
Electrodeposition Fundamentals and New Materials (General) – 222nd ECS Meeting/PriME 2012: Dieter M. Kolb Memorial Symposium

Editors:

E. J. Podlaha-Murphy
Northeastern University
Boston, Massachusetts, USA

S. Djokic
Elchem Consulting Ltd.
Edmonton, Alberta, Canada

L. Magagnin
Politecnico di Milano
Milano, Italy

G. Zangari
University of Virginia
Charlottesville, Virginia, USA

Sponsoring Division:



Electrodeposition



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. 50, No. 52

Copyright 2013 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 978-1-62332-088-1 (Softcover)
ISBN 978-1-60768-440-4 (PDF)

Printed in the United States of America.

ECS Transactions, Volume 50, Issue 52
Electrodeposition General Session: Fundamentals and New Materials –
Dieter M. Kolb Memorial Symposium

Table of Contents

Preface *iii*

Chapter 1
Session I

On the Structure of the Helmholtz Layer and its Implications on Electrode Kinetics 3
H. J. Lewerenz

Chapter 2
Session II: UPD and Adsorption

Characterisation of the Deposition of n-octanohydroxamate on Copper Surfaces 23
G. K. Parker, S. A. Holt, G. A. Hope

EC-STM Study of Two-Dimensional Complex Adlayer Directly Formed on Au(111) 35
S. Yoshimoto, K. Nishiyama

Chapter 3
Session III: Thin Film Electrodeposition

Surface Morphology and Stress in Electrodeposited Copper Nanofilms 43
M. O'Grady, C. Lenihan, D. N. Buckley

Effects of Sonication on Electrodeposited Nickel-based Carbon Nanotube Composites Coatings 55
T. Suzuki, M. Kato

Application of Artificial Neural Networks to Predict Chemical Composition of Electrodeposited Nanocrystalline Ni-Mo Thin Films	63
<i>M. H. Allahyarzadeh, A. Ashrafi, T. Shahrabi, A. Seddighian, M. Aliofkhazraei, A. Sabour Rouhaghdam</i>	

Chapter 4
Session IV: Deposition

Influence of Glycine as Additive on Cobalt Electrodeposition	75
<i>R. A. J. Critelli, P. T. A. Sumodjo</i>	
Mechanistic Studies of Zinc Electrodeposition from Deep Eutectic Electrolytes	83
<i>L. Vieira, A. Whitehead, B. Gollas</i>	
Study of the Copper Electrodeposition Mechanism on Molybdenum Substrate	95
<i>E. Delbos, H. El Belghiti, D. Mercier, J. Vigneron, M. Bouttemy, A. Etcheberry</i>	
Crystal Orientation of Iron Produced by Electrodeoxidation of Hematite Particles	103
<i>M. Tokushige, O. E. Kongstein, G. M. Haarberg</i>	

Chapter 5
Poster Session

Fabrication of Low CTE Metal Masks by the Invar Fe-Ni Alloy Electroforming Process for Large and Fine Pitch OLED Displays	117
<i>T. Nagayama, T. Yamamoto, T. Nakamura, Y. Mizutani</i>	
The Electrodeposition of Zinc-Bismuth Alloys	123
<i>B. Gollas, A. Luegger, J. Zidar</i>	
Electrochemical Assembly of Ruthenium Complexes during the Multilayering Process of MnO ₂	135
<i>K. Tomono, R. Yamaguchi, M. Nakayama</i>	
AFM Analysis for Initial Stage of Electroless Displacement Deposition of Silver on Silicon Surface	143
<i>T. Ego, T. Hagihara, Y. Morii, N. Fukumuro, S. Yae, H. Matsuda</i>	

Electrochemical Formation of Functional Silver Coatings: Nanostructural Peculiarities <i>O. Bersirova, V. Kublanovsky, H. Cesiulis</i>	155
High Temperature Hardness of Electrodeposited Nickel-based Carbon Nanotube Composite Coatings <i>T. Suzuki, M. Kato, T. Matsuda, S. Kobayashi</i>	165
Author Index	171