
Lithium-Ion Batteries

Editors:

S. Meng

University of California, San Diego
San Diego, California, USA

K. Amine

Argonne National Laboratory
Lemont, Illinois, USA

J. Wu

NASA Glenn Research Center
Cleveland, Ohio, USA

Sponsoring Division:



Published by

The Electrochemical Society

65 South Main Street, Building D
Pennington, NJ 08534-2839, USA

tel 609 737 1902

fax 609 737 2743

www.electrochem.org

ecstransactions™

Vol. 64, No. 22

Copyright 2015 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 978-1-62332-245-8 (Soft Cover)
ISBN 978-1-60768-602-6 (PDF)

Printed in the United States of America.

Table of Contents

<i>Preface</i>	<i>iii</i>
Vanadium Oxide Polycrystalline Nanorods and Ion-Exchanged Nanotubes for Enhanced Lithium Intercalation <i>D. McNulty, D. N. Buckley, C. O'Dwyer</i>	1
Nanocolumnar-Architected, Layered Cu/Si Film as Anodes for Rechargeable LIB <i>D. B. Polat, O. Keles</i>	13
First Principles Study of Li-Site Doping Effect on the Properties of LiMnO ₂ and Li ₂ MnO ₃ Cathode Materials <i>F. Kong, R. C. Longo, D. H. Yeon, J. Yoon, J. H. Park, C. Liang, S. KC, S. K. Doo, K. Cho</i>	21
Fe and V Substituted Li ₂ MnSiO ₄ /C As Potential Cathode Material for Li-Ion Batteries <i>N. P. Wagner, A. R. M. Dalod, A. M. Svensson, F. Vullum-Bruer</i>	33
Evaluation of Si Based Composite Nanorods Used as Anodes in LIB <i>D. B. Polat, O. Keles</i>	47
Influence of Convective Drying Parameters on Electrode Performance and Physical Electrode Properties <i>B. Westphal, H. Bockholt, T. Günther, W. Haselrieder, A. Kwade</i>	57
Degradation Analyses of Commercial Lithium-Ion Cells by Temperature/C-rate Controlled Cycle Test <i>T. Matsuda, M. Myojin, K. Ando, D. Imamura</i>	69
Ex-Situ Activation of Li-Excess Layered Cathode Materials for High-Capacity Lithium Ion Batteries <i>J. Zhao, R. M. Huang, H. X. He, Y. Wang</i>	77

Effect of Electrode Mixing Conditions on the Performance of Lithium-Ion Batteries Analyzed by Fast Fourier Transform Electrochemical Impedance Spectroscopy <i>H. Nakajima, T. Kitahara, Y. Higashinaka, Y. Nagata</i>	87
Degradation Studies on LiFePO ₄ Cathode <i>R. Scipioni, P. S. Jørgensen, J. Hjelm, P. Norby, C. N. Rasmussen, S. H. Jensen</i>	97
Silicon Nitride Coated Silicon Thin Films As Anodes for Li-Ion Batteries <i>A. Ulvestad, J. P. Mæhlen, M. Kirkengen</i>	107
Tin (IV) Oxide (SnO ₂) Modified LiNi _{0.8} Co _{0.2} O ₂ Cathode Material for Lithium Ion Batteries <i>H. C. Coban, D. B. Polat, O. Keles</i>	113
Improving Electrochemical Performance of CuSi Thin Film by Depositing Cu Thin Film via Magnetron Sputtering <i>D. B. Polat, L. Eryilmaz, O. Keles</i>	123
In-Production Recycling of Active Materials from Lithium-Ion Battery Scraps <i>C. Hanisch, J. H. Schünemann, J. Diekmann, B. Westphal, T. Loellhoeffel, P. F. Prziwara, W. Haselrieder, A. Kwade</i>	131
Real Time Estimation of the State of Health of Dynamic Power Profiles Application to Li-Ion Batteries <i>A. Al Rahal Al Orabi, K. Mamadou, T. Delaplagne, L. Bellemare, R. Blonbou, Y. Bultel</i>	147
Carbon-Nanofibers Encapsulated Metal Oxide Nanocomposite and Its Application as Conversion Anode Material for Lithium Ion Batteries <i>S. Ren, X. Zhao, R. Chen, M. Fichtner</i>	155
Electrochemical Performance of Sn/SnO ₂ Nanoparticles Encapsulated in Carbon Matrix Derived from Plant Polysaccharides <i>A. Chojnacka, M. Molenda, M. Bakierska, R. Dziembaj</i>	165
Author Index	173