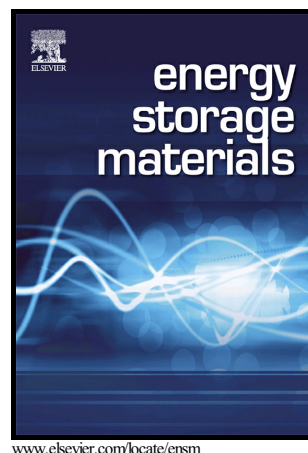


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# Metal-organic frameworks composites threaded on the CNT knitted separator for suppressing the shuttle effect of Lithium sulfur batteries

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## ABSTRACT

Lithium-sulfur (Li-S) batteries, standing as the promising candidate in next-generation high-energy secondary batteries, are still facing severe challenges such as low recharge ability, poor rate performance and cycling instability, which can be mainly ascribed to the poor conductivity of sulfur and the dissolution of the intermediate polysulfides generated during discharge-charge cycles. In this work, a CNT@ZIF functionalized separator was designed to trap the dissolved polysulfides so as to suppress the shuttle effect. Benefiting from the Lewis acid-base interaction between zeolitic imidazolate frameworks (ZIF-8) and polysulfides, combined with the reutilizing effect of carbon nanotubes (CNT) for the trapped polysulfides operating

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<sup>1</sup> These authors contributed equally to this work

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