiley: Advanced Energy Materials: Table of Contents*

- **Unveiling Ion Pairing Reorganization Mechanism of Oxygen Vacancy-Rich Amorphous Molybdenum Oxide-Based Solid-Electrolyte Interphase for Fast Zn2+ Desolvation** — score: 1.000 The study reveals that oxygen vacancies in an amorphous molybdenum oxide-based solid-electrolyte interphase enhance Zn2+ desolvation by facilitating a low-solvent-coordination solvation structure through ion pairing reorganization. This mechanism leads to lower desolvation barriers and improved Zn2+ diffusion, contributing to the exceptional cycling stability of Zn-based batteries, which maintain performance over thousands of cycles under high current conditions. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Cryo-Sampling Enables Atomistic Insights Into Bulk Degradation of High-Voltage LiCoO2** — score: 1.000 The study introduces a cryo-sampling technique to investigate the high-voltage performance of LiCoO2 (LCO) without self-discharge artifacts. It reveals that cobalt migration into lithium layers significantly contributes to structural degradation and performance decline during cycling due to phase transitions and microcrack formation. This research offers new insights into the mechanisms behind the rapid decay of LCO used in commercial lithium-ion batteries. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Unravelling Water's Transition from Passivation to Electrochemical Participation in Aprotic Lithium-Oxygen Batteries** — score: 1.000 The study investigates how water influences the performance of aprotic lithium-oxygen batteries, revealing that it enhances discharge capacity by restructuring solvation and promoting the growth of lithium peroxide (Li2O2) within existing product cracks. Through simulations and electrochemical analyses, the research uncovers the role of water in facilitating electrochemical reactions that control lithium anode corrosion and increase mass transport, offering insights for optimizing battery efficiency. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Co-Free and Ni-Minimized Li- and Mn-Rich Layered Cathodes With Suppressed Structural Disordering for High-Performance and Cost-Effective LIBs** — score: 1.000 The article presents a novel Co-free, Ni-minimized layered oxide cathode, Li1.2Mg0.1Ni0.1Mn0.6O2, that enhances the performance and cost-effectiveness of lithium-ion batteries (LIBs). By utilizing low-cost Mg2+ for lattice stabilization and employing a high-voltage pre-activation technique, this cathode achieves high discharge capacity and energy density, along with remarkable capacity retention over 100 cycles, while minimizing structural disorder and voltage fading. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Microstructure of Silicon Anodes in Solid-State Batteries - From Crystalline to Amorphous** — score: 1.000 The study investigates the microstructural changes of silicon anodes in all-solid-state batteries, revealing that initial crystalline silicon undergoes significant transformation to amorphous phases after repeated lithiation and delithiation cycles. Using cryogenic transmission electron microscopy, the research demonstrates that while crystalline structures are present initially, prolonged cycling promotes the emergence of a more homogeneous amorphous microstructure, which is crucial for enhancing mechanical stability and reducing cracking in silicon anodes. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Taming Interfacial Kinetics and Interphase Stability for Fast-Charging Red Phosphorus/Carbon Anodes** — score: 0.900 The article discusses the development of a highly fluorinated weakly-solvating electrolyte that significantly enhances the fast-charging capabilities of red phosphorus/carbon anodes in lithium-ion batteries. This electrolyte reduces the energy needed for lithium-ion desolvation, creates a stable LiF-rich solid electrolyte interphase, and improves reaction kinetics, resulting in high capacity and stable performance over extensive cycling. Journal: *Wiley: Advanced Energy*

