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Meeting Abstracts — MA 2010-01

217th ECS Meeting
April 25-30, 2010 — Vancouver, Canada

Table of Contents

A1 - General Student Poster Session

All Divisions

13 The Effect of the Oxygen-Containing Functional Groups on the Electrochemical Reduction of Oxygen of Multi-Walled Carbon Nanotubes in Acid Media
K. Matsubara and K. Waki

14 Studies of Formic Acid Oxidation at Pd Electrodes Surface Modified with Pb or Sb
J. Sun and D. Harrington

15 Towards a Printable Battery Package: Robocast Deposition of Indium Materials for Battery Packaging
A. Cook, E. Branson, K. Fenton, C. Stewart, P. Clem and C. Apblett

16 DNA-Directed Assembly of Enzymes and Nanomaterials: Small Laccase - Carbon Nanotube Supramolecular Assemblies
S. Brocato, C. Lau, E. Chi, M. Werner-Washburne, P. Atanassov, G. Szilvay, C. Li and S. Banta

17 Charge Transfer and Conductivity Measurements of Lithium Titanate at Low Temperatures
S. Rickman, B. Deveney and K. Nechev

18 Dissolution Rate of Pt Catalyst by Using EQCM Flow Cell and ICP-MS Analysis
S. Kim and J. Meyers

19 Electroreduction of Carbon Dioxide on Modified p-Si(111)
C. Désilets, M. Morin, D. Bélanger and G. Brisard

20 Electrochemical Studies of Cs, CsO and CsI Layers Prepared in Ultra High Vacuum
J. Drnec and D. Harrington

21 Effect of Sulfur and Oxygen Inclusion on Magnetic Properties of Electrodeposited CoFe Nanowires
A. Kola and D. Davis

22 Study of Electrochemical Performance of Different Nanocomposite Electrolytes for Bioethanol Based Fuel Cell
S. Imran, R. Raza and B. Zhu

23 Surface Morphology Effects of Nitrogen Doped Carbon Nanotubes on Specific Capacitance for Electrochemical Capacitor Applications
R. Hsu, Z. Chen, D. Higgins, H. Tao and Z. Chen

24 Effect of Ball-Milling on Physical and Electrochemical Properties of Lead Dioxide: Effect of Addition of Sodium Chloride on the Specific Surface Area
C. Hamel, K. Armstrong, T. Brousse, D. Bélanger and D. Guay

25 Graphene/Manganese Oxide Composites for Supercapacitor
S. Sy, A. Yu and Z. Chen

26 Spectroelectrochemical Studies of Liposome Adsorption on Au(111)
A. Musgrove and D. Bizzotto

27 Complete Glycerol Oxidation: Development of a Hybrid Enzymatic-Metallic Biofuel Cell
A. Falase, C. Lau, P. Atanassov, R. Arechederra, Z. Zulic and S. Minteer

28 Incorporating *Shewanella Onedensis* MR-1 in Silica Films Derived by Chemical Vapor Deposition
J. Roy, C. Lau, L. Ista, P. Atanassov, H. Luckarift and G. Johnson

29 Nitrogen Doped Carbon Nanotubes Based Nonprecious Metal Electrocatalysts for Oxygen Reduction Reaction at Alkaline Fuel Cell Cathode
Z. Chen and Z. Chen

30 Reversible Potentials for O(ads) Formation from OH(ads) on Pt (111) for Different OH and H_2O Coverages
F. Tian and A. Anderson

31 Diagnostic Methods of Solar Cell Based on Temperature Dependence
J. Dolensky, A. Vesely, J. Vanek and J. Hrozek

32 Novel Synthesis Methods and Post-Synthetic Treatments for the Preparation of $Ni_xMn_xCo_{1-2x}(OH)_2$
I. Rodrigues, J. Wontcheu and D. MacNeil

33 Stability and Degradation Mechanism of La_2O_3 Metal-Insulator-Metal Capacitors under Constant Voltage Stress
S. Wu, C. Deng, T. Hou and B. Chiou

34 Effect of Annealing on Dielectric Properties of Boron Carbo Nitride Thin Films Prepared by Reactive Sputtering
V. Todi, K. Sundaram, K. Coffey and S. King

35 A 1D Model for the Chemical Degradation of Nafion: Impact of Microstructure Modification on Cell Potential
R. Coulon, W. Bessler and A. Franco

36 Electrochemical Evaluations of KOH-Silicate Based Magnesium Anodic Coatings
L. Liu and C. Lin

37 The I-V Characteristics and Optical Properties of Hydrogenated Amorphous Silicon Germanium p-i-n Solar Cells
W. Son, J. Kim, J. Shin and S. Choi

38 Improvement of Drift Characteristic to Continuously Measure Al_2O_3 pH-ISFET with the Protective Structure
S. Lee and S. Choi

39 Dependence of Memory Margin on Interface Trap Density in the Cap-Less Memory Cell
T. Kim, C. Lee, S. Kim, T. Shim and J. Park

40 Influence of Doping on Electroless Ni Deposition in Single Crystalline Si
D. Lee, D. Kim and B. Yoo

41 Effect of Operating Temperature on Memory Margin of Cap-Less Memory Cell
S. Kim, J. Oh, K. Choi, M. Shin, T. Kim, T. Shim and J. Park

42 Electrochemical and Surface Characterization of Au Nanoparticle/Multiwalled Carbon Nanotube Composites
N. Alexeyeva, J. Kozlova, V. Sammelselg, P. Ritslaid, H. Mändar and K. Tammeveski

43 Effect of Ultraviolet-Ozone Treatment of Indium-Tin-Oxide on Hole Injection Efficiency of OLEDs
I. Lee, K. Hong, K. Kim, S. Kim and J. Lee

44 Development of PBI Electrodes for High Temperature Fuel Cells
H. Lee, H. Kim, H. Kim, D. Lee, J. Jang and T. Lim

45 Antibacterial Effects of Silver and Cerium Containing on Medical Stainless Steel
K. Ou, P. Peng, H. Lin and Y. Pan

46 Effects of Ethanolamine Aqueous Solutions on Dissolution of Copper Surface
C. Ko and W. Lee

47 A Study of Properties of F^- Removal in Dilute Solutions Using Mesoporous Carbon Electrodes
M. Hamada, S. Yoshida, K. Nakagawa and H. Oda

48 Cubic ZrO_2 as Charge-Trapping Layer for Nonvolatile Memory Application
Y. Hu, L. Chen, J. Wu, M. Wu, C. Chang and Y. Wu

49 Ab Initio of Nb Oxides as Support Materials for Pt Catalyst
L. Wang, K. Malek and M. Eikerling

50 A Copper Electrodeposition Technique for Through-Hole Filling
C. Lu and W. Dow

51 Sterilization Characteristics of Atmospheric Pressure Plasma Torch for Medical Applications
T. Kim, J. Yim, C. Jeong and W. Lee

52 Cavitation Behavior and Electrochemical Characteristics with Spray Distance of Al-Zn-Zr Alloy Thermal Spray Coating
S. Kim and S. Lee

53 Electrodeposition of Cu-Sn Alloy in Zinc Chloride-1-Ethyl-3-Methylimidazolium Chloride Ionic Liquids
Y. Hsieh, C. Tai and I. Sun

54 Chemical Bath Deposition of ZnO Buffer Layer for $Cu(In,Ga)Se_2$ Solar Cells
Y. Kusano, J. Sasano, T. Shinagawa, S. Ishizuka, S. Niki and M. Izaki

55 Effects of Atmospheric Pressure DBD Plasma on Reaction Between Carbon Dioxide and Methane
T. Kim, H. Son and W. Lee

78 Electrochemical Detection of Hydroxylamine Based on Gold Nanoparticles Patterned Single-Walled Carbon Nanotube Films
M. Bui, X. Pham, K. Han, C. Lee and G. Seong

79 Electrochemical Oxidation of Ammonia on Platinum Electrodeposited onto Pyrolitic Graphite
S. Le Vot, D. Reyter, L. Roué and D. Bélanger

80 Electrochemical Response of a High Temperature SOFC Fueled by PH_3 Containing Coal Syngas
K. De Silva, B. Kaseman and D. Bayless

81 Enhancement of ORR by Electrodeposited CoFePt Multilayered Alloys
A. Avekians and E. Podlaha

82 The Gas- and Photon-Sensing Properties of Fluorinated SnO_2 Nanowire Based Sensors
Y. Lin and H. Shih

A2 - Nanotechnology General Session

All Divisions

83 Synthesis of Nitrogen-Doped ZnO Particles by the Addition of Ammonium Borate Salts
P. Nandakumar and J. Villadares

84 Functionalized Carbon Nanotube Based Gas Sensors: Effects of Heat and Vacuum Treatment
E. Contés

85 Electrochemical Preparation of Bulk Pt/Carbon Nano-Onions for Fuel Cell Application
D. Santiago, A. Palkar, L. Echegoyen and C. Cabrera

86 Semiconducting Nanowires Deposited by a Template Approach: Towards Nanowire Electronic Devices
E. Matei, I. Enculescu, R. Neumann, S. Granville and J. Ansermet

87 Synthesis of Nanostructured Transparent Cu_xS Thin Films by Continuous Flow Reactor Process
S. Hwang, J. Jung, S. Han, C. Chang and S. Ryu

88 Electrical and Gas Sensing Properties of Zinc Oxide Nanorod Prepared by Microemulsion Method
D. Chang, K. Kim, S. Lim, H. Choi and S. Hong

89 Preparation and Characterization of Ga Doped ZnO Thin Films by Nitrogen Implantation
J. Kim, Y. Kim, J. Lee, S. Lee and K. An

90 Formation of Ni-Silicide Nanowires on Silicon-on-Insulator Substrates by Atomic Force Microscope Lithography
H. Hsu and T. Chen

91 Promotion of Power Generation in N719 Dye Sensitized Solar Cells Made by Dye Adsorption with a High-Temperature Dye Solution
F. Hirose, M. Shikaku, Y. Kimura and M. Niwano

