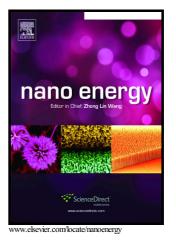
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Interface engineering of sulfide electrolytes for all-solid-state lithium **batteries**

Ruochen Xu^{a,b}, Fudong Han^a, Xiao Ji^a, Xiulin Fan^a, Jiangping Tu^{b,*}, Chunsheng Wang^{a,*}

^aDepartment of Chemical and Biomolecular Engineering, University of Maryland, College Park,

Maryland 20742, United States

^bState Key Laboratory of Silicon Materials, Key Laboratory of Advanced Materials and

Applications for Batteries of Zhejiang Province, and School of Materials Science & Engineering, NUSCK

Zhejiang University, Hangzhou 310027, China

cswang@umd.edu

tujp@zju.edu.cn

*Corresponding author: Tel: 301.405.0352; fax: 301.314.9216

*Corresponding author: Tel: (86)571.87952856; fax: (86)571.8792573

Abstract

All-solid-state lithium batteries (ASSLIBs) employing sulfide solid electrolyte hold high promise to replace traditional liquid-electrolyte LIBs due to their high safety and energy density. However, Li dendritic growth in sulfide electrolyte limits the realization of the high energy of ASSLIBs. In this work, we use LiF (or LiI) layer at the interface between Li and sulfide electrolyte and penetrated HFE (or I solution) inside of sulfide electrolyte to suppress the Li dendrite growth. Due to the higher interface energy of LiF/Li than that of LiI/Li, LiF interlayer show much higher capability than LiI in suppressing the Li dendrite. Even if the Li dendrite breaks through LiF (or LiI) interlayer, the Li dendrites will be consumed by coated/penetrated

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