Materials: Table of Contents

- **Anionic MOF-Derived Ni/Ni1-xO Heterojunctions with Electrochemically Induced Vacancy Reconstruction: Enabling High-Rate and Stable Room-Temperature Na–S Batteries** — score: 0.900 The article presents a novel approach to enhance room-temperature sodium-sulfur batteries by utilizing an anionic metal-organic framework (Bio-MOF-1) to create Ni/NiO heterojunctions within carbon nanofibers. This method facilitates precise Ni ion dispersion and undergoes electrochemically induced vacancy reconstruction, significantly improving polysulfide chemisorption and conversion kinetics, achieving a high capacity of 1590.1 mAh g−1 and excellent cycling stability over 1000 cycles. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **[ASAP] Electrochemically Tuned Crystal Tectonics in Crack-Resistant Textured Oxide Cathode Films for Electrochemical Energy Storage** — score: 0.800 The article discusses innovations in electrochemically tuned crystal tectonics to enhance the structural integrity of textured oxide cathode films, resulting in improved crack resistance for electrochemical energy storage applications. The study aims to optimize the performance and durability of these materials, which are critical for the advancement of energy storage technologies. Journal: *Journal of the American Chemical Society: Latest Articles (ACS Publications)*
- **Reducing External Pressure Demands in Solid-State Lithium Metal Batteries: Multi-Scale Strategies and Future Pathways** — score: 0.800 The article discusses the importance of external pressure as a multi-scale tool for enhancing the performance and stability of solid-state lithium metal batteries (SSLMBs). It illustrates how pressure can optimize ion pathways at the atomic level, improve interfacial dynamics at the micro scale, and ensure manufacturing scalability at the macro scale, ultimately suggesting advanced pressure management systems to address the challenges of commercialization and achieve high energy density and stability required for applications in electric aviation and grid storage. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Self-Healing Hydrogel Electrolyte Enabled by Dynamic Polar Covalent and Noncovalent Interactions for High-Performance Rechargeable Zinc-Metal Batteries: A Leap toward Sustainable Energy Storage** — score: 0.800 The study introduces a novel self-healing hydrogel polymer electrolyte (PHBC-4) designed for zinc-metal batteries, leveraging dynamic polar covalent and noncovalent interactions. This electrolyte exhibits exceptional ionic conductivity, oxidative stability, and impressive self-healing capabilities, enabling superior cycle performance and dendrite suppression in rechargeable battery applications. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Cation-Assisted Zinc Ion Desolvation for Long-Cycled Zinc Metal Anodes at High Current Rates** — score: 0.800 The article presents a novel cation-assisted strategy that enhances the desolvation of zinc ions, leading to more efficient and reversible zinc plating/stripping at high current rates. By utilizing sodium lactate, the study demonstrates how Na+ cations modify the solvation structure, reducing water content near the Zn anode and preventing dendrite formation. This innovation results in zinc anodes with impressive cycling stability of 4500 hours, even under demanding discharge conditions. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Precise Interfacial Regulation Achieving High-Rate and Long-Life Polymer Solid-State Sodium Metal Batteries** — score: 0.800 The study introduces a novel strategy for interfacial regulation in polymer solid-state sodium metal batteries by optimizing the ratio of fluoroethylene carbonate to dimethylformamide. This approach results in the formation of a robust solid electrolyte interphase, leading to enhanced battery performance with a capacity of 93.8 mAh/g at high rates, impressive cycling stability, and improved low-temperature operation, while highlighting the importance of interfacial engineering in developing high-performance batteries. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Redox Mediators for Aqueous Electrolytic Zinc-Manganese Batteries: Fundamentals and Design Criteria** — score: 0.800 The article explores the application of redox mediators (RMs) to enhance the performance of aqueous electrolytic zinc-manganese batteries (AZMBs) by improving the reversibility of the cathodic MnO2 conversion reaction. Utilizing Marcus' theory, it identifies the

structural and kinetic relationships between RMs and their interaction with MnO2, while proposing design strategies to optimize RM systems for better battery performance and address existing challenges in practical applications. Journal: *Wiley: Advanced Energy Materials: Table of Contents*

