

Accepted Manuscript

Water cooling based strategy for lithium ion battery pack dynamic cycling for thermal management system

Ke Li, Jiajia Yan, Haodong Chen, Qingsong Wang

PII: S1359-4311(17)31269-3

DOI: <https://doi.org/10.1016/j.applthermaleng.2017.12.131>

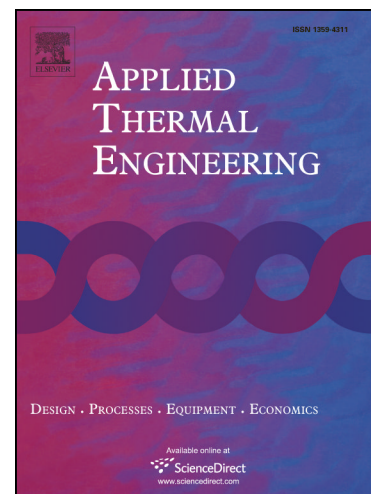
Reference: ATE 11652

To appear in: *Applied Thermal Engineering*

Received Date: 25 February 2017

Revised Date: 19 November 2017

Accepted Date: 31 December 2017



Please cite this article as: K. Li, J. Yan, H. Chen, Q. Wang, Water cooling based strategy for lithium ion battery pack dynamic cycling for thermal management system, *Applied Thermal Engineering* (2017), doi: <https://doi.org/10.1016/j.applthermaleng.2017.12.131>

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 proof before it is published in its final 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.

Water cooling based strategy for lithium ion battery pack dynamic cycling for thermal management system

Ke Li^a, Jiajia Yan^a, Haodong Chen^a, Qingsong Wang^{a,b*}

^aState Key Laboratory of Fire Science, University of Science and Technology of China,

Hefei 230026, China

^bCollaborative Innovation Center for Urban Public Safety, Anhui Province, Hefei

230026, P.R. China

Abstract

To investigate the thermal performance of water cooling based battery thermal management system in lithium ion batteries dynamic cycling, the experimental and numerical studies are carried out in this work. In numerical simulation, an electrochemical-thermal model is adopted to predict the thermal behavior and validates with experimental measurement. For both experimental and simulated results, the voltage, current, and the temperature distribution in the single battery and battery pack are exhibited. In addition, the active water cooling system is the better method to improve the battery pack thermal performance at low cycling rate. Moreover, dealing with the situation of using battery pack in wide range at different rate, a compound system need to be design in the real battery pack system.

* Corresponding authors: Tel.: +86 551 6360 6455; fax: +86 551 6360 1669.E-mail: pinew@ustc.edu.cn (Q.S. Wang)

Download English Version:

<https://daneshyari.com/en/article/7046089>

Download Persian Version:

<https://daneshyari.com/article/7046089>

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