



Showcasing research from Professor Minghua Chen and Zhen Chen's laboratory, School of Electrical and Electronic Engineering, Harbin University of Science and Technology, Harbin, Heilongjiang, China

Fast Li^+ transport kinetics enabled by TiN nanofibers in hybrid polymer-based electrolytes for long-life Li metal batteries

Polymer electrolytes exhibit significant promise for enabling high-performance LMBs. However, poor structural uniformity and sluggish Li^+ transport hinder their practical applications. To address these, we propose incorporating conductive TiN nanofiber fillers to construct a structurally compact, kinetically enhanced, and interface-stable PVDF-HFP-based electrolyte. This innovative design significantly improves the performance and cycling stability of full cells, providing new insights for the design of advanced polymer electrolytes.

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See Zhen Chen, Quan Zhuang, Jian Wang, Minghua Chen *et al.*, *Energy Environ. Sci.*, 2025, **18**, 2817.