
Nanotechnology (General) – 216th ECS Meeting

Editors:

C. Bock

National Research Council of Canada
Ottawa, Ontario, Canada

J. Li

NASA Ames Research Center
Mountain View, California, USA

E. Traversa

National Institute for Materials Science
Tsukuba, Ibaraki, Japan

Sponsoring Divisions:

 **All Divisions**



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. 25 No. 24

Copyright 2010 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 978-1-56677-797-1 (PDF)
ISBN 978-1-60768-147-2 (Softcover)

Printed in the United States of America.

Table of Contents

<i>Preface</i>	<i>iii</i>
Chapter 1 Synthesis	
Self-Organized Crystal Growth of Nanostructured ZnO Morphologies by Hydrothermal Synthesis <i>K. Foe, P. Boland Jr., G. Namkoong, D. Gu, H. Baumgart and T. M. Abdel-Fattah</i>	3
Nanostructured Ni/n-Al ₂ O ₃ Metal Matrix Composites Prepared by Pulsed Electrodeposition <i>H. Natter, A. Jung, E. Lach and R. Hempelmann</i>	9
Electrochemical Response and Surface Morphology of Metal Nanoparticles by Pulsed Laser Deposition <i>T. Ito, S. Kaneko, Y. Hirabayashi, M. Soga and K. Suzuki</i>	19
Charged Metal Nanoparticle Monolayers on Semiconductor Substrates <i>K. Bhatt and A. Kalkan</i>	27
Composite Solid Electrolytes with Mesoporous Oxide Additives <i>N. F. Uvarov, B. B. Bokhonov, A. S. Ulihin, M. Sharafutdinov and S. D. Kirik</i>	35
Coating Technologies and Coating Plant Concepts for Thin Film Liquid Coating Layers for Conductive Films <i>A. Glawe and M. Graf zu Eulenburg</i>	41
Chapter 2 Carbon Nanotubes	
Synthesis of Nickel-Carbon Nanohorn Composite Films by an Electrodeposition Technique <i>L. Magagnin, P. Cojocar, D. Dietrich and T. Lampke</i>	51

Chapter 3
Poster Session - General Nanotechnology

Blue Shift of Photoluminescence Spectrum of Porous InP <i>Y. Suchikova, V. Kidalov and G. Sukach</i>	59
Novel Nano- and Micro-Processing by Photoactivation of Methylene Iodide Precursor <i>A. Rashid, L. Landström and K. Pigmayer</i>	65
Preparation of Dendrimer-Like Gold Nanoparticles by Electrochemical Method <i>P. Chiu, C. Huang, C. Yang, T. Meen and Y. Wang</i>	73
Electrochemical and Microstructural Studies in Reinforced Mortar, Modified with Core-Shell Micelles <i>D. Koleva, K. van Breugel, N. Boshkov, J. Mol and H. de Wit</i>	79
Oxidation Behaviors of SiGe Nanowire Arrays Fabricated by Au-Assisted Wet Chemical Etching <i>C. Lai, J. Lin, S. Cheng and S. Lee</i>	87

Chapter 4
Devices

Magnetic and Catalytic Properties of Electroless Nickel, Ni-P and Ni-P-Re Thin Films <i>T. N. Khoperia, T. I. Zedginidze and T. Gegechkori</i>	97
---	----

Chapter 5
Nano-structures

Effect of Relaxation Time on Dis-Continuous Passivation Film <i>H. Nanjo, K. Sajiki, N. Hoshi, F. M. B. Hassan, S. Venkatachalam, M. Kanakubo, T. Aida, Y. Suzuki and J. Onagawa</i>	113
---	-----

Chapter 6
Photo-catalytic

Photo-Electrochemical Reduction of Carbon Dioxide on the Self-organized TiO ₂ Nanotube Layers <i>C. Lin, S. Liu, Y. Chen, H. Li, J. Lin, S. Lee, G. Lerondel and Y. Chen</i>	123
--	-----

Chapter 7
Luminescence

Electrochemiluminescence and Charge Transport Properties of Metallopolymer-Gold Nanocomposites	137
--	-----

A. Devadoss, C. Dickinson, T. E. Keyes and R. J. Forster

Chapter 8
Characterization

Effect of Deposition Time and Current Density on Kinetic Roughening of Electrodeposited Pt Thin Films	155
---	-----

G. Nabiyouni

Chapter 9
Pt Catalysts

Towards a Multiscale Modeling Methodology for the Prediction of the Electro-Activity of PEM Fuel Cell Catalysts	167
---	-----

R. Ferreira de Morais, D. Loffreda, P. Sautet and A. A. Franco

Extreme Ultraviolet Interference Lithography for Generation of Platinum Nanoparticles on Glassy Carbon	175
--	-----

A. Savouchkina, A. Foelske-Schmitz, R. Kötz, A. Wokaun, G. Scherer, C. Padeste, J. Ziegler, V. Auzelyte and H. Solak

Author Index	185
--------------	-----