
Physical and Analytical Electrochemistry (General) – 215th ECS Meeting

Editor:

P. Trulove

U.S. Naval Academy
Annapolis, Maryland, USA

Sponsoring Division:



Physical and Analytical Electrochemistry



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. 19 No. 32

Copyright 2009 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)

Printed in the United States of America.

Table of Contents

Preface *iii*

Chapter 1 Power and Energy

Hydrothermal Processed TiO₂ Nanoparticles for Optimization in Dye-Sensitized Solar Cells Using Statistical Experimental Strategies 3
C. Yang and S. Liao

Chapter 2 Physical Electrochemistry

EIS Analysis of the Triple Phase Boundary Model 23
A. Dhanda, R. O'Hayre and H. Pitsch

A Simple Alternative to the Expression of Finite Warburg Diffusion Impedance in Porous Electrodes by Considering Oxygen Consumption Along the Air Channel 33
J. Mainka, G. Maranzana, J. Dillet, S. Didierjean and O. Lottin

The Apparent Capacitance of the Electrode "Charging" Process 47
M. Villa, P. Nelli, P. Salvi, Y. Kiros and G. Zangari

Chapter 3 Physical and Analytical Electrochemistry Poster Session

Electrodeposition of Heavy Metals (Cu; Ni; Zn and Cd) from Industrial Effluents 63
Y. Addi, P. Duverneuil and A. Khouider

Electrochemical Impedance Spectroscopy (EIS) Used as a Diagnostic Tool of Oxygen Sensors for Molten Lead - Bismuth Eutectic Alloy (44.5% Pb - 55.5% Bi) 69
S. Colominas, A. Verdaguer and J. Abella

Effect of Bending Energy on the Self-Spreading Lipid Bilayer 79
H. Nabika, T. Yamamoto and K. Murakoshi

Application of TiO ₂ Modified Boron Doped Diamond (BDD) Electrode for As(III) Determination in Natural Waters	87
<i>R. Zlatev, M. Stoytcheva, J. Magnin, B. Valdez, M. Argüelles and J. Valera</i>	

Chapter 4 Electroanalytical Chemistry

Tuning the Formal Potential of Metallomacrocyclics for Maximum Catalytic Activity For the Oxidation of Thiols and Hydrazine	97
<i>G. Ochoa, D. Geraldo, C. Linares, T. Nyokong, F. Bedioui and J. H. Zagal</i>	

Electrochemistry of Scorpionates Complexes - Towards an Electrochemical Molecular Switch	113
<i>J. Vachon, M. Mayoral, D. Ayme-Perrot and S. B. Schougaard</i>	

Chapter 5 Spectroscopy and Applications

Diffusivity of Oxygen in Molten Lead - Bismuth Eutectic Alloy (44.5% Pb - 55.5% Bi)	123
<i>A. Verdguer, S. Colominas and J. Abella</i>	

Effect of Temperature on Oxygen Solubility in Molten Pb - Bi Eutectic Alloy (44.5% Pb - 55.5% Bi)	131
<i>A. Verdguer, S. Colominas and J. Abella</i>	

Author Index	139
--------------	-----