- **Designing Weakly Solvating Electrolytes for Low-Temperature Lithium Batteries** — score: 0.800 The article reviews advancements in weakly solvating electrolytes (WSEs) for lithium batteries, emphasizing their role in enhancing performance in subzero temperatures by improving lithium ion transport and stabilizing solid-electrolyte interphases. It discusses molecular insights that facilitate uniform lithium deposition and outlines future research directions that could lead to scalable, reliable battery solutions suitable for extreme climates. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Unraveling Interphase-Driven Failure Pathways in LiMn0.6Fe0.4PO4/Graphite Pouch Cells** — score: 0.800 The article investigates the interphase stability and failure mechanisms in LiMn0.6Fe0.4PO4/Graphite pouch cells, addressing challenges such as interphase instability and manganese dissolution that hinder the use of LiMnxFe1-xPO4 as a cathode material. By systematically evaluating these issues, the study aims to enhance the performance and reliability of this promising battery technology. Journal: *RSC - EES Batteries latest articles*
- **Harnessing interfacial solvation structure for next-generation secondary batteries** — score: 0.800 The article explores the critical role of ion-solvent interactions at battery interfaces, drawing on concepts from catalysis to analyze how these interfacial solvation structures affect interphase development and charge transfer processes. The findings aim to enhance understanding of electrochemical behavior in next-generation secondary batteries, particularly under challenging conditions. Journal: *Nature Energy*
- **Heterogeneous doping via nanoscale coating impacts the mechanics of Li intrusion in brittle solid electrolytes** — score: 0.800 The study explores the use of 3-nm-thick Ag coatings on the brittle solid electrolyte Li6.6La3Zr1.6Ta0.4O12 to mitigate lithium dendrite intrusion during fast charging in solid-state batteries. The coatings enhance surface fracture toughness, effectively reducing the risk of short-circuiting at high local current densities, thereby improving battery safety and performance. Journal: *Nature Materials*
- **[ASAP] New Insights into Inactive-Element Substitution in Fe/Mn Anionic Redox Cathodes** — score: 0.800 The article explores the effects of substituting inactive elements in Fe/Mn-based anionic redox cathodes, providing new insights into their chemical behavior and potential for enhancing energy storage performance. The study highlights the implications of these substitutions on the electrochemical properties of the cathode materials. Journal: *ACS Energy Letters: Latest Articles (ACS Publications)*
- **[ASAP] Joint-Domain Impedance Spectroscopy for Solid-State Batteries: Enabling Accelerated Characterization and Data-Driven Insights** — score: 0.800 The article discusses a novel approach called Joint-Domain Impedance Spectroscopy, designed to enhance the characterization of solid-state batteries. This method aims to expedite data collection and analysis, facilitating a deeper understanding of battery performance and informing future improvements through data-driven insights. Journal: *ACS Energy Letters: Latest Articles (ACS Publications)*
- **Impact of Extrusion and Direct Calendering on Dry-Coated Cathodes for Sulfidic All-Solid-State Batteries** — score: 0.800 This research optimizes a dry-coating process for sulfidic all-solid-state battery (ASSB) cathodes using high-shear extrusion and calendering techniques. The produced dry-coated cathodes exhibit superior electrode morphology, enhanced ionic conductivity, and improved performance metrics, such as initial capacity and discharge rates, compared to traditional slurry-coated counterparts. The study identifies optimal processing conditions that maximize interfacial contact and electrode homogeneity. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Unraveling the Role of Oxygen Functional Groups in Inducing the Spatial Distribution of the Cathode–Electrolyte Interphase in Room-Temperature Sodium–Sulfur Batteries**

— score: 0.800 This study investigates the influence of oxygen functional groups on the formation of the cathode–electrolyte interphase in room-temperature sodium–sulfur batteries. By examining how these groups affect interphase spatial distribution, the authors aim to enhance battery performance and longevity, providing insights into optimizing electrolyte compositions. Journal: *ScienceDirect Publication: Nano Energy*

- **Double Cross-Linking Strategy and Polar Additives Reconfigured Hydrogen Bond Networks in Potassium Polyacrylate-Gelatin Hydrogels for Flexible Zn-Air Batteries with Wide-Temperature Range** — score: 0.700 The article presents a novel approach to enhance the performance of flexible zinc-air batteries by utilizing a double cross-linking strategy and polar citrate additives in potassium polyacrylate-gelatin hydrogels. This method improves the hydrogen-bonding network, resulting in increased electrolyte retention, exceptional ionic conductivity, and reduced side reactions like dendrite growth. Consequently, the batteries demonstrate remarkable power density and long cycle life across a wide temperature range. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Stabilizing High-Capacity Layered Cathode Materials via Nanocluster Cross-Linked Polymer** — score: 0.700 This study introduces a novel nanocluster cross-linked polymer that enhances the stability of high-capacity layered cathodes, specifically Ni-rich and Li-rich oxides, during battery operation. By forming an effective protective layer that reduces electrolyte interactions and structural stress, the polymer improves both cycling stability and rate capability, enabling longer-lasting and more efficient battery performance without the need for separate coating processes. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Electron push–pull engineering enables sustainable, anti-corrosive, and nonflammable phosphate electrolytes for long-lifespan lithium–sulfur batteries** — score: 0.700 The article discusses a novel approach to enhance phosphate electrolytes for lithium–sulfur batteries through electron push–pull engineering, which improves their solvation structure and overall electrochemical performance. This method aims to create sustainable, anti-corrosive, and nonflammable electrolytes that can significantly extend the lifespan of these batteries. Journal: *RSC - Energy Environ. Sci. latest articles*
- **PFAS Free Organic Carbonate-Based Electrolyte Formulation for LNMO||SiGr Cell Chemistry** — score: 0.600 The article presents a new PFAS-free electrolyte formulation that significantly enhances the cycling stability of LNMO||SiGr lithium-ion cells, extending their life by 69% compared to traditional formulations. By incorporating lithium difluoro(oxalato)borate (LiDFOB) with organic carbonates, the formulation effectively mitigates side reactions and promotes the development of stable solid electrolyte interphase layers, ultimately improving overall cell performance while ensuring environmental safety. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Mass-Transfer Engineered Synthesis of Pitch-Derived Hard Carbons for Enhanced Sodium Storage** — score: 0.600 This article presents a novel mass-transfer engineering approach that combines pre-oxidation and mechanical crushing to enhance the performance of pitch-derived hard carbons (PHCs) for sodium-ion batteries. By optimizing oxygen content and structure, the resulting PHCs exhibit improved reversible capacity, initial Coulombic efficiency, and tap density, making them suitable for scalable applications with both high energy density and exceptional cycling stability in practical battery systems. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Silicon-Hydroborate Composite Electrodes with High Interfacial Stability for NMC811/Silicon Solid-State Batteries** — score: 0.600 The article discusses the development of silicon-hydroborate composite electrodes, which exhibit enhanced interfacial stability for use in solid-state batteries featuring NMC811 cathodes and silicon anodes. This innovation addresses the challenge of integrating high-capacity negative electrodes with hydroborate solid electrolytes, paving the way for improved performance in next-generation battery technologies. Journal: *RSC - EES Batteries latest articles*
- **Machine learning-accelerated discovery of multi-cation entropy-stabilized NASICON solid electrolytes with 10,000 hours of stable Na plating/stripping for all-solid-state sodium**

