

Author's Accepted Manuscript

High areal capacity cathode and electrolyte reservoir render practical Li-S batteries

Furong Qin, Xiwen Wang, Kai Zhang, Jing Fang, Jie Li, Yanqing Lai



PII: S2211-2855(17)30316-6
DOI: <http://dx.doi.org/10.1016/j.nanoen.2017.05.037>
Reference: NANOEN1978

To appear in: *Nano Energy*

Received date: 9 April 2017
Revised date: 16 May 2017
Accepted date: 16 May 2017

Cite this article as: Furong Qin, Xiwen Wang, Kai Zhang, Jing Fang, Jie Li and Yanqing Lai, High areal capacity cathode and electrolyte reservoir render practical Li-S batteries, *Nano Energy*, <http://dx.doi.org/10.1016/j.nanoen.2017.05.037>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

High areal capacity cathode and electrolyte reservoir render practical Li-S batteries

Furong Qin ^{a, &}, Xiwen Wang ^{b, &}, Kai Zhang ^a, Jing Fang ^a, Jie Li ^a, Yanqing Lai ^{a,*}

^a School of Metallurgy and Environment, Central South University, No. 932, Lushan Road (South), Changsha, China

^b Department of Water Resources and Environment, Guangdong Provincial Key Laboratory of Urbanization and Geo-simulation, Sun Yat-sen University, Guangzhou 510275, PR China

& These authors contribute equally to this work

* Corresponding author: laiyanqingcsu@163.com

Abstract:

With the considerable development in sulfur cathode, Li-S batteries have recently witnessed a significant improvement, especially in the gravimetric capacity and cycling performance. However, maintaining high energy density of Li-S batteries and its commercialization relies on the high areal loading and high utilization of active material on the electrode, which is always ignored in the most fundamental research reports. For the Li-S batteries with much higher sulfur loading, except for the well-known issues about polysulfide dissolution, some new issues such as electron and ion transport in thick cathode, depletion of electrolyte and lithium dendrite growth need to be addressed. Here, a Li-S battery with a high areal capacity is proposed by a systematic strategy incorporating two approaches as follows: 1) a

Download English Version:

<https://daneshyari.com/en/article/5451981>

Download Persian Version:

<https://daneshyari.com/article/5451981>

[Daneshyari.com](https://daneshyari.com)