Battery/Energy Technology (General)

Editor:

J. Weidner

University of South Carolina Columbia, South Carolina, USA

Sponsoring Divisions:





Duch Links of the

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 **AGSILTANSACTIONS** ™

Vol. 11 No. 32

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)

ISBN 978-1-56677-661-5

Printed in the United States of America.

Table of Contents

Preface	iii
Li[Ni1/3Mn1/3Co1/3]O2-based Electrodes for PHEV Applications: An Optimization <i>H. Zheng, G. Liu, X. Song and V. Battaglia</i>	1
Li/CFx Medical Battery Development H. Zhu, M. Gavril, L. Feng and D. Karpinet	11
Development of Li/(CFx)n Battery at Sandia National Laboratories For Long- Lived Power Sources Applications <i>G. Nagasubramanian</i>	19
Developing γ-MnO2 Models for XRD Analysis S. Caltagirone and J. Massingill	29
Cathode Extenders as Capacity Enhancers in Alkaline EMD Cells W. C. Bushong, G. Davidson, M. Destephen, Z. Jin, E. Mortensen, E. Ndzebet, K. Ramaswami, V. Vu, D. Boone and D. Gilbert	37
Alloying Effects of Co-Sputtered Gold-Platinum Thin Films on the Oxygen Reduction Reaction in Acidic Electrolyte <i>B. Brown, S. D. Wolter, B. R. Stoner and J. Glass</i>	49
Study on Synthesizing a Novel Sn/MC Composite as Anode Material in Lithium- ion Battery <i>H. Wang, Z. Yan, Q. Li, J. Yang and Y. Huang</i>	67
Multifunctional Properties of Structural Gel Electrolytes P. T. Nguyen and J. Snyder	73
Complex Structures and Electrochemical Properties of Magnesium Electrolytes Y. Nakayama, Y. Kudo, H. Oki, K. Yamamoto, Y. Kitajima and K. Noda	85
Activity and Durability of PtRuP Catalysts and Their Atomic Structures H. Daimon, T. Onodera, Y. Honda, H. Nitani, S. Seino, T. Nakagawa and T. A. Yamamoto	93

Compositions and Properties of Pyrochlore-Type Oxides for Air Electrode in Secondary Cells <i>K. Koga, T. Momai and M. Matsunaga</i>	101
Electrochemical Activation of Raney Nickel Air Electrodes M. Villa, E. Verardi, P. Salvi, P. Nelli and G. Zangari	105
Microbial Fuel Cells for Wastewater Treatment R. P. Ramasamy, Z. Ren, M. M. Mench and J. Regan	115
AC Impedance Spectroscopy Measured on Different Precious Metals-Electrolyte Interfaces Used for Methanol Fuel Cells by Mean of Two Theoretical Models <i>O. Rosas</i>	127
Simulation of a Parallel Plate Electrochemical Reactor Used to Remove Cr(VI)via Electrocoagulation Method <i>L. Cai and R. White</i>	151
The Safe and Economic Revival of Alkaline Hydrogen/Air Fuel Cells with Circulating Electrolytes, Recommended for Vehicles Using Battery Hybrid Systems and H2 from Ammonia Crackers <i>K. Kordesch, V. Hacker, K. Reichmann, M. Cifrain, T. Hejze and R. R. Aronsson</i>	167
Chemistry of the Fe6+/B2- Super-iron Boride Battery: An Overview of Primary Alkaline Fe6+ Cathodic Charge Storage Including the New B2- Anode <i>S. Licht</i>	187
Optimal Capacitive Load Matching of Micro Electret Power Generators W. Li, H. Lo and Y. Tai	215

ŀ	\u1	thor	Inc	lex

223