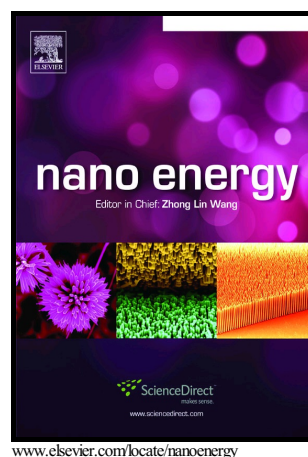


Author's Accepted Manuscript

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PII: S2211-2855(17)30149-0
DOI: <http://dx.doi.org/10.1016/j.nanoen.2017.03.018>
Reference: NANOEN1846

To appear in: *Nano Energy*

Received date: 7 December 2016
Revised date: 17 February 2017
Accepted date: 6 March 2017

Cite this article as: Patrick Strubel, Sören Thieme, Christine Weller, Holger Althues and Stefan Kaskel, Insights into the redistribution of sulfur species during cycling in lithium-sulfur batteries using physisorption methods, *Nano Energy*, <http://dx.doi.org/10.1016/j.nanoen.2017.03.018>

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Insights into the redistribution of sulfur species during cycling in lithium-sulfur batteries using physisorption methods

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Abstract:

Nitrogen physisorption was used to analyze textural transformations in lithium-sulfur cathodes during cycling for two alternate electrolyte systems. Significant impact of the electrolyte type on the accessible cathode porosity in the charged vs. discharged state was detected, providing important insights in the cells conversion mechanism and the role of polysulfide solubility. The main advantage of the method lies in the resolution of pore accessibility and size distributions. Thus, depending on the state of charge (SoC), the C-rate used for cycling as well as electrolyte properties (i.e. polysulfide solvation), significant differences in the redistribution of active sulfur species as well as pore blocking effects can be

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