92 Properties of Porous n-InP (100) Obtained by Electrochemical Method
J. Suchikova, V. Kidalov and G. Sukach

93 Photocatalytic Oxidation of Gaseous Styrene by Using Carbon-Doped TiO_2 Film in the Reactor with Optical Fibers
M. Kim, G. Liu and B. Kim

94 Redox Catalysis Applied to Chemical Modification of Carbon Surfaces with Methyl Groups by Using Ferrocene Derivatives
L. Hernandez-Muñoz, C. Vázquez-López, P. Astudillo, R. Fragoso, E. Klimova, L. Ortiz-Frade and F. González

95 Asymmetric and Symmetric Dipole-Dipole Interactions Drive Distinct Aggregation and Emission Behavior of Intramolecular Charge-Transfer Molecules
Y. Li, J. Xu, H. Liu and Y. Li

96 Controllable Growth Zero to Multidimensional Nanostructures of a Novel Porphyrin Molecule
C. Huang, Y. Li, H. Liu and Y. Li

119 Effect of Nanofillers on the Interfacial Properties of Structural Adhesive Bonds
J. Wernik and S. Meguid

120 Electrodeposition of Polypyrrole-Biotin Films by Square Wave Cyclic Voltammetry
N. Pham, A. Tavares and L. Dao

121 Artificial Lotus Structure with Hierarchical Silica Particles in Transparent Self-Clean Surface Modifications
L. Liu, C. Lin and P. Chen

122 Dependence of Photoelectrochemical Properties of LDH Nanosheet/CdS Nanoparticle Multilayer Films on Their Stacked Structure
T. Kameyama, K. Okazaki and T. Torimoto

123 A New Electroless Technique for the Deposition of Ag Nanoparticles on SiN_x:H Dielectric Layers
T. Nychyporuk, Z. Zhan, A. Fave, M. Lemiti and S. Bastide

124 AMOSFETs Fabricated on Grow-in-Place SiNWs
P. Garg, J. Wu and S. Fonash

125 High Performance Si Nanowire P-MOSFETs
K. Trivedi, H. Yuk, C. Floresca, W. Hu and M. Kim

126 Effects of Quantum Confinement on Interrelation Between DOS Spectrum and C(V) Dependence of Si Nanowire-Based MOS Structure
V. Ligatchev and S. Chin

127 Facile Preparation and Characterizations of Potential Low-Cost Nanostructured Materials for Hydrogen Storage
H. Misran, A. Aminuddin, F. Mohd Zini and R. Singh

128 Effects of Metallic Nanocrystal Species on the Programmable Memory Characteristics in Nonvolatile Nano-Floating Gate Memory Devices
Y. Park, H. Jung and J. Lee

129 Shape and Surface Structure Effects on Photocatalysis of TiO_2 Nanocrystals
N. Wu and J. Wang

130 Fabrication of TiO_2 Nanorod Arrays on a Quartz Substrate Using Anode Oxidation
H. Lin, Y. Chang and C. Chen

131 Self-Organized Titanium Oxide Nanotubes Prepared in Phosphate Electrolytes: Effect of Applied Voltage and Fluorine Concentration
S. Mahshid, A. Dolati, M. Goodarzi and M. Askari

132 Fabrication and Characterization of Metal-Doped ZnO Nanorods Based Field Effect Transistors
Y. Park, J. Kim, D. Kim, C. Choi and Y. Hahn

133 Influence of the Nitrate Precursors Concentrations on the Growth and Optical Properties of Electrodeposited ZnO Nanowires
M. Khajavi and D. Blackwood

134 Investigation on Growth of High Density, Highly Vertically Oriented 1D ZnO Nanostructures with High Aspect Ratio by Solely Electrochemical Steps
M. Khajavi and D. Blackwood

135 Template-Free Electrochemical Growth Zinc and Zinc Oxide Nanostructures below Room Temperature
D. Pradhan, S. Sindhwani and K. Leung

B1 - Batteries and Energy Technology Joint General Session

Battery / Energy Technology

136 Overpotential- and Size-Dependent Phase Transition Behavior of Nanoscale Olivines
M. Tang, Y. Kao, N. Meethong, J. Belak, W. Carter and Y. Chiang

137 Studies of the Performance of $LiNi_{1/3}Mn_{1/3}Co_{1/3}O_2$ Electrodes and Aluminum Current Collectors for Advanced Lithium-Ion Batteries
F. Amalraj, H. Sclar, D. Kovacheva, E. Zhecheva, R. Stoyanova, R. Lavi, O. Girshevitz, J. Grinblat, B. Markovsky and D. Aurbach

138 Synthesis and Performance of High Tap Density $LiFePO_4$ Cathode Materials Doped with Copper Ions
Z. Chang, H. Lv, H. Tang, X. Yuan and H. Wang

139 High Power Lithium-Ion Batteries Employing Porous Al Current-Collector with Conformal Carbon Coating
H. Wu, H. Wu and N. Wu

140 Effects of Impurities on the Cycling Performance of $LiFePO_4$ Cathode Materials
S. Wu, M. Chen and J. Shiu

141 $LiMn_{2-x}Co_xO_4$ Cathode Material for Li-Ion Rechargeable Batteries
R. Singhal, K. Asmar, R. Katiyar and A. Manivannan

142 Gas Evolution of Overlithiated Li_2NiO_2 as Cathode Active Material for Li-Ion Rechargeable Batteries and Al_2O_3 Coating to Suppress the Gas Evolution
C. Back, I. Yoon, W. Choi, J. Kim, J. Lee, J. Ryu, Y. Kim, J. Moon, S. Park and G. Kim

143 Investigation of Lithium Insertion/Extraction Induced Morphology Changes in Micro-Machined Specimens of Li-Ion Battery Cathode Material
S. Kalnaus, J. Park, M. Park, C. Daniel, A. Sastry and N. Dudney

144 Studies on $LiFePO_4$ as Cathode Materials in Lithium-Ion-Batteries
T. Chrobak, M. Ender, J. Illig, J. Schmidt, D. Klotz and E. Ivers-Tiffée

145 Mixed Metal $LiFe_{1-x}Mn_xPO_4$/C Olivine Composites Prepared by a Simple Nonaqueous Sol-Gel Route
T. Jones, J. Forrester and S. Donne

146 Electrochemical Synthesis and Characterization of Dual-Templated, Mesoporous Vanadium Oxide Nanomaterials for Lithium-Ion Cathodes
T. Gabriel, M. Armstrong, N. Petkov, C. O'Dwyer and J. Holmes

147 $LiMn_{0.8}Fe_{0.2}PO_4$ as a Promising Cathode Material for Rechargeable Lithium-Ion Batteries
S. Martha, J. Grinblat, O. Haik, E. Zinigrad, T. Drezen, J. Miners, I. Exnar, A. Kay, B. Markovsky and D. Aurbach

148 The Origin of Charge-Discharge Hysteresis in Insertion Li-Ion Cathodes
W. Dreyer, J. Jamnik, C. Guhlke, R. Huth, J. Moškon and M. Gaberšček

149 In Situ X-Ray Absorption Spectroscopy of the Oxygen K-Edge in a Lithiated Transition Metal Oxide Battery
C. Petersburg, R. Daniel, F. Alamgir, C. Jaye and D. Fischer

150 Improved Cyclic Performance of $LiNi_{0.5}Mn_{1.5}O_4$ Cathode Material by Particle Size Reduction
C. Lin and J. Duh

151 Fabrication and Characterization of Nanostructured Manganese Oxide Electrodes for Electrochemical Energy Storage Devices
K. Walz, C. Ban and A. Dillon

152 Thin Film Ru Oxide/Carbon Fabric Composites for Supercapacitors
X. Liu and P. Pickup

153 Enhancement of Capacitive Behavior of Manganese Oxide Electrodes Through Microstructural Changes
B. Babakhani and D. Ivey

154 The Effect of Applied Force on the Performance Characteristics of a Supercapacitor
G. Gourdin, P. Smith, T. Jing and D. Qu

155 Synthesis of Birnessite Type MnO_2 Nanotubes and Their Application in Aqueous Supercapacitors
A. Roberts and R. Slade

156 Electrodeposited Manganese Oxides for Supercapacitors
A. Cross, T. Hollenkamp and S. Donne

180 The Use of Water Crossover Data for Parameter Estimation in Polymer Electrolyte Membrane Fuel Cells
T. Yau, P. Sauriol, X. Bi and J. Stumper

181 Electrochemical Pretreatment Procedures for DMFC Pt-Ru Catalysts
R. Kothandaraman, C. Bock and B. MacDougall

182 Parametric Studies of the Direct Alcohol Phosphoric Acid Fuel Cell
S. Fan, D. Wilkinson and H. Wang

183 Novel Method of Preparation for Ni-Rich Cathode Material of $LiNi_{0.8}Co_{0.15}Al_{0.05}O_2$
S. Yoon, C. Lee, I. Hwang, Y. Park, J. Lee and J. Song

184 Electrochemical Performance of Carbon Coated $LiMnPO_4$ as Lithium-Ion Battery Cathodes
P. Muralidharan, S. Moon, H. Lee and D. Kim

185 Electrochemical Characterization of One-Dimensional Li_2MnO_3 Nanorod as Cathodes for Lithium-Ion Battery
H. Lee, P. Muralidharan and D. Kim

186 Numerical Analysis of Efficiency and Dynamic Performance of Li-Polymer Battery
M. Xiao and S. Choe

187 Electrochemical Investigation on $LiFePO_4$/C Composite for Li Secondary Battery
H. Ko, Y. Chun, Y. Ahn and K. Han

188 All-Solid-State Rechargeable Lithium-Ion Batteries with Li_2S-P_2S_5 Based Electrolytes
J. Trevey, C. Stoldt and S. Lee

189 Improved High-Temperature Performance of $LiMn_2O_4$ by Surface Modification with ITO
C. Kim, S. Kwon, J. Yoon and K. Han

190 Remote Siting and Plant Cost of an SOFC Power Plant Fed by a MHB in an Extended Deployable Coast Guard Ice Breaker
E. Newton and H. Knickle

