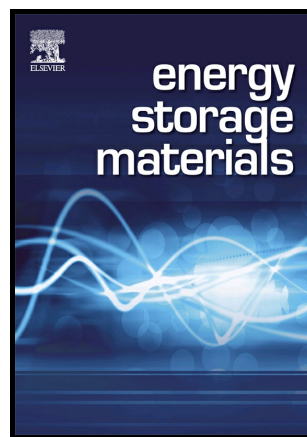


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PMMA-assisted Li deposition towards 3D continuous dendrite-free lithium anode

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Abstract

Uncontrolled dendrite growth, continuous dead Li formation together with host-less volume changes associated with lithium metal greatly hamper the commercialization of high-energy-density lithium metal batteries (LMBs). Manipulating the deposition behavior of lithium ions is generally believed effective to root out undesired sharp protrusions over the anode surface and various kinds of 3D conductive inert substrates/hosts are introduced to mitigate volume changes and dead Li formation. However, the introduction of alien host would inevitably sacrifice partial energy density of cells. Herein, we successfully achieved in-situ deposition of a 3D continuous dendrite-free lithium deposition with blunt surface at the absence of inert host by simply adding an electrochemical active polymer-PMMA into the electrolyte to manipulate the deposition behavior of lithium ions. The function

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