
XXXVI Congress SMEQ/14th meeting of the ECS Mexico Section

Editors:

B. A. Frontana-Uribe

R. Orozco Cruz

P. Balderas Hernández

F. Estupiñán López

J. Á. Cabral Miramontes

J. L. Nava



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. 106, No. 1

Copyright 2022 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 978-1-60768-936-2 (PDF)

Printed in the United States of America.

Table of Contents

<i>Preface</i>	<i>iii</i>
Mathematical Analysis of Cyclic and Sampled Current Voltammetries for the Description of Nucleation and Growth Processes of Metallic Nanoparticles <i>A. Santiago Carboney, D. A. Crespo-Yapur, M. Videa</i>	3
Electrochemical Sensors in the Determination of Biochemical Oxygen Demand. A Revision of the Last Decade <i>J. Aguilar-Torreon, P. Balderas Hernández, G. Roa-Morales, C. Barrera-Diaz</i>	15
Electrochemical Determination of Pb(II) Using Carbon Paste Electrodes Modified with Ion Imprinted Polymers (IIPs) <i>L. E. Rebolledo, G. A. Álvarez Romero, I. S. Ibarra-Ortega, C. A. Galan-Vidal, I. Pérez-Silva</i>	21
Glucose Determination Using Non-Enzymatic Sensors Based on Fe ₂ O ₃ Nanoparticles <i>D. Hernández Ramírez, G. A. Álvarez Romero, L. H. Mendoza Huizar, C. A. Galan-Vidal, G. Y. Aguilar-Lira</i>	33
Characterization By Modified Cyclic Biomass Voltammetry for the Reduction of Chromium in Solution with Carbon Paste Electrodes <i>B. Jiménez Pineda, P. Balderas-Hernández, G. R. Morales, J. C. Olivares, C. E. Barrera Diaz</i>	47
Homogeneous Charge Transfer Between Reduced Intermediate of Anthraquinones and Dioxygen in Acetonitrile <i>G. Rocha-Ortiz, M. E. Tessensohn, M. Salas-Reyes, R. Flores-Moreno, R. Webster, P. D. Astudillo-Sánchez</i>	55
Effect of the pH on the Corrosion Behaviour for a Ni _{59.5} Nb _{40.5} Binary Metallic Glass <i>A. Espinoza Vazquez, A. Soriano Carranza, I. A. Figueroa Vargas, F. Rodriguez</i>	63

API 5L X52 Steel Corrosion Inhibition in 3% NaCl Saturated with CO ₂ By Bis Triazole Carbohydrate	71
<i>A. Espinoza Vazquez, A. Mena, F. Rodríguez, B. I. Vergara Arenas, G. E. Negrón Silva, L. Lomas Romero, R. Orozco Cruz, R. Galván Martínez</i>	
Electrochemical Characterization of Titanium Alloy Anodized	79
<i>J. Jáquez-Muñoz, C. Gaona Tiburcio, J. Á. Cabral Miramontes, F. Estupiñán López, M. Lara-Banda, F. Almeraya Calderon</i>	
Corrosion Inhibition Efficiency Using Mg / Al Hydrotalcite Impregnated with 2-Mercaptoimidazole on API 5L X70 in HCl 1M	85
<i>A. Espinoza Vazquez, J. D. Docal, F. Rodríguez, D. Angeles Beltrán, R. Orozco Cruz</i>	
Simulations of Galvanostatic Electrodeposition of Metallic Nanoparticles Under Diffusion Control	95
<i>R. Garcia, D. A. Crespo-Yapur, M. Videa</i>	
Synthesis and Characterization of Silver Nanowires for Developing a Prismatic Zinc-Silver Oxide Battery	109
<i>H. Segura, A. Romero-Ortiz, A. G. Gonzalez-Gutierrez, N. Casillas</i>	
Microhardness, Resistivity and Tribological Properties of Coatings Based on Hf/Hf _n Bilayers Deposited By Sputtering	119
<i>J. B. González, J. Hernández Torres, N. Flores-Ramírez, R. Orozco Cruz, J. Hernandez, J. Beltrán Vela, L. García González</i>	
Electric Percolation of Mortars with Additions of Carbon Fiber and Graphite Powders	127
<i>C. A. Espinoza Moreno, C. P. P. Barrios-Durstewitz, M. J. Pellegrini-Cervantes, R. E. Núñez Jaquez, M. Rodríguez-Rodríguez</i>	
Study of Bimetal Electrocatalysts Supported on Graphene Oxide for the Electrooxidation of Formic Acid in Acid Medium	135
<i>V. A. Medina, M. G. Montes de Oca Yemha, M. A. Romero Romo, M. E. Palomar Pardave, E. M. Arce-Estrada</i>	
Wear Resistance of WC-Co Bimodal Coatings Manufactured By HVOF With Different Types of Flames as an Alternative to Hexavalent Chromium for Landing Gears	151
<i>J. C. Sn miguel Castro, M. Lara-Banda, F. H. Estupiñán Lopez, C. G. Tiburcio, F. Almeraya Calderon, J. Á. Cabral Miramontes</i>	

Hardness and Friction Coefficient Analysis of Electrochemically Anodized Ti-6Al-4V <i>R. C. Rodríguez Jiménez, J. Hernández Torres, R. Galván Martínez, L. Zamora Peredo, L. García González</i>	163
Analysis of the Morphology, Structure and Hardness of TiO ₂ Anodized with HCl and the Incorporation of K ₂ Cr ₂ O ₇ in the Solution <i>S. Hernández Montiel, L. García González, J. Hernández Torres, L. Zamora Peredo, C. Ferreira Palma, R. Orozco Cruz</i>	171
Electrochemical Study of Metallic Rhenium in Methanol Acidic Aqueous Solutions <i>G. Orozco, J. Rivera</i>	181
Development of an Application in Python Language to Simulate Cyclic Voltammograms with Multiple Reaction Mechanisms. <i>F. J. Rodríguez-Valenzuela, O. A. González-Meza, A. G. González Gutiérrez, M. Bárcena-Soto, R. Larios-Durán, N. Casillas</i>	195
Obtaining Hematite Nanoflakes Substrates By Electrochemical Anodization of Iron Foil and Heat Treatment <i>L. M. C. Pérez Pérez, J. Hernández Torres, L. Zamora Peredo, L. García González, M. García Hipólito, C. Falcony Guajardo, P. E. Cardoso Avila, O. Velázquez Camilo, A. Báez Rodríguez</i>	203
Numerical Simulation of the Electrosynthesis of Br ₂ from a Highly Concentrated KBr Solution <i>X. Ocampo-Lazcarro, A. G. González Gutiérrez, A. S. Rosales, A. P. Hernández, N. Casillas</i>	211
Electrochemical Evaluation of 15-5PH Stainless Steel Passivated in Citric Acid. <i>B. Martínez, C. Gaona Tiburcio, D. Bastidas, M. Lara-Banda, O. Samaniego, F. Almeraya Calderon</i>	223
Application of Gel Electrolytes to Validate Transient Models of Galvanic Corrosion Phenomenon <i>A. Ruiz, V. Esquivel-Peña, J. Genesca, R. Montoya</i>	229
Author Index	235