191 Study of the Effect of Organic Lithium Salts on the Irreversible Capacity Loss of Natural Graphite Electrode
X. Sun and S. Dai

192 Optimization of RRDE Method for the Evaluation of Catalyst Activity in Alkaline Solution
K. Oda, H. Kato, K. Fukuta and H. Yanagi

193 Polypyrrole for Supercapacitors
P. Ninghsih and S. Donne

194 Microstructural Change of Si-Based Carbon Coated Anode during In-Situ Heating Transmission Electron Microscopy
T. Ahn, S. Kim, D. Ko, S. Lim, J. Cho and Y. Kim

195 Sn-Based Composite Anode Materials Prepared Using an Electrochemical Method
J. Lee and H. Shin

196 Electrochemical Preparation of Porous Nickel Foams for High Efficient Electrochemical Devices
W. Choi, H. Jung and H. Shin

197 Synthesis and Characterization of PdCu ORR Catalyst for a PEM Fuel Cell
D. Martínez-Casillas, G. Vázquez-Huerta and O. Solorza-Feria

198 A Study on the Thermal Behavior of a Lithium-Ion Battery Pack
J. Lee, J. Yi, U. Kim, C. Shin, Y. Hong and C. Kim

199 The Structural and Electrochemical Properties of Pyrolytic Carbon Derived from Sorona
M. Christy, J. Manasansodi, A. Kim, K. Nahm and E. Suh

200 Synthesis of Nanoscopic Co_3O_4 Prepared with Avian Egg Membrane as a Template and Fabrication of Asymmetric Supercapacitor
J. Manasansodi, M. Christy, A. Kim, K. Nahm, D. Yoo and P. Kim

201 Metal Supported SOFC for Intermediate Temperature Operations
K. Kim, Y. Park and H. Kim

202 Effect of TiO_2 Langmuir-Blodgett Monolayer as a Blocking Layer on Performance of Dye-Sensitized Solar Cell
C. Han, Y. Lin, C. Hsu and Y. Chen-Yang

203 Synthesis of High Power $LiFePO_4$/C Cathode Materials Using Dual Carbon Sources
G. Fey, Y. Cho, S. Huang and H. Kao

204 Effect of Li-La-Ti-O Coating Concentration on Electrochemical Performances of $Li[Ni_{0.3}Co_{0.4}Mn_{0.3}]O_2$ Cathode
H. Lee, S. Kim and Y. Park

205 Gel Electrolyte as Binder of the Activated Carbon Electrode in EDLC
P. Dvorak, J. Vondrak, M. Sedlarikova and M. Macalik

206 The Effects of Lithium Lanthanum Titanate Surface Modification on the Electrochemical Performance of Cathode Materials for Lithium Secondary Batteries
K. Jung, H. Kim and Y. Park

207 Modification of Solid-State Electrolyte/Cathode Interfaces for Thin Film Batteries
K. Chiu and B. Chen

208 SiN/BCNT Composite Electrodes for Lithium-Ion Rechargeable Batteries
S. Katar, D. Hernandez, A. Biaggi, E. Mosquera-Vargas, L. Fonseca, B. Weiner and G. Morell

209 Influence of Electrolyte Composition on Deactivation Mechanism of a RuO_2-IrO_2-TiO_2 Coated Titanium Anode
S. Hoseinieh, F. Ashrafizadeh and M. Maddahi

210 Enhanced Contrast: Switching Speed and Its Scalability of Electrochromic Windows Based Viologen Anchored to TiO_2
S. Kim, F. Su, Y. Rong and M. Taya

211 The Influence of Mechanical Properties on the Long-Term Cycling Performance of Graphite Anode
H. Zheng, G. Liu, X. Song, D. Cheung, P. Rigdway and V. Battaglia

212 Ab Initio Molecular Dynamics Simulations of the Initial Stages of Solid-Electrolyte Interface Formation on Graphite and Lithium Metal Anode Surfaces
K. Leung

213 Differentiating Contributions to "Ion Transfer" Barrier at Electrolyte/Graphite Interface from Interphasial Resistance and Li^+-Desolvation
K. Xu, A. Cresce and U. Lee

214 Effect of Variations in Current Density on Conversion Reactions
S. Hariharan, K. Saravanan and P. Balaya

215 In Situ Growth of SnO_2 on Graphene Nanosheets as Advanced Anode Materials for Rechargeable Lithium Batteries
X. Yang, Y. He, X. Liao, D. Bai, J. Chen, G. Wallace and Z. Ma

216 Superior Lithium Storage Performance of Mesoporous TiO_2 Synthesized Using Soft Template Method
K. Saravanan, K. Ananthanarayanan and P. Balaya

217 Electrochemical Characteristics of Bi(111) and Nanoporous Carbon Electrodes in Ionic Liquids
L. Siinor, H. Kurig, A. Jänes, K. Lust and E. Lust

218 Silicon Composite Electrode for Lithium Insertion Cell: Theoretical and Experimental Investigation of Electrode Processes
R. Chandrasekaran, A. Magasinski, G. Yushin and T. Fuller

219 Silicon Coated Nanotube Paper as a Lithium-Ion Anode
D. Firsich, V. Arrieta and A. Fortini

220 Synthesizing Nanosized and Hollow Structure of SnO_2 Anode Materials for Li-Ion Batteries
Y. Lin and J. Duh

221 Water Soluble Binders for Graphite Anode for Lithium-Ion Batteries
F. Courtel, S. Niketic, Y. Abu-Lebdeh and I. Davidson

B2 - Advanced Organic and Inorganic Materials for Electrochemical Power Sources

Battery / Energy Technology / Industrial Electrochemistry and Electrochemical Engineering

331 Layer-by-Layer Self-Assembly of Permselective Silicate/Polyelectrolyte Multilayers onto Nafion as Methanol Blocking Barrier in DMFC
J. Kim and S. Kwak

332 UV-Curable Silver Nano Inks for Direct Printing
J. Kim, C. Jung and S. Koo

333 SnO_2-Modified MnO_2 Electrode Material for Electric Double-Layer Capacitors
Y. Chen, P. He, Y. Liang, X. Yi, J. Sun and Q. Jiang

334 Morphology Variation of the Electrode Material in Inverted Polymer Solar Cell
Y. Suh, S. Park, T. Lee, W. Chung, K. Kim and M. Kim

335 Advanced Electrochemical Properties of Composite Electrolyte Based on Carbon Nanotubes—Polyethylene Oxide For Dye-Sensitized Solar Cells
M. Akhtar, J. Park, U. Kim and O. Yang

336 Fabrication of Dye Sensitized Solar Cells with Plasma Enhanced Polymerized Polyaniline/TiO_2 Nanoparticulate Thin Film Electrode
S. Ameen, C. Jo, Y. Kim and H. Shin

337 CIGS Thin Film Fabrication Using Spray Deposition Method
J. Cho, C. Ham, E. Bae, J. Suh and K. Song

338 Preparing of CIGS Nanoparticles Using One Step Synthesis
C. Ham, J. Cho, J. Suh, E. Bae and K. Song

339 CdS or CdSe Decorated TiO_2 Nanotube Arrays from Spray Pyrrolysis Deposition
K. Shin, S. Im, P. Yoo, D. Kim and J. Park

340 Emission Properties of Nonstoichiometric $Ba(B'_{1/3}B''_{2/3})O_3$ (B′ = Co or Zn, B" = Nb) Perovskite Type Materials for Photocatalytic Water Splitting
D. Grebennikov and P. Mascher

341 Engineered Tungsten Oxy-Nitride Thin Film Materials for Photocatalytical Water Splitting Fabricated by MOCVD
A. Milanov, V. Gwildies, S. Cwik, T. Thiede, V. Vidyarthi, A. Savan, R. Meyer, H. Becker, D. Rogalla, A. Ludwig, R. Fischer and A. Devi

1014 Aerosol Jet Deposition for SOFC Fabrication
M. Sukeshini, P. Gardner, T. Jenkins, R. Miller, T. Reitz, M. Renn and D. Ramahi

342 $LiPF_6$ Based Environmentally Friendly Mixed Electrolyte for Symmetric Supercapacitors of High Specific Performance
A. Jänes, A. Laheäär, H. Kurig and E. Lust

343 Phosphonium Salt Based Electrolytes for Electrical Double Layer Capacitors
H. Kurig, A. Jänes and E. Lust

344 Specific Performance of Supercapacitors Based on Different Micro/Mesoporous Membrane Materials
K. Tõnurist, T. Thomberg, A. Jänes and E. Lust

345 High Voltage Stacks of Aqueous Supercapacitors: Materials, Fabrication and Performance
X. Zhou, C. Peng and G. Chen

346 Dye-Sensitized Solar Cell Based on Titanium Nanofibers Produced by Electrospinning
J. Macak, J. Pytel, M. Dusek and J. Trckova

347 Organometallic Vanadium Complexes for Nonaqueous Single Metal Flow Batteries
A. Shinkle, A. Sleightholme, L. Thompson and C. Monroe

348 Durability Issues and Status of High Temperature Proton Exchange Membrane Fuel Cells Based on Acid Doped Polybenzimidazole Membranes
Q. Li, J. Jensen, C. Pan, J. Liao, H. Rudbeck, L. Cleemann and N. Bjerrum

349 Degradation and Diagnostic Analysis of Gas Diffusion Layers under Humidity Cycling
S. Dhanushkodi, M. Fowler, M. Pritzker, X. Yuan and H. Wang

350 Development of Solid Alkaline Inorganic Fuel Cell Consisting of Layered Mixed Oxides
T. Takeguchi, H. Takahashi, T. Yamanaka, T. Kuroki and W. Ueda

351 Impedance Monitoring of the Anodic Dissolution of PANi during the V_2O_5 Deposition Step for the PANi/V_2O_5 Composite Film Preparation
K. Park, J. Kim, I. Yeo and S. Mho

B3 - Batteries for Renewable Energy Storage

Battery / Energy Technology / Industrial Electrochemistry and Electrochemical Engineering

352 Nanostructured Hybrid Silicon/Carbon Nanotube Heterostructures: Novel Reversible High-Capacity Lithium-Ion Anodes
W. Wang and P. Kumta

