
Li-Ion Batteries

Editors:**C. Johnson****R. Kostecki****Y. Cui****D. Guyomard****Y. Zhang****M. Winter****G. Koenig****Y. Fukunaka****Sponsoring Division:****Battery**

Published by

The Electrochemical Society65 South Main Street, Building D
Pennington, NJ 08534-2839, USA

tel 609 737 1902

fax 609 737 2743

www.electrochem.org

ecs transactions™**Vol. 75, No. 20**

Copyright 2017 by The Electrochemical Society.
All rights reserved.

This book has been registered with Copyright Clearance Center.
For further information, please contact the Copyright Clearance Center,
Salem, Massachusetts.

Published by:

The Electrochemical Society
65 South Main Street
Pennington, New Jersey 08534-2839, USA

Telephone 609.737.1902
Fax 609.737.2743
e-mail: ecs@electrochem.org
Web: www.electrochem.org

ISSN 1938-6737 (online)
ISSN 1938-5862 (print)
ISSN 2151-2051 (cd-rom)

ISBN 978-1-62332-411-7 (CD-ROM)
ISBN 978-1-60768-769-6 (PDF)

Printed in the United States of America.

Table of Contents

<i>Preface</i>	<i>iii</i>
----------------	------------

Chapter 1
Lithium-ion Batteries - Strategies for Success

Adsorptive Exhaust Gas Cleaning for Recycling of Li-Ion-Batteries <i>F. M. Stehmann, S. Jahnke, C. Balmforth-Slater, S. Scholl</i>	3
---	---

Chapter 2
Anodes

Development of High Energy Lithium-Ion Batteries through the Anode Side Substitution of Graphite by Si/C Composite <i>S. Dobrowolny, F. Mahlendorf, A. Heinzel</i>	21
--	----

Electrochemical Degradation Caused by Mechanical Damage in Silicon Negative Electrodes <i>N. Yoshida, T. Sakamoto, N. Kuwata, J. Kawamura, K. Sato, T. Hashida</i>	31
--	----

Electrochemical Characterization of Phosphorus Encapsulated in Drilled Carbon Nanotubes as Anode Material for Lithium Ion Batteries <i>T. Tojo, S. Yamaguchi, Y. Furukawa, R. Inada, Y. Sakurai</i>	39
---	----

Chapter 3
Lithium-ion Batteries - Diagnostics

In situ Observation of the Electrochemical Dissolution and Deposition of Copper Contaminations in Li-Ion Batteries <i>J. Kuwabara, K. Sato</i>	47
--	----

Plasma - Assisted ALD of Lipo(N) for Solid State Batteries <i>B. Put, M. J. Mees, N. Hornsveld, A. Sepulveda, P. M. Vereecken, W. M. M. Kessels, M. Creatore</i>	61
---	----

Chapter 4 Lithium-ion Batteries - Modeling

An On-line Electrochemical Parameter Estimation Study of Lithium-Ion Batteries Using Neural Networks <i>A. Jokar, B. Rajabloo, M. Desilets, M. Lacroix</i>	73
Systematic Derivation and Tuning of a Compact Differential-Algebraic Equations Model for LiFePO ₄ -Graphite Li-Ion Batteries <i>C. W. Lee, Y. Hong, M. Hayrapetyan, Z. Xi</i>	89
A Li-Ion Battery Pack Level Degradation Simulator with Consideration of Thermal and Electrical Conditions <i>M. Fukui, Y. Hayakawa, L. Lin</i>	103
An In Situ Full Charge Capacity Estimation Algorithm for Li-Ion Batteries Using Recursive Least-Squares Identification with Adaptive Forgetting Factor Tuning <i>L. Lin, H. Ono, M. Fukui, K. Takaba</i>	111
Estimating and Identifying Parameters from Charge-Discharge Curves of Lithium-Ion Batteries <i>Y. Qi, S. Kolluri, D. T. Schwartz, V. R. Subramanian</i>	121

Chapter 5 Poster Session

Carbon Fiber Coated MnO ₂ As Sulfur Carrier for Lithium Sulfur Battery <i>Y. Guo, N. T. Wu, Y. Zhang</i>	141
Formation of a Lithium-Plated Reference Electrode in Lithium-Ion Cells: Characterization Using Dynamic Impedance and Simulation Using Electrochemical Model <i>Z. Wang, Z. Li, J. Huang, J. Zhang</i>	151

Electrode Designs of Lithium Ion Batteries Utilizing the Simulation of Porous Structures	165
--	-----

K. Ikeshita, G. Inoue, M. Kawase

Dependences of Discharge Capacity, Retention of Discharge Capacity, Average Discharge Voltage and Energy Density, and Rate Capability on the Composition of $x\text{Li}_2\text{MnO}_3\text{-}y\text{LiNi}_{1/2}\text{Mn}_{1/2}\text{O}_2\text{-}(1-x-y)\text{LiNi}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}\text{O}_2$ Li-Rich Solid-Solution Cathode Materials for Li-Ion Battery	173
---	-----

T. Tsuda, H. Kokubun, Y. Asaoka, K. Miyamoto, Y. Mochizuki, T. Gunji, T. Tanabe, S. Kaneko, T. Ohsaka, F. Matsumoto

Chapter 6 Cathodes

Preparation and Electrochemical Evaluation of LiCoO_2 Film Prepared with Cold Spraying for Development of Lithium-Ion Battery	191
--	-----

K. Okuyama, N. Yoshida, K. Sato, T. Hashida

Sulfurized Polyethylene Glycol as Electrode Material for Li-S Battery	201
---	-----

T. Kojima, H. Ando, N. Takeichi, H. Senoh

Author Index	207
--------------	-----