

Author's Accepted Manuscript

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PII: S0376-7388(18)30637-9
DOI: <https://doi.org/10.1016/j.memsci.2018.05.050>
Reference: MEMSCI16190

To appear in: *Journal of Membrane Science*

Received date: 7 March 2018
Revised date: 22 April 2018
Accepted date: 24 May 2018

Cite this article as: Shili Song, Lei Shi, Shiyao Lu, Yuanchao Pang, Yuankun Wang, Min Zhu, Dawei Ding and Shujiang Ding, A new polysulfide blocker - Poly(acrylic acid) modified separator for improved performance of lithium-sulfur battery, *Journal of Membrane Science*, <https://doi.org/10.1016/j.memsci.2018.05.050>

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A new polysulfide blocker - Poly(acrylic acid) modified separator for improved performance of lithium-sulfur battery

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ABSTRACT

Lithium-sulfur (Li-S) batteries gain great popularity due to its high theoretical energy density, low cost, and natural abundance of sulfur active elements, whereas, "shuttle effect" of soluble polysulfide seriously deteriorates their electrochemical performance, hindering their practical applications. Herein, we demonstrate a strategy that graft poly(acrylic acid) (PAA) on the surface of polypropylene (PP) separator to improve the electrochemical performance of Li-S batteries by impeding the "shuttle effect" of polysulfide. The PP grafted with PAA (PP-g-PAA) separator allows Li^+ migration while rejects polysulfide anions by electrostatic repulsion. Consequently, this

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