353 The Electrochemical Production of Tin Filled Carbon Nanotubes and Their Use as Anode Materials in Lithium-Ion Batteries
R. Das Gupta, C. Schwandt and D. Fray

354 Highly Patterned Micron-Sized Ni-Sn Alloys with 3-Dimesionally Ordered Macroporous Structure as Anode for Lithium Batteries
M. Kotobuki, N. Okada, S. Woo, H. Munakata and K. Kanamura

355 Nanoporous Hollow Spheres of Metal Oxides for Li-Ion Rechargeable Batteries
M. Au and T. Adams

356 Three-Dimensionally Ordered Porous Membrane for High Rechargeable Lithium Metal Anode
K. Sasajima, Y. Yamamoto, H. Munakata and K. Kanamura

357 $LiCo_xMn_{1-x}PO_4$/C Composites Synthesis by a Combination of Spray Pyrolysis with Wet Ball-Milling and Their Electrochemical Properties
T. Doan and I. Taniguchi

358 ALD Surface Coatings for High Rate Performance of Nanoparticle $LiCoO_2$
I. Scott, A. Cavanagh, S. George and S. Lee

359 Synthesis of Nanostructured $LiMn_2O_4$ Using Hierarchical MnO_2 and Its Electrochemical Performance as Cathode Materials in Li-Ion Batteries
W. Ryu, D. Han, W. Kim and H. Kwon

360 In Situ FTIR Study of the Gaseous Decomposition Products of N-butyl-N-methylpyrrolidinium Bis(trifluoromethanesulfonyl)amide Ionic Liquid Electroreduction
D. Aurbach, E. Markevich, R. Sharabi, V. Borgel, H. Gottlieb, G. Salitra, G. Semrau and M. Schmidt

361 Fabrication of All-Solid-State Lithium Battery Using Novel Garnet Type Electrolyte
M. Kotobuki, K. Kanamura, Y. Sato, K. Yamamoto and T. Yoshida

362 Nanoparticle Organic Hybrid Electrolytes
J. Nugent and L. Archer

363 A Roadmap Towards the Selection of the Most Adapted Battery System for Electrical Energy Storage
M. Dubarry, M. Cugnet and B. Liaw

364 Monitoring Mechanical Degradation of Composite Electrodes for Lithium-Ion Batteries by Acoustic Emission Techniques
K. Rhodes, C. Daniel, E. Lara-Curzio and N. Dudney

365 R & D Activities of Redox Flow Battery for Energy Storage at DICP
H. Zhang

366 Electrochemical Energy Storage for Renewable and Grid Applications: Status and Challenges
Z. Yang, J. Liu, M. Kintner-Meyer, J. Lemmon and G. Graff

367 A Nanostructured Li_2S/Silicon Rechargeable Battery with High Specific Energy
Y. Yang, M. McDowell, A. Jackson, J. Cha, S. Hong and Y. Cui

368 Microstructural Investigation of the Sodium-Nickel Chloride (ZEBRA) Battery
T. Javadi, G. Botton and A. Petric

390 A Mathematical Model for All Solid-State Lithium-Ion Batteries Incorperating Mechanical Effects
K. Becker-Steinberger, S. Funken, M. Landstorfer and K. Urban

391 Thin-Film Battery Cell Modeling with Concentration Dependent Diffusion Coefficients
K. Becker-Steinberger, S. Funken, M. Landstorfer and K. Urban

392 Path Dependence of Aging in Commercial Li-Ion Cells Chosen for PHEV Duty Cycle Protocols
K. Gering, S. Sazhin, D. Jamison, C. Michelbacher, M. Dubarry, M. Cugnet and B. Liaw

393 Maximization of Energy Storage and Minimization of Capacity Fade in Lithium-Ion Battery Pack
R. Methekar, V. Ramadesigan, V. Subramanian and R. Braatz

B4 - Biological Fuel Cells 4

Energy Technology / Physical and Analytical Electrochemistry / Organic and Biological Electrochemistry

394 Advanced Glucose-Air Enzymatic Fuel Cell for Portable Applications
V. Svoboda, U. Lindstrom, S. Singhal, C. Lau and P. Atanassov

395 Microbial Fuel Cell Design Sufficient to Power a Hydrophone over a Several Month Period
K. Richter, D. Chadwick and L. Tender

396 Evolution of Sony's Biofuel Cell
H. Sakai, T. Nakagawa, H. Mita, H. Kumita and Y. Tokita

397 Potentially Implantable Glucose/Oxygen Biofuel Cells
S. Shleev

398 Microstructured Biological Fuel Cells for Automatic Series-Connection and Relay Systems
T. Miyake and M. Nisizawa

399 Protein Engineering for Bioelectrocatalysis: We Can Do More than Vmax
S. Banta

400 Rational Design of Cellobiose Dehydrogenase for Biosensor and Biofuel Cell Applications
R. Ludwig, C. Sygmund, W. Harreither, D. Haltrich and L. Gorton

401 Development of Thermostable Gluconate 5-Dehydrogenase for Biofuel Cell System
D. Yamaguchi, R. Matsumoto, Y. Goto, H. Sakai and Y. Tokita

402 Understanding the Mechanism of Mitochondrial Bioelectrocatalysis in Organelle Based Biofuel Cells
R. Arechederra and S. Minteer

403 Fluorescence Characterization of Immobilized Enzymes
G. Martin, C. Lau, S. Minteer and M. Cooney

404 In Situ and On-Demand Biocatalytic Hydrogen Production System for Microfuel Cells
A. Ranta, S. Kielosto, T. Noponen and A. Halme

405 Modeling Study of a Methanol Biofuel Cell Operating on Multi-Step Enzyme Kinetics and Mediated Electron Transfer
P. Kar and S. Calabrese Barton

406 Conversion of a Biofuel Cell to a Rechargeable Biobattery
P. Addo, R. Arechederra and S. Minteer

407 Novel In Situ Spectro-Electrochemical Methods for Newer Insights on Enzymatic Reaction Centers
T. Arruda, S. Mukerjee, D. Chakraborty and S. Calabrese Barton

408 Mechanism and Performance of an Inexpensive Monosaccharide Biofuel Cell
L. Chetty, J. Kim, N. Zhao, D. Scott and B. Liaw

409 Inhibition and Uncoupling Mechanisms in Mitochondrial Bioelectrocatalysis
M. Arechederra, C. Fischer, D. Wetzel and S. Minteer

410 Biofuel Cells Controlled by Logically Processed Biochemical Signals
E. Katz

411 Glucose Oxidase Enzymes Rationally Engineered for Direct Electron Transfer
T. Holland, S. Brozik, C. Lau, P. Atanassov and S. Banta

455 Effect of Nanostructured Carbon Electrode Surfaces on the Percentage of Adsorbed Redox Enzyme Molecules in Direct Electron Transfer Contact
F. Chekin, V. Coman, F. Tasca, M. Zafar, G. Safina, W. Harreither, R. Ludwig and L. Gorton

456 Nanobiocatalysis and Its Potential Applications in Biofuel Cells
J. Kim

457 Engineered Bio-Nano Materials for Improved Biofuel Cell Electrodes
N. Akers, W. Gellett, J. Schumacher, D. Le, W. Patterson and P. Atanassov

458 Use of Chitosan in the Development of Mesoporous Carbon Structures for Use in Bioelectrocatalysis
K. Sjöholm, R. Arechederra, E. Schwarz, M. Cooney and S. Minteer

459 Biofuel Cell Based on Printed Bioelectrocatalytic Layers
M. Smolander, A. Vaari, S. Tuurala, M. Valkiainen, H. Boer, A. Koivula, J. Keskinen, O. Kaukoniemi, J. Uotila and M. Bergelin

460 Development of Sol-Gel Bioelectrodes for Low Temperature Biofuel Cell: Covalent Immobilization of Glucose Oxidase and Laccase on Conductive Carbon-Chitosan Composites
C. La Rotta, G. Ciniciato and E. Gonzalez

B5 - Combinatorial Screening of Materials for Energy Conversion and Storage

Energy Technology / Battery / Industrial Electrochemistry and Electrochemical Engineering

461 Thermal, Electrical, and Electrochemical Properties of Scandium-Doped $Ln_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-\delta}$ as Cathodes for IT-SOFC
Y. Yin, N. Yang, M. Xiong, Z. Tong, J. Feng, Z. Ma, E. Sun, Y. Jean and B. Jing

462 Scanning Electrochemical Microscopy Characterization of Pt-M (M: Pd, Ru, Ir) as Electrocatalysts for Hydrogen Oxidation
Y. Weng and C. Hsieh

463 Discovery and Characterization of Novel Direct Hydrazine Fuel Cell Anode Electrocatalysts
J. Sanabria-Chinchilla, Z. Liu, K. Asazawa, T. Sakamoto, H. Tanaka and P. Strasser

464 High Throughput Screening of Potential Ethanol Oxidation Catalysts for PEM Fuel Cells
D. Stevens, E. Marvel, R. Sanderson, E. Moreau and J. Dahn

465 Investigating the Liquid Water Transport in a PEFC by Electrochemical Impedance Spectroscopy and ESEM Imaging
R. Alink and D. Gerteisen

466 Screening of Ceria-Based Catalysts for Methane Reforming in Intermediate Temperature Single-Chamber SOFC
C. Gaudillère, P. Vernoux, C. Mirodatos and D. Farrusseng

467 Novel Copper-Zinc Oxide Nanoarchitectures as Microreformation Catalysts for Hydrogen Production
Y. Lin, Y. Hsu, Y. Lin, S. Chen, L. Chen and K. Chen

468 Optimization of Electrodes and Operating Conditions Using High-Throughput Electrochemistry for Low-Voltage Generation of Alkalinity for CO_2 Sequestration
S. Gorer, M. Kostowskyj, R. Gilliam, N. Knott and B. Constanz

469 High Throughput Synthesis and Screening for Discovery of Improved Electrode Materials for Lithium-Ion Batteries
B. Li, F. Matsumoto, D. Greenburg, B. Howard, R. Olugbile, C. O'Neill and S. Kaye