batteries — score: 0.600 The article discusses the application of machine learning techniques to accelerate the discovery of multi-cation entropy-stabilized NASICON solid electrolytes, which exhibit remarkable stability with over 10,000 hours of consistent sodium plating and stripping. This innovation promises advancements in the efficiency and longevity of all-solid-state sodium batteries. Journal: *RSC - Energy Environ. Sci. latest articles*

- **[ASAP] Unraveling Interfacial Failure Challenges and Mitigation Strategies in Phosphorus-Based Sodium-Ion Batteries** — score: 0.600 This article investigates the interfacial failure mechanisms in phosphorus-based sodium-ion batteries, highlighting the challenges they present to battery performance. It also discusses various mitigation strategies to enhance stability and efficiency, aiming to improve the overall viability of these energy storage systems. Journal: *ACS Energy Letters: Latest Articles (ACS Publications)*
- **[ASAP] Unveiling Electrolyte Design Principles for Sodium-Ion Batteries Using Combinatorial Electrochemistry and Machine Learning-Assisted Analysis** — score: 0.600 The article discusses innovative approaches to designing electrolytes for sodium-ion batteries by employing combinatorial electrochemistry and machine learning techniques. This methodology aims to enhance the performance and efficiency of sodium-ion batteries, which are increasingly important for sustainable energy solutions. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*
- **Breaking through the thick-electrode barrier: Rational design for high-loading Zn-MnO2 batteries** — score: 0.400 The article discusses the potential of Zn-MnO2 batteries for large-scale energy storage due to their cost-effectiveness, safety, and environmental benefits. It emphasizes the need for innovative designs to overcome challenges associated with thick electrodes, which can enhance their performance and suitability for grid-scale applications. Journal: *RSC - EES Batteries latest articles*
- **A high-energy asynchronously reverse dual-ion battery based on H−/Na+ insertion chemistry** — score: 0.400 The article presents an asynchronously reverse dual-ion battery (ARDIB) that innovatively separates anion and cation storage into distinct processes, enhancing the design flexibility for electrochemical energy storage systems. This new approach may significantly improve energy capacity and efficiency in battery technology. Journal: *RSC - Energy Environ. Sci. latest articles*
- **Machine Learning for Accelerating Energy Materials Discovery: Bridging Quantum Accuracy with Computational Efficiency** — score: 0.400 The article discusses the transformative role of machine learning (ML) in accelerating the discovery of sustainable energy materials by combining quantum-accurate simulations with efficient screening methods. It highlights advancements in ML techniques, such as graph neural networks, that enhance atomistic modeling and tackle challenges related to data quality and interpretability, ultimately paving the way for autonomous materials discovery systems that can address energy conversion and storage issues. Journal: *Wiley: Advanced Energy Materials: Table of Contents*
- **Amino acid-based functional additive enables fast polyiodide conversion kinetics for durable Zn-I2 batteries** — score: 0.400 Researchers have developed an amino acid-based functional additive that significantly enhances the conversion kinetics of polyiodide in Zn-I2 batteries, addressing common issues like side reactions on the cathode and by-products on the zinc anode. This advancement promises improved battery durability and efficiency. Journal: *RSC - Energy Environ. Sci. latest articles*
- **[ASAP] Na10Mn4O9: Synthesis, Structure, and Electrochemical Properties** — score: 0.400 The article discusses the synthesis and structural characterization of Na10Mn4O9, highlighting its electrochemical properties. The findings contribute to the understanding of this compound's potential applications in energy storage technologies. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*
- **[ASAP] Ultralow 0.076% Silver Doping: An Efficient Strategy for Suppressing Lithium Penetration in Sulfide Solid Electrolytes** — score: 0.400 This study presents a novel approach by incorporating just 0.076% silver doping in sulfide solid electrolytes, significantly reducing lithium

