

The layered  $\text{LiCoO}_2$  cathode plays a key role in high-energy-density lithium-ion batteries (LIBs), delivering a capacity of  $\sim 185 \text{ mA h g}^{-1}$  at a high cut-off voltage of 4.5 V (vs.  $\text{Li/Li}^+$ ). However, its practical applications in high-voltage LIBs are limited by a severe side reaction and an irreversible structure transition during cycling ...

A  $\text{Li}_2\text{MnO}_3/\text{LiPON/Li}$  all-solid-state thin film lithium battery is constructed. The LMO-TFLB exhibits a long cycle life without capacity loss after 1000 cycles. The LMO/LiPON interface possesses low resistance and good structural stability.

Thin-film lithium-ion batteries (LIBs) have attracted considerable attention for energy storage device application owing to their high specific energy compared to conventional LIBs. However, the significant breakthroughs of electrochemical performance for electrode materials, electrolyte, and electrode/electrolyte interface are still highly desirable. This chapter ...

We introduce a new approach to engineering battery SEI films: leveraging the local electric field to tune the nanoscale electrical double-layer (EDL) composition. We ...

In this work, the transition metal dissolution (TMD) from the respective ternary layered  $\text{LiMO}_2$  ( $M = \text{Mn, Co, Ni, Al}$ ) cathode active material was investigated as well as the lithiation degrees of the cathodes after charge/discharge cyclic aging. Furthermore, increased nickel contents in  $\text{LiNi}_x\text{Co}_y\text{Mn}_z\text{O}_2$ -based (NCM) cathode materials were studied, to elucidate ...

Battery pouches serve as the protective and flexible enclosures for the vital components within lithium-ion batteries, making them an integral part of the battery construction process. This article delves into the ...

Bates, J. B. et al. Fabrication and characterization of amorphous lithium electrolyte thin films and rechargeable thin-film batteries. *J. Power Sources* 43, 103-110 (1993).

Arguably, the most practical and promising Li-ion cathode materials today are layered oxide materials, and in particular  $\text{LiNi}_{1-x-y}\text{Co}_x\text{Mn}_y\text{O}_2$  (NCM) and  $\text{LiNi}_{1-x-y}\text{Co}_x\text{Al}_y\text{O}_2$  (NCA). Here, some of the computational approaches to studying Li-ion batteries, with special focus on issues related to layered materials, are discussed.

We demonstrate the application of the thin film solid-state electrolytes for Li-ion batteries, supercapacitor, and electrochromic devices. At pH 2.4 where the carboxyl groups of PAA are protonated, PEO and PAA form a ...

The practical implementation of an anode-free lithium-metal battery with promising high capacity is hampered

# Layered lithium battery film

by dendrite formation and low coulombic efficiency. Most notably, these challenges stem from non-uniform lithium ...

However, their usage in thin-film lithium batteries is not popular since it is difficult to fabricate carbon-based thin film, and the interface between carbon and the solid-state electrolyte usually is poor. Only a few studies have been completed on thin-film carbon-based anodes. Abe et al. fabricated a highly graphitized carbonaceous thin film by plasma-assisted ...

DOI: 10.1016/j.jallcom.2019.153236 Corpus ID: 213828650; Enhanced cyclic stability of Ni-rich lithium ion battery with electrolyte film-forming additive @article{Lan2020EnhancedCS, title={Enhanced cyclic stability of Ni-rich lithium ion battery with electrolyte film-forming additive}, author={Guangyuan Lan and Lidan Xing and Dmitry Bedrov ...

Furthermore, an all-solid-state Li metal battery, assembled with the modified LATP solid electrolyte and LiFePO<sub>4</sub> cathode, demonstrated an excellent electrochemical performance with an initial discharge capacity of 115 mA h g ...

We introduce a new approach to engineering battery SEI films: leveraging the local electric field to tune the nanoscale electrical double-layer (EDL) composition. We discover that the SEI properties can vary dramatically in the same electrolyte when an electric field is applied or removed, which is the direct result of the electric field's ...

Abstract Ni-rich layered oxides are recognized as one of the most promising candidates for cathodes in all-solid-state lithium batteries (ASSLBs) due to their intrinsic merits, such as high average... Skip to Article Content; Skip to Article Information; Search within. Search term. Advanced Search Citation Search. Search term. Advanced Search Citation Search. ...

In this study, thermal atomic-layer deposition (ALD) is utilized to deposit a film of lithium phosphorus oxy nitride (LiPON) to improve the solid-electrolyte performance of thin-film lithium batteries, increasing their viability ...

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