470 High Performance Supercapacitor Based on MnO_2 Nanosheet/CNx Nanotubes-Grown Carbon Cloth
Y. Chen, Y. Hsu, Y. Horng, L. Chen and K. Chen

471 A Combinatorial Approach to Discovery of Semiconducting Oxides for Solar Water Splitting
B. Parkinson

472 The Solar Hydrogen Activity Research Kit Project: Dedicated to Splitting Water with Sunlight
J. Schuttlefield, C. Markum and B. Parkinson

473 Metallic Titanium-Based Photoelectrode for Large Area Dye-Sensitized Solar Cells
S. Ngamsinlapasathian, K. Onoda, T. Takayasu, T. Sagawa and S. Yoshikawa

474 Sensitization of Anatase TiO_2 Films by Adsorption of N719 Dye
K. Lee, M. Gomez, S. Elouatik, C. Charbonneau, N. Parsi, G. Shan and G. Demopoulos

B6 - Economics and Policy Issues in Energy Conversion, Transmission, and Storage

Energy Technology / High Temperature Materials

475 Energy Storage Systems Markets, Value and Cost Analysis
D. Rastler

476 The Role of Energy Storage in Electric Grid of the Future
P. Denholm

477 Sustainable Bioenergy Feasibility and Economics: A Case Study on the Yakama Nation
K. Spies, J. Richardson, V. Lieu, S. Rigdon, S. York, L. Nackley, B. Batalla-Garcia, R. Cawston and D. Schwartz

478 Characterization of Lithium-Ion Batteries of Various Chemistries: Energy Density, Resistance and Power Capability,and Fast Charging
A. Burke

479 The Economics of Materials for Energy Storage
J. Whitacre

480 Assessing the Costs and Benefits of EV or HEV Usage Using Pattern Recognition and Vehicle Simulation
M. Dubarry, C. Truchot and B. Liaw

481 Adoption of Micro-Fuel Cells
J. St-Pierre and C. Hebling

B7 - Electrode Processes Relevant to Fuel Cell Technology

Physical and Analytical Electrochemistry / Energy Technology

482 Platinum Monolayer Electrocatalysts for O_2 Reduction: Pt Monolayer on Carbon-Supported PdIr Nanoparticles
S. Knupp, M. Vukmirovic, P. Haldar and R. Adzic

483 Kinetics of Oxygen Dissociation on Pt(111)
L. Naslund, H. Ogasawara, D. Miller, H. Oberg, V. Viswanathan, T. Anniyev, H. Pitsch, L. Pettersson and A. Nilsson

484 Electrocatalytic Activity of (100) Preferentially Oriented Pt Nanostructure
S. Garbarino, A. Ponrouch and D. Guay

485 On the Nature of Pt-O Species Observed with XANES and Implications for the Oxygen Reduction Reaction
D. Friebel, D. Miller, H. Ogasawara, T. Anniyev, C. O'Grady, U. Bergmann, J. Bargar, A. Nilsson, K. Wikfeldt and L. Pettersson

486 Pt/C vs. Pt_xFe_y/C and Pt_xCo_y/C Catalysts for the Oxygen Reduction Reaction: Structure, Activity and Stability
L. Chen, C. Bock, B. MacDougall and P. Mercier

487 Removing the Low Coordination Sites of Palladium Nanoparticles Using Bromide Adsorption to Enhance the Oxygen Reduction Reaction Kinetics
Y. Cai and R. Adzic

488 PEM Fuel Cell Non-Noble Metal Catalysts: Challenges and Perspective
J. Zhang, H. Liu, L. Zhang and R. Baker

489 Electrocatalytic Properties of Metal Nanoparticles for Selective Reduction of Oxygen
F. Mirkhalaf

531 Rate Determining Step of High Temperature Cathode Reaction Studied by In Situ Electrochemical XAS
Y. Orikasa, T. Ina, T. Nakao, T. Fukutsuka, A. Mineshige, K. Amezawa, T. Kawada and Y. Uchimoto

532 Electrochemical Performance of $SmBaCo_{2/3}Fe_{2/3}Cu_{2/3}O_{5+\delta}$-$Ce_{1.9}Gd_{0.1}O_{1.9}$ Composite Cathodes for IT-SOFC
S. Lee, S. Jo, P. Muralidharan and D. Kim

533 Fabrication and Performance of Graded LSCF/GDC Cathode for Solid Oxide Fuel Cell
N. Li, A. Smirnova, A. Verma, P. Singh and J. Kim

534 Investigation of SOFC Cathode Kinetics by Means of Continuum Modeling and Well-Defined Electrodes
M. Lynch, X. Li, L. Yang, D. Mebane and M. Liu

535 Theoretical Investigation of Ammonia Oxidation Kinetics on Pt(111)
D. Daramola, A. Dugovics and G. Botte

536 Controlled Growth of Silver Nanostructures for Oxygen Reduction Reaction in an Alkaline Electrolyte
C. Chen, Y. Chang, P. Wu and P. Lin

537 3D Multiphase Modeling of PEMFC with Uneven Compression and Deformation of GDL
L. Qi, K. Jiao, A. Pereira and X. Li

538 Investigation of Gas Diffusion Electrodes for Electrochemical Oxygen Reduction
B. Schuster, N. Wagner and M. Schulze

539 Investigation of Leakages in PEFC Fuel Cells by Measuring Current Density Distributions and Raman Spectra
M. Schulze, E. Gülzow, K. Friedrich, P. Fischer and H. Bettermann

540 Prospective of Pd/MO_x as Alternative Anode Pt Catalyst for Polymer Electrolyte Fuel Cell
E. Muhamad, T. Takeguchi, G. Wang, T. Yamanaka and W. Ueda

541 Fabrication and Characterization of High Activity Pt/C Electrocatalysts for Oxygen Reduction
B. Lim, J. Kim, S. Hwang, E. Cho, T. Lim and S. Kim

542 Electrochemical Preparation of Ternary Pt-Fe-Co Catalysts for the Oxygen Reduction Reaction: Size and Composition Dependent Activity
S. Hwang, S. Kim and T. Lim

543 Effects of Upper Potential Dwell Time, Transients and Relative Humidity on PEM Fuel Cell Cathode Catalyst Degradation
M. Dutta, N. Jia, S. Lu, V. Colbow and S. Wessel

544 Electrocatalytic Activity of 4A-Zeolite Modified Pt/C for Electrooxidation of Methanol in Alkaline Medium
Y. Liang, P. He, X. Yi, Y. Chen, J. Sun and Q. Jiang

545 Effect of Solvent on the Electrocatalytic Activity of Pt/C Catalyst for Methanol Electrooxidation
Y. Liang, P. He, X. Yi, Y. Chen, J. Sun and Q. Jiang

546 Impacts of Ru Dissolution and Crossover on PEMFC Performance and Anode Functionality
T. Cheng, V. Colbow and S. Wessel

547 On the Effect of Vanadium Doping in Lanthanum Strontium Chromite
S. Carré, E. Koep and J. Morante

548 High Performance Electrolyte for Carbonate Fuel Cell
A. Hilmi, C. Yuh and M. Farooque

549 Temperature-Dependence of Oxygen Reduction Reaction Activity at Pt/Graphitized Carbon Catalysts Prepared by Nanocapsule Method
H. Yano, T. Akiyama, M. Uchida, H. Uchida and M. Watanabe

550 Carbon-Supported Pt-Pd Alloy as Methanol-Tolerant-Oxygen-Reduction Catalyst for DMFCs
K. Nishanth, P. Sridhar, S. Pitchumani and A. Shukla

551 Two-Step Conditioning Method for High-Power Generating Direct Methanol Fuel Cell
M. Umeda, T. Iwasaki and M. Inoue

552 Detection of H_2O_2 Generation during O_2 Reduction at Porous Microelectrode Packed with Pt-Based Catalysts
M. Umeda and A. Kishi

576 Investigation of the Degradation of Hydrophobized Carbon Structures in PEFC
A. Haug, M. Schulze, K. Friedrich, X. Yuan and H. Wang

577 Characterization of Platinum Monolayer Electrocatalysts in Long-Term Fuel Cell Cathode Tests
K. Sasaki, H. Naohara, Y. Cai, D. Su and R. Adzik

578 Stability of PtZn Nanoparticles Supported on Carbon in Acidic Electrochemical Environments
A. Sode, A. Musgrove and D. Bizzotto

579 The Impact of SO_2 on the Degradation of MEA Components in PEMFCs
S. Dorn, Y. Zhai, G. Bender and R. Rocheleau

580 Multilayered and Radient Electrodes for Proton Exchange Membrane Fuel Cells by Reactive Spray Deposition Technology
J. Roller, R. Neagu, Z. Xie and R. Maric

581 Highly Porous Electrodes Fabricated at Intermediate Temperatures
E. Koep

582 PEFC Gas Diffusion Layer: Effective Properties and Compression Effect
J. Becker, V. Schulz and A. Wiegmann

583 Understanding Pt Surface Area Loss in PEMFC Cathodes: Size and Oxidation Effects
E. Holby, Y. Shao-Horn, W. Sheng and D. Morgan

584 Development of a Model Electrode System for the Electrocatalytic Evaluation of Nanoparticles for Fuel Cell Applications
H. El-Sayed, T. Trinh and V. Birss

585 Porosity and Hydrophilicity of a DMFC Cathode Catalyst Layer
F. Capitanio and A. Tavares

586 Hierarchically-Structured Fuel Cell Electrocatalysts Derived by Microemulsion Templating
S. Pylypenko, T. Olson, D. Petsev and P. Atanassov

587 Graphene Oxide as a Carbon Support for Direct Methanol Fuel Cell Catalysts
S. Bong, I. Kim, S. Woo, S. Um, J. Lee and H. Kim

588 Nitrogen Doped Carbon Nanotubes as Catalyst Support with High Oxygen Reduction Reaction Activity in PEM Fuel Cells
D. Higgins and Z. Chen

589 Tungsten/Carbon Nanotube Supported Platinum as Cathode Catalyst for Proton Exchange Membrane Fuel Cell
D. Meza, D. Higgins, L. Salgado and Z. Chen