penetration. The findings indicate that this ultralow doping level enhances the stability and efficiency of solid-state batteries, offering a promising strategy for improving electrolyte performance. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*

- **[ASAP] Li1+xTaOxF6–x Oxyfluoride Solid Electrolytes with Amorphization-Driven Enhancement of Ion Conduction Channels for 5 V All-Solid-State Batteries** — score: 0.400 The article discusses the development of a series of oxyfluoride solid electrolytes, specifically Li1+xTaOxF6–x, which exhibit enhanced ion conduction due to their amorphous structure. This improvement is particularly significant in the context of 5 V all-solid-state batteries, suggesting potential advancements in battery performance and efficiency. Journal: *Journal of the American Chemical Society: Latest Articles (ACS Publications)*
- **"Active material-free" design to overcome mass-transport limitations for high-energy-density all-solid-state Li-S batteries** — score: 0.400 The article proposes a novel design for all-solid-state Li-S batteries that eliminates preloaded active materials in the cathode, allowing for enhanced three-phase contact. By creating abundant interfaces between ionic and electronic conductors, the system enables in situ formation of active materials, resulting in improved sulfur utilization and overall battery performance. Journal: *Joule*
- **[ASAP] Minimizing Interfacial Resistance between Polymer Electrolytes and Metal Electrodes Using Applied Current** — score: 0.400 This article discusses a method to reduce interfacial resistance in battery systems by applying current between polymer electrolytes and metal electrodes. The findings could enhance the efficiency and longevity of energy storage devices by improving charge transfer at their interfaces. Journal: *ACS Energy Letters: Latest Articles (ACS Publications)*
- **[ASAP] Porous NaTi2(PO4)3-PVDF Composite Granules as Negolyte Boosters for Sodium-Based Redox-Targeting Flow Batteries** — score: 0.300 The article discusses the development of porous NaTi2(PO4)3-PVDF composite granules, which enhance the performance of sodium-based redox-targeting flow batteries as negolyte materials. These granules aim to optimize charge transfer and storage, potentially improving the efficiency and durability of such energy storage systems. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*
- **[ASAP] Crystallographically Guided Discovery of Li-Rich Garnet Solid Electrolytes for All-Solid-State Batteries** — score: 0.300 This article discusses a systematic approach to discovering lithium-rich garnet solid electrolytes, which are crucial for advancing all-solid-state battery technology. Using crystallographic techniques, the research aims to enhance the performance and efficiency of these battery systems by optimizing material properties. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*
- **[ASAP] Computational Discovery of Li6PO5I: An Oxide Argyrodite for Solid-State Electrolytes** — score: 0.300 The article presents the computational identification of Li6PO5I as a novel oxide argyrodite, highlighting its potential as a solid-state electrolyte. This discovery may enhance the development of safer and more efficient energy storage solutions, particularly in lithium-ion batteries. Journal: *ACS Applied Energy Materials: Latest Articles (ACS Publications)*
- **From Ni Sites to System Synergy: Decoding Structural-Mechanism-Performance Relationships in Urea Electrooxidation Catalysts** — score: 0.300 The article reviews the structural and mechanistic aspects of nickel-based electrocatalysts for the urea oxidation reaction (UOR), highlighting strategies to optimize performance for hydrogen production and wastewater purification. It discusses the challenges of sluggish reaction kinetics and presents recent advances in catalyst design and in situ characterization techniques. The review concludes by outlining future research directions to further integrate UOR into sustainable energy and environmental solutions. Journal: *Wiley: Advanced Energy Materials: Table of Contents*