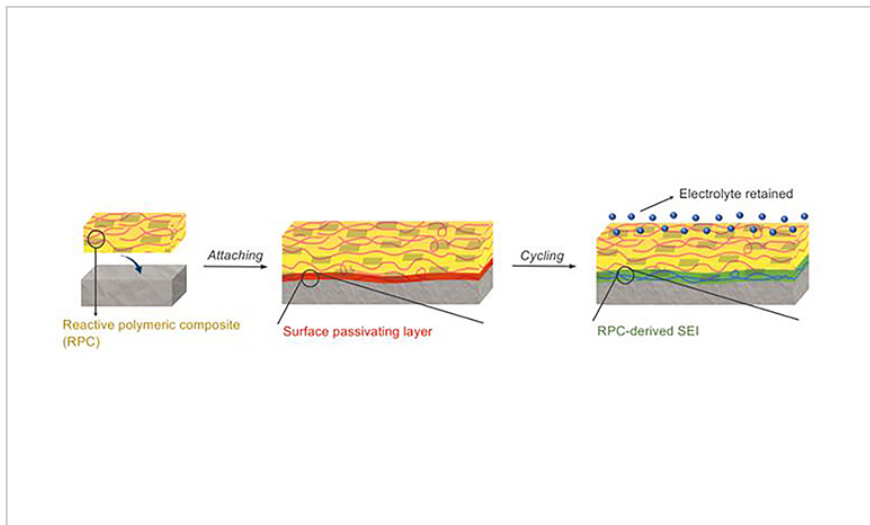


Reactive Polymer Composite for Metal Anode Protection in Li Batteries

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Design of a polymer-inorganic SEI

Technology Summary

The solid-electrolyte interphase (SEI) is pivotal in stabilizing metal anodes for rechargeable batteries, however, the SEI is constantly reforming and consuming electrolyte with cycling. A novel design is proposed for a polymeric-inorganic SEI in Li anodes using a reactive polymeric composite rather than a reactive electrolyte. This design should effectively suppress electrolyte consumption in the formation and maintenance of the SEI.

Application & Market Utility

This RPC-derived SEI has excellent passivation, homogeneity, and mechanical strength. It effectively stabilizes the Li-electrolyte interface and prevents electrolyte decomposition upon cycling. The use of RPC-derived SEI enables stable cycling of Li metal batteries under lean electrolyte, limited Li excess, and high capacity conditions. Ultimately, this new line of rechargeable batteries will still function through more recharges than those commercially available.

Next Steps

Patent pending. Seeking licensing.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Licensing |

Keywords

- solid-electrolyte interphase (SEI)
- rechargeable batteries
- lithium anodes
- cycling
- reactive polymeric composite (RPC)

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