590 Electrochemical Oxygen Reduction Ability of Platinum Nanoparticles Prepared by Ionic Liquid-Sputtering Method
S. Kuwabata, K. Yoshii, T. Tsuda and T. Torimoto

591 3-D Design of Electrocatalytic Nanoarchitectures of Relevance for Fuel-Cell Reactions
D. Rolison, J. Wallace, J. Long, C. Chervin and J. Dysart

592 Design and Synthesis of Advanced Nanoscale Electrocatalysts
C. Wang, S. Sun, D. Strmcnik, P. Paulikas, D. van der Vliet, N. Markovic and V. Stamenkovic

593 Imprinted Carbon Materials for Use as ORR Catalysts
D. Banham, F. Feng, K. Pei and V. Birss

594 Nanoscale Phenomena in Catalyst Layers for PEFC: From Fundamental Physics to Benign Design
K. Chan, A. Roudgar, L. Wang and M. Eikerling

595 Microstructure-Electrocatalytic Relationships Towards Proper Design of Free-Standing Nanostructured Platinum Electrodes for Fuel Cells
Z. Hamoudi, F. Saidani, M. Elkhakani and M. Mohamedi

596 Nanostructured Catalytic Electrodes for Low-Temperature Fuel Cells: Activation of Reactive Sites Through Modification with Ultra-Thin Films of Metal Oxo Species
P. Kulesza, A. Lewera, K. Miecznikowski, B. Dembinska, A. Kolary-Zurowska, A. Zurowski, S. Zoladek and I. Rutkowska

618 Model-Based Deconvolution of Potential Losses in a PEM Fuel Cell
M. Baghalha, M. Eikerling and J. Stumper

619 Analytical Performance Modeling of Microfluidic Fuel Cells
L. Xiaoye and E. Kjeang

620 Correlation Between Electrochemical Properties and Local and/or Electronic Structures of Pt Core-Shell Catalyst for PEFCs
Y. Uchimoto, H. Aoki, S. Urata and T. Fukutsuka

621 Study of Spatial PEMFC Performance under CO Poisoning Using Segmented Cell Approach
T. Reshetenko, K. Bethune and R. Rocheleau

622 The Impact of sub ppm Carbon Monoxide and ppm Level CO/Toluene and Methylcyclohexane/CO Mixtures on PEMFC Performance and Durability
M. Angelo, K. Bethune and R. Rocheleau

623 PEM Fuel Cells Catalyst Layers: Microstructure and Mass Transport Properties
T. Soboleva, X. Zhao, K. Malek, Z. Xie, T. Navessin and S. Holdcroft

B10 - Intercalation Compounds for Energy Conversion and Storage

Energy Technology / Battery

624 The Kinetics of Li Incorporation in $LiFePO_4$
R. Malik, F. Zhou and G. Ceder

625 Microwave-Solvothermal Synthesis and Characterization of $LiFe_{1-x}(VO)_xPO_4$ Cathodes
K. Harrison, A. Murugan and A. Manthiram

626 Studies of Ion Mobility in Lithium Vanadium Fluorophosphates Using Multinuclear Solid State NMR
L. Davis, L. Cahill, L. Nazar and G. Goward

627 Relative Thermal Stabilities of Olivine Cathodes Investigated Using First Principles Calculations
S. Ong, A. Jain, G. Hautier, B. Kang and G. Ceder

628 Crystal Structure-Electrochemistry Correlations of Vanadium Phosphates Using In Situ X-Ray Absorption Spectroscopy
C. Allen, K. Abraham and S. Mukerjee

629 Crystal Structure and Electrochemical Study of $A(Fe_{1-x}M_x)SO_4F$ (A = Li/Na; M = Co/Ni/Mn) Fluorosulfates Prepared by Low Temperature Ionothermal Synthesis
P. Barpanda, M. Ati, N. Recham, J. Chotard, W. Walker, M. Armand and J. Tarascon

630 Application of Li-Rich Layered Oxide Cathodes for High Capacity Li-Ion Batteries: Some Practical Issues and Approaches
D. Im, J. Kim, J. Yoon, K. Park, Y. Ryu, S. Lee, D. Lee and S. Doo

631 Electrochemical Performance of Spinel $LiMn_2O_4$ Produced in a Two-Stage Flow Reactor
X. Zhang, R. Axelbaum, H. Zheng and V. Battaglia

632 Electroactivity and Characterization of Defect Antifluorite $Li_5Fe_{1-x}Co_xO_4$ and Li_6MnO_4 Electrodes for Lithium-Ion Batteries
C. Johnson and M. Thackeray

633 Cation-Deficient Spinel Ferrites as Ion-Insertion Host Materials for Rechargeable Li-Ion Batteries
J. Long, B. Hahn, K. Pettigrew, M. Osofsky and D. Rolison

634 Electrochemical Performance of LiF-Coated $LiMn_2O_4$ Cathode Material for Li-Ion Batteries
J. Li, J. Xie and Y. Zhang

635 15 Years R&D at Hydro-Québec on Li-Ion Technologies for Green Transportation
K. Zaghib

636 Investigations of the P2-Na_xCoO_2 Phase Diagram Through an Electrochemical Route
R. Berthelot, D. Carlier, M. Pollet and C. Delmas

637 Investigation of Vanadium Oxides Prepared by Ion Exchange
E. Takeuchi, C. Lee, A. Subramanian, K. Takeuchi and A. Marschilok

638 Hydrothermal Synthesis of TiO_2 Nanowire Electrodes with High-Rate Performance
H. Shim, D. Lee, K. Hong and D. Kim

639 Design of the Electronic Conductivity at All Scales of a Composite Electrode for Lithium Batteries
J. Badot, E. Ligneel, B. Lestriez, O. Dubrunfaut and D. Guyomard

640 3-Dimensional Characterization of Li-Ion Battery Electrodes
S. Harris, P. Shearing, N. Brandon, L. Howard, P. Jorgensen, J. Wilson, J. Cronin and S. Barnett

641 Effect of Electrode Morphology on the Electrochemical Performance of Lithium-Ion Batteries
H. Jannesari, R. Zengerle and C. Ziegler

642 The Influence of Nanopores Inside Micron-Sized Electrode on Diffusion and Diffusion-Induced-Stress
S. Harris, Y. Qi, R. Deshpande, Y. Cheng and I. Dutta

643 The Synthesis and Electrochemical Analysis of Novel Organic Electrodes for Li-Ion Batteries
W. Walker, S. Grugeon, S. Laruelle, M. Armand, F. Wudl and J. Tarascon

644 Micro-Raman Mapping of Cycled Commercial $Li_{1-x}Ni_{0.80}Co_{0.15}Al_{0.05}O_2$ Electrodes: New Insights
J. Nanda, J. Remillard, A. O'Neil, K. Neitering, T. Ro, D. Bernardi and T. Miller

645 SEI Formation or Exfoliation? Insights in the Electrolyte Decomposition Kinetics on Graphite for Lithium-Ion Battery Anodes
W. Mäerkle, C. Lu, D. Goers, M. Spahr and P. Novák

646 The Role of Carbon Defect Chemistry in Optimizing Performance of Next Generation Lithium-Ion Batteries
I. Perez, V. Khalap and P. Collins

647 Effect of Processing Conditions on Physical and Electrochemical Characteristics of Disordered Carbon Li-Ion Negative Electrodes
J. Camardese and A. Timmons

648 Three-Fold Increase in the Modulus of Graphite Negative Electrodes during Lithium Intercalation
Y. Qi, L. Hector, A. Timmons and H. Guo

649 Effects of Concentration-Dependent Young's Modulus on Diffusion Induced Stress Modeling for Battery Applications
R. Deshpande, Y. Cheng, Y. Qi and M. Verbrugge

650 Hollow Carbon Nanosphere Based Lithium-Ion Negative Electrodes High Rate Low Temperature Performance
J. Cox and M. Wagner

651 In Situ Observation of Strains during Lithiation of a Graphite Electrode
Y. Qi and S. Harris

652 Nanoengineered Sn-TiC-C and Sb-MO_x-C (M = Al, Ti, or Mo) Composite Anodes for Lithium-Ion Batteries
A. Manthiram and S. Yoon

653 Electrochemical Characteristics of SnO_2 Nanoparticle Prepared by Liquid Phase Deposition Method as Negative Electrode for Lithium Secondary Batteries
K. Ui, S. Fukuya, S. Kawamura, Y. Kadoma, N. Kumagai, Y. Umekage, R. Kumaresan and M. Mizuhata

654 SnO_2 Nanofabrication for Electrode Materials by the Liquid Phase Deposition Method
M. Mizuhata, Y. Umekage, R. Kumaresan and K. Ui

655 Stability and Charge Dynamics of Li Electrode Materials: An In Situ Raman Spectroelectrochemistry Investigation
O. Frank, S. Klod, C. Täschner, L. Kavan and L. Dunsch

656 $^{6/7}$Li and ^{31}P Solid State NMR Studies of the Phosphate Family of Cathode Materials for Li-Ion Batteries
L. Davis, M. Scott, I. Heinmaa, B. Ellis, L. Nazar and G. Goward

657 Study of a New Lamellar $LiCoO_2$ Polytype
R. Berthelot, D. Carlier, M. Pollet and C. Delmas

658 Structural and Electrochemical Properties of the $LiCo_{2/3}Ni_{1/6}Mn_{1/6}O_2$ Positive Electrode Material
A. Mahmoud, J. Amarilla and I. Saadoune

659 Simulating Microstructure and Mechanical Properties of Mesoporous Manganese Dioxide
P. Ngoepe, T. Sayle and D. Sayle

B11 - Ionic and Mixed Conducting Ceramics 7

High Temperature Materials / Energy Technology

660 Interfacial Effects on the Ionic Conductivity of Thin Film Electrolytes for Micro-Solid Oxide Fuel Cells
E. Traversa

661 Experimental and Theoretical NMR Spectroscopic Studies of Doped Lanthanum Gallate Anionic Conductors: Ion Mobility and Trapped Defects
F. Blanc, D. Middlemiss and C. P. Grey

