The Electrochemical Society

Rechargeable Lithium and Lithium Ion Batteries

at the 212th ECS Meeting

ECS Transactions Volume 11 No.29

October 7 – 12, 2007 Washington, DC, USA

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 www.proceedings.com

ISBN: 978-1-60560-313-1

Some format issues inherent in the e-media version may also appear in this print version.

Copyright 2008 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)

Printed in the United States of America.

ECS Transactions, Volume 11, Issue 29
Rechargeable Lithium and Lithium Ion Batteries

Table of Contents

\mathbf{r}	١	٠	C	
\boldsymbol{r}	r	e_{i}	tac	•

Localized Lattice Parameter Measurements in LixCoO2 Particles by Transmission Electron Microscopy H. Gabrisch, Q. Xing and T. Yi	1
Effect of CO2 on Layered Li1+zNi1-x-yCoxMyO2 (M=Al,Mn) Cathode Materials K. Shizuka, C. Kiyohara, K. Shima, K. Okahara, K. Okamoto and Y. Takeda	7
Initial Stage of the Delithiation of Li _{1.2-x} Mn _{0.4} Fe _{0.4} O ₂ Positive Electrode Material for Lithium-Ion Batteries Studied by Electron Energy-Loss Spectroscopy <i>J. Kikkawa, T. Akita, M. Tabuchi, M. Shikano, K. Tatsumi and M. Kohyama</i>	15
Electrochemical Performance of Nanostructured LiMn1.5Ni0.5O4 Spinel at Elevated Temperature N. Marandian Hagh and G. G. Amatucci	21
Characterization and Electrochemical Performance of Substituted LiNi _{0.4} Co _{0.2-y} Al _y Mn _{0.4} O ₂ ($0 \le y \le 0.2$) Cathode Materials J. Wilcox and M. Doeff	27
Electrochemical Synthesis of Manganese Oxides with a Layered Crystal Structure for Lithium Batteries M. Nakayama, T. Kanaya, J. Lee and B. Popov	35
Evaluation of Rapid Charge Methodologies for Li-Ion Chemistry K. B. Chin, B. V. Ratnakumar, M. Smart, K. A. Smith and S. Narayanan	43
The Application of Pulse Charge for Secondary Lithium Battery C. Lin and S. Yen	55
Polyacrylate as Modifier for Graphite/Electrolyte Interface S. Komaba, K. Okushi and H. Groult	63
Electrochemical Thin Film Studies of Sn Metals for Rechargeable Lithium Batteries S. Song and S. Baek	71

The Use of Electrolyte Additives to Improve the High Temperature Resilience of Li-Ion Cells M. Smart, B. L. Lucht and B. V. Ratnakumar	79
M. Smart, B. L. Luchi and B. V. Rainakumar	
Electrolytes Containing Fluorinated Ester Co-Solvents for Low-Temperature Li-Ion Cells K. A. Smith, M. Smart, G. Prakash and B. V. Ratnakumar	91
Li-Ion Electrolytes Containing Ester Co-Solvents for Wide Operating Temperature Range	99
M. Smart, B. V. Ratnakumar, L. D. Whitcanack, K. A. Smith, S. Santee, R. Gitzendanner and V. Yevoli	
Ionic Liquids as Electrolyte in Lithium Batteries: In Situ FTIRs Studies on the Use of Electrolyte Additives	109
A. Balducci, M. Schmuck, W. Kern, B. Rupp, S. Passerini and M. Winter	
Phase Behavior and Conductivity of Et4NTFSI-LiTFSI Mixtures - A Model System for Ionic Liquid Lithium Battery Electrolytes W. A. Henderson, S. Passerini, H. De Long and P. Trulove	115
Solvent-free, PYR1ATFSI Ionic Liquids-based Ternary Polymer Electrolyte Systems. II. Battery Tests G. Appetecchi, G. Kim, M. Montanino, F. Alessandrini and S. Passerini	119
PEO based Block Copolymer as Solid State Lithium Battery Electrolyte A. Ghosh and P. Kofinas	131
Studying the Origin and Mechanism of Irreversible Capacity in Lithium-Ion Cells L. J. Hardwick, M. Marcinek and R. Kostecki	139
A Novel Structure and Cycle Performance of Co3O4-C prepared by Electro- codepositing as Negative Electrode for Lithium-ion Batteries W. Yu, P. Wang, W. Yu, N. Zhang and N. Zhang	149
Implementation and Effect of Stabilized Lithium Metal Powder on Mesocarbon Negative Electrodes F. Cassel, D. Chua, M. Lane, M. Yakovleva, Y. Gao and G. Au	157
Author Index	167