
Rechargeable Lithium and Lithium Ion Batteries

Editors:

A. Manthiram

The University of Texas
Austin, Texas, USA

K. M. Abraham

Northeastern University
Boston, Massachusetts, USA

S. Meng

University of California, San Diego
La Jolla, California, USA

C. Wang

University of Maryland
College Park, Maryland, 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. 33, No. 29

Copyright 2011 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 978-1-56677-887-9 (PDF)
ISBN 978-1-60768-239-4 (Softcover)

Printed in the United States of America.

Table of Contents

Preface *iii*

Chapter 1 **Cathodes**

Evaluation of the Rate Determining Processes for LiFePO₄ as Cathode Material in Lithium-Ion-Batteries 3

J. Illig, T. Chrobak, D. Klotz, and E. Ivers-Tiffée

On the High Rate Capability of LiFePO₄ 17

V. Boovaragavan and V. Srinivasan

Ordered Arrays of Ti-Mn Oxide Nanotubes for High Capacity Li-Ion Battery 31

K. S. Raja and M. Misra

Evaluation of Positive Electrode Resistance by "Current-Rest-Method" Using "Four-Electrode Cell" (Co-, Ni- and Mn-Based Cathode Materials) 45

S. Yata, H. Satake, T. Endo, M. Kuriyama, and H. Kinoshita

Chapter 2 **Anodes**

Improvement of Electrochemical Properties of a High Potential Negative Electrode TiO₂(B) 57

M. Takagi, Y. Murota, M. Tajima, T. Asao, M. Saito, A. Tasaka, and M. Inaba

P-Doped Fullerene Films as Coating Materials for Silicon Film Anodes of Lithium Secondary Batteries 67

A. Arie and J. Lee

Investigations on Silicon Composite Electrodes for Lithium-Ion Batteries 75

V. Boovaragavan and V. Srinivasan

Comparison of Cycling Performance of Lithium Ion Cell Anode Graphites 91

H. Zheng, P. Ridgway, X. Song, S. Xun, J. Chong, G. Liu, and V. Battaglia

Reactivity of Nano-LaPO ₄ Composites in Lithium Cells <i>M. Arroyo-de Dompablo, U. Amador, E. Lozano, C. Baehtz, E. Morán, and A. Fernandez Fuentes</i>	101
Evaluation of Li-Metal Electrode Resistance by "Current-Rest-Method" Using "Four-Electrode Cell" <i>S. Yata, S. Mori, H. Satake, M. Kuriyama, and H. Kinoshita</i>	111
Author Index	121