662 BIMEVOX Solid Solutions as Possible Materials for Membranes of Electrochemical Devices
M. Morozova, E. Buyanova, J. Emelyanova, Z. Mihailovskaya, A. Shatohina, S. Petrova and V. Zhukovskiy

663 Plasma Spraying of Lanthanum Silicate Electrolytes for Intermediate Temperature Solid Oxide Fuel Cells
S. Dru, K. Wittmann-Teneze, E. Meillot, M. Saboungi and R. Benoit

664 Effects of Nanosized Metal Addition on Mixed Conductivity in Pr_2NiO_4 Based Oxide
T. Ishihara and K. Tominaga

665 Oxygen Nonstoichiometry and Charge Transfer in Double Perovskites $GdBaCo_{2-x}M_xO_{6-d}$ (M = Mn, Fe, x = 0, 0.2)
D. Tsvetkov, V. Sereda, I. Urusov, I. Ivanov and A. Zuev

666 Trends in Ab Initio Oxygen Reduction Reaction Energetics of $LaBO_3$ (B = Mn, Fe, Co, and Ni) for Solid Oxide Fuel Cells
Y. Lee, D. Morgan, J. Kleis and J. Rossmeisl

667 Electrochemical Performance of Nanoscaled $La_{0.6}Sr_{0.4}CoO_{3-\delta}$ as Intermediate Temperature SOFC Cathodes
J. Hayd, U. Guntow and E. Ivers-Tiffée

668 Impedance Modeling of Mixed Ionic Electronic Conducting Cathodes for Solid Oxide Fuel Cells
M. Søgaard, J. Mortensen and T. Jacobsen

669 Simple Infiltrated Microstructure Polarization Loss Estimation Models to Predict Solid Oxide Fuel Cell Cathode Polarization Resistance
J. Nicholas and S. Barnett

670 Oxygen Reduction at the Surface and the Hetero-Interface of La-Sr-Co-O-Oxides
A. Unemoto, K. Nagao, T. Tairako, K. Amezawa and T. Kawada

671 Cross Validation of Polarization in High Temperature Oxygen Electrodes by Impedance Spectroscopy and Current-Potential Sweep
X. Zhou, J. Huo, J. Templeton and J. Stevenson

672 Crystal Structure and Proton Conductivity in $BaSn_{1-x}Sc_xO_{3-\delta}$ (x = 0-0.5)
I. Ahmed, F. Kinyanjui, S. Norberg, S. Eriksson, S. Hull and E. Ahlberg

673 Identification of the Charge Carriers in Cerium Phosphate Ceramics
H. Ray, N. Adelstein and L. De Jonghe

674 Phase Transition Behavior of Proton Conducting Oxides, $Sr_{1-x}Ba_xZrO_3$
T. Sugimoto, S. Hasegawa and T. Hashimoto

675 Effects of A- and B-Sites Doping on Proton Conductivity of the Double Perovskite-Type $Ba_2CaNb_2O_6$
S. Bhella and V. Thangadurai

676 Tailoring Y-Doped Barium Zirconate Proton Conductor Electrolytes by Co-Doping with Pr for Intermediate Temperature Solid Oxide Fuel Cells
E. Fabbri, D. Pergolesi, H. Tanaka and E. Traversa

677 Solid State NMR Studies of Doped $BaSnO_3$ and $BaZrO_3$ Protonic Conductors: Defect Trapping and Ionic Mobility
L. Buannic, F. Blanc and C. Grey

678 High-Temperature Protonic Conduction Properties of a Psuedo-Ternary System, $LaFeO_3$-$SrFeO_{3-\delta}$-$SrZrO_3$
A. Unemoto, A. Kaimai, K. Sato, K. Yashiro, H. Matsumoto, J. Mizusaki, K. Amezawa and T. Kawada

679 Fabrication and Characterization of $BaIn_{0.3-x}Y_xCe_{0.7}O_{3-\delta}$ Proton Conductor
F. Zhao, Q. Liu, S. Wang and F. Chen

680 Co-Ionic Conductivity in Reaction Sintered $BaCe_{0.2}Zr_{0.6}Y_{0.2}O_{3-\delta}$ Protonic Ceramic
G. Coors and R. O'Hayre

681 Identification of Proton Hosting Sites in Strontium-Substituted Cerium Metaphosphate Glass-Ceramic Materials
J. Stettler, H. Ray, R. Wang, J. Reimer and L. De Jonghe

682 Possibility of Proton Conduction in Nanograin Yttria Stabilized Zirconia
J. Park, J. Shim, Y. Kim, T. Gür and F. Prinz

683 Correlated Charge Transport and RedOx Buffer Effect by Hole-Electron Pair via Auto-Ionization in Perovskite Oxide with Multivalent Cation on B-Site
T. Kikuchi, M. Tamaru, S. Miyoshi, T. Higuchi, J. Guo and S. Yamaguchi

684 Investigation of Conductivity and Ambipolar Transport of Hydrogen in Ni Doped $SrCe_{1-x}Y_xO_{3-\delta}$
H. Bentzer, N. Bonanos and J. Phair

685 Hydrogen Separating Membranes Based on Y/Pr Co-Doped Barium Cerate/Zirconate Mixed Conducting Ceramics
J. Melnik, J. Luo, A. Sanger and K. Chuang

686 Oxidative Coupling of Methane in Different Architectures of Mixed Conducting Membrane Reactors
N. Benameur, L. Olivier, C. Gaudillère, D. Farrusseng and C. Mirodatos

687 Reforming Natural Gas and Renewable Liquids Using Mixed-Conducting Dense Ceramic Membranes
U. Balachandran, T. Lee, C. Park, Y. Lu, B. Ma and S. Dorris

688 $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-\delta}$ for Oxygen Separation Membranes
P. Müller, E. Müller, H. Störmer, D. Gerthsen, C. Niedrig, S. Taufall, S. Wagner and E. Ivers-Tiffée

689 Assessment of the Electrochemical Properties of BSCF and Samarium Doped BSCF Perovskites
A. Verma and P. Singh

690 Defect Structure and Defect-Induced Expansion of Advanced MIEC Materials
A. Zuev and D. Tsvetkov

691 Dehydrogenation of Ethane to Ethylene in a Mixed Conducting Membrane Reactor
D. Farrusseng, N. Benameur, A. van Veen and C. Mirodatos

692 Comparative Studies on Properties of Scandia-Doped Zirconia Synthesized by the Polymeric Precursor and the Polyacrylamide Techniques
R. Muccillo and G. Costa

693 Nanoparticle Co-Cr_2O_3 Composite Anode Catalysts for Proton Conducting Solid Oxide Fuel Cells
X. Fu, J. Lin, J. Luo, K. Chuang, A. Sanger and R. Chi

694 Fundamental Thermodynamic Modifications in Wagner's Equation in Solid State Electrochemistry
T. Miyashita

695 Phase Stability and Electrochemical Analysis of Nb Doped $BaCe_{0.9}Y_{0.1}O_{3-x}$ Electrolyte for IT-SOFCs
E. Di Bartolomeo, A. D'Epifanio, M. Zunic and S. Licoccia

696 Effect of Processing Methodology on Microstructure and Ionic Conductivity of Yttria-Doped Zirconia
E. Muccillo and R. Muccillo

697 Correlation Between Electrochemical Properties and Local and/or Oxygen Defect Structures of Ln_2NiO_4 (Ln = La, Nd)
T. Ina, T. Nakao, Y. Orikasa, T. Fukutsuka, A. Mineshige, K. Amezawa, T. Kawada and Y. Uchimoto

698 Electronic and Local Structure Analysis of the Electrolyte / Electrode Interface if IT-SOFC by Depth Resolved XAS
T. Nakao, T. Ina, Y. Orikasa, T. Fukutsuka, Y. Terada, H. Tanida, T. Uruga, M. Takagaki, H. Toyokawa, K. Amezawa, T. Kawada, A. Mineshige and Y. Uchimoto

699 Internal Reforming Kinetics in SOFC-Anodes
A. Kromp, A. Leonide, H. Timmermann, A. Weber and E. Ivers-Tiffée

700 Kinetic and Thermodynamic Study of Highly Heteroepitaxial, $La_{0.8}Sr_{0.2}CoO_{3-\delta}$ Electrodes Through Non Linear Electrochemical Impedance Spectroscopy
T. McDonald, C. Kreller, S. Adler, H. Christen, G. la O', E. Crumlin and Y. Shao-Horn

701 Low ρ_{O2} Coulometric Titration of the Perovskite $La_{0.9}Ca_{0.1}FeO_{3-\delta}$ for Use in Ionic Transport Membranes
T. Geary, S. Adler, R. Gustafson and G. Cao

702 Chemical Anchoring of Nickel Metal Catalysts for Improved Stability at High Temperature
C. Law and S. Sofie

703 Stability of Oxides Studied with Standard Density Functional Theory
J. Rossmeisl and F. Calle-Vallejo

704 Oxygen Surface Exchange and Bulk Diffusion Coefficients Evaluated from Porous Mixed Ionic-Electronic Conducting Cathodes
C. Endler, A. Leonide, B. Rüger, A. Weber and E. Ivers-Tiffée

705 Finite Size Effect in Mixed Conducting LSCF and BSCF Ultra-Thin Films and Their Implications for Micro-Solid Oxide Fuel Cells
B. Lai, K. Kerman and S. Ramanathan

706 Electrode Reconstruction by FIB/SEM and Microstructure Modeling
J. Joos, B. Rüger, T. Carraro, A. Weber and E. Ivers-Tiffée

707 Preparation of $LaNi_{1-x}Fe_xO_3$ Single Phase and Analysis of Their Phase Transition and Chemical State of Fe
T. Hashimoto, T. Ohzeki, E. Miyashita, K. Shozukawa and M. Matsuo

708 Microstructure-Electrical Properties of Original LSCF Films Deposited by ESD for IT-SOFCs
D. Marinha and E. Djurado

709 Investigating Catalytic Properties of Cathode Materials Using Patterned Electrodes
X. Li, M. Lynch, M. Liu, X. Lou and M. Liu

710 Role of Electrode Morphology in Rate Limiting Mechanisms Governing SOFC Cathode Performance
C. Kreller, M. Drake and S. Adler

711 Impact of Initial Reduction and H_2/H_2O Contents on the Performance and Microstructure of Ni Cermets
T. Ramos, K. Thydén and M. Mogensen

712 Increase of Anode Performance of SOFC by Reverse Current Treatment
D. Klotz, A. Leonide and E. Ivers-Tiffée

713 Effect of AFL Composition on IT-SOFC Electrochemical Performance and Quantitative Microstructural Analysis Using FIB/SEM
K. Lee, N. Vito, M. Camaratta, H. Yoon and E. Wachsman

714 Thermodynamic Reconsiderations on Electronic Properties of Pure- and Doped-Ceria
H. Yokokawa, Y. Xiong, H. Kishimoto, K. Yamaji, M. Brito and T. Horita

715 Molybdenum Based Perovskite Electrodes for Solid Oxide Cells
C. Graves, B. Sudireddy and M. Mogensen

716 Continuum and Kinetic Monte Carlo Modeling of Oxide Ion Diffusion under Reducing Conditions at Platinum/Yttria-Stabilized Zirconia Interface
X. Tian, J. Shim, J. Park, T. Gür and F. Prinz

717 Development of a High-Performance Composite Cathode, $Bi_2Ru_2O_7$-$Er_{0.4}Bi_{1.6}O_3$, for IT-SOFC Using Glycine-Nitrate Combustion and Investigation on Its Catalytic Activity Towards Oxygen Reduction
B. Lee, E. Armstrong, M. Camaratta and E. Wachsman

718 Preparation and Performance of Oxygen Electrode for Solid Oxide Electrolysis Cells
C. Yang, A. Coffin and F. Chen

719 Development of Cathodes for Low Temperature Solid Oxide Fuel Cells
A. Lassman, A. Verma and P. Singh

720 Electrochemical Removal of NO_x-Gasses by Use of LSM and LSF Cathodes Impregnated with NO_x-Storage Compounds
M. Traulsen and K. Kammer Hansen

721 Electrochemical Reduction of NO_x Gases on Spinel-Type Electrode Materials
F. Bræstrup and K. Kammer Hansen

722 Ionic and Electronic Conductivity of Nanometer Sized Samaria-Doped Ceria Ceramics
E. Souza, W. Chueh, E. Muccillo and S. Haile

723 Significantly Enhanced Performance of the $GdBaCo_2O_{5+\delta}$ Cathodes with Active $Ce_{0.8}Sm_{0.2}O_{1.9}$ Nanoparticles
B. Wei, Z. Lü, D. Jia, T. Wei, X. Huang, Y. Zhang and W. Su

724 Local Charge Distribution Near Grain Boundaries of Nanocrystalline GDC
W. Lee, M. Lee, H. Jung and F. Prinz

725 Mixed Conductivity and Surface Reaction Kinetics of Pr-Sr-Fe-Based Perovskite-Type Oxides
Y. Nakashima and H. Takamura

726 Multidimensional Modeling of Thin Film Mixed Conductors: The Case of Ceria
F. Ciucci, Y. Hao and W. Chueh

727 Opportunities and Limitations of Perovskite-Fluorite Composite Ceramic Electrodes
M. Mogensen

728 Improvements in Atom Probe Tomography for Solid Oxide Fuel Cell Materials
N. Vito, E. Wachsman and K. Jones

729 Structural, Chemical and Electronic Inhomogeneities on $La_{0.8}Sr_{0.2}MnO_3$ Dense Thin-Film Surfaces
K. Katsiev, B. Yildiz, S. Krause, C. Heske, H. Du and P. Salvador

730 Electronic and Local Structures of $Nd_2NiO_{4+\delta}$ Epitaxial Thin Films Investigated by Depth-Resolved In Situ XAS
K. Amezawa, T. Ina, Y. Orikasa, A. Yamada, T. Fukutsuka, A. Unemoto, M. Takagaki, T. Uruga, H. Tanida, H. Toyokawa, Y. Terada, T. Kawada and Y. Uchimoto

731 Conductivity and Defect Chemistry Modeling of Oxygen Nonstoichiometry in $Cr_{1+\varepsilon}Mn_{2-\varepsilon}O_4$ Spinels
J. Ostby, F. Poulsen and T. Jacobsen

732 Defects and Ionic Conductivity in Single Crystal TlBr
S. Bishop, H. Tuller, W. Higgins, A. Churilov, G. Ciampi, L. Cirignano, H. Kim, F. Olschner, J. Tower and K. Shah

733 Synthesis and Li-Ion Transport Mechanism of $Li_{1.4}[M_{0.4}N_{1.6}](PO_4)_3$ (M= Al, Ga,) (N= Ti, Ge,) Electrolyte
P. Rayavarapu and S. Adams

734 Ultrafast Lithium Migration by Heterogeneous Doping in Surface Modified Li_xFePO_4
S. Adams and H. Choo

735 Preparation and Characterization of Fast Ion Conducting Lithium Thio-Germanate Thin-Films Grown by RF Magnetron Sputtering
S. Martin and I. Seo

736 Spray-Drying Synthesis of Lithium-Excess $Li_{4+x}Ti_{5-x-y}Nb_yO_{12}$ and Electrode Properties for Li-Ion Batteries
N. Kumagai, D. Yoshikawa, Y. Kadoma and K. Ui

737 Interaction of Intercalated Li with Oxygen Vacancies in TiO_2 and Its Effect on the Mobility of Li^+ and e^- Species
P. Sushko and K. Rosso

738 Fabrication of Thin-Walled β"-Alumina Electrolyte for Use in $Na/NiCl_2$ Cells
A. Mali and A. Petric

739 A 0-Dimensional Stationary Model for Anode-Supported Solid Oxide Fuel Cells
A. Leonide, S. Hansmann and E. Ivers-Tiffée

740 Evaluating H_2O Electrolysis on Ceria with Thin-Film Electrodes
S. DeCaluwe, C. Zhang and G. Jackson

741 Reversible Solid Oxide Fuel Cells for Coproduction of Electricity and Hydrogen
N. Minh

742 Long Term Testing of Solid Oxide Fuel Cells and Cell Stacks with Yttria Stabilized Zirconia Electrolyte in the H_2O Electrolysis Mode
J. Schefold, A. Brisse and M. Zahid

743 Anomalous Transport of a Thermal Disturbance in a Planar SOFC Stack
A. Kulikovsky

744 A First-Principles-Based Comparison Between Ruthenium- and Neobium-Doped Titanium Dioxide as Catalyst Support for High-Temperature Polymer Electrolyte Membrane Fuel Cells
E. Dy, Z. Shi, R. Hui, J. Zhang, Z. Liu and D. Jones

B12 - Metal/Air and Metal/Water Batteries

Energy Technology / Battery

745 Chemical and Electrochemical Processes in the Rechargeable Lithium Air Battery
K. Abraham, C. O'Laoire, M. Trahan and S. Mukerjee

746 Development of an Aqueous, Rechargeable Lithium-Air Battery Operating with Untreated Air
P. Stevens, G. Toussaint, G. Caillon, P. Viaud, P. Vinatier, C. Cantau, O. Fichet, C. Sarrazin and M. Mallouki

747 Li-Air Rechargeable Batteries Using Mesoporous α-MnO_2-Pd for Air Electrode
A. Thapa and T. Ishihara

748 Water-Stable Lithium Electrode with a Water-Stable Lithium Conducting Solid and a Composite Polymer Buffer Layer for Lithium-Air Batteries
N. Imanishi, T. Zhang, Y. Shimonishi, A. Hirano, Y. Takeda and O. Yamamoto

749 A Radical New Cell Design for Lithium-Air Technology
A. Dobley, C. Morein, R. Roark and T. Dillon

750 The Rechargeable Lithium/Oxygen Battery
V. Giordani, D. Larcher, L. Laffont, J. Tarascon and P. Bruce

751 Li-Air Batteries Using Buckypapers as Air Electrodes
G. Zhang, J. Zheng, R. Liang, M. Hendrickson and E. Plichta

752 Functionalized Carbon Nanofoam Electrode Architectures as Cathodes for Metal-Air Batteries
C. Chervin, J. Long, J. Wallace, J. Dysart and D. Rolison

753 Stability of Li Air Batteries in Open Environment
J. Zhang, W. Xu, J. Xiao, D. Wang and R. Williford

754 A First-Principles Study of the Nucleation of Lithium Oxides on Various Catalytic Materials
Y. Xu and W. Shelton

755 Silver-Polymer-Carbon Composite Air Electrodes for Metal-Air Batteries
A. Marschilok, S. Lee, P. Chen, C. Milleville, A. Subramanian, K. Takeuchi and E. Takeuchi

756 Development of a Rechargeable Zinc/Air Fuel Cell with a Zinc Foam Anode and a Polymer Membrane Electrolyte
J. Drillet, M. Adam, S. Barg, A. Herter, D. Koch, V. Schmidt and M. Wilhelm

757 Development of a Rechargeable Zinc-Air Battery
G. Toussaint, P. Stevens, F. Moureau, R. Rouget and F. Fourgeot

758 Morphology Control of Electrodeposited Zinc from Alkaline Zincate Solutions for Rechargeable Zinc Air Batteries
N. Shaigan, W. Qu and T. Takeda

759 Zinc as an Energy Carrier Material: Form and Property
G. Zhang

760 Low Temperature Pyrolysed CoTMPP/C and Its Applications as an Improved Catalyst for Metal-Air Batteries/Fuel Cells
A. Li, H. Wang, W. Qu, X. Li, Z. Jong and H. Li

761 Low Temperature Oxygen Reduction on Nasicon Glass-Ceramics Surfaces
B. Kumar, J. Kumar, S. Rodrigues and J. Fellner

762 Development of Carbon-Supported $La_{0.5}Ca_{0.5}CoO_3$ Material for ORR in Strong Alkaline Electrolytes and Its Implication in Rechargeable Metal-Air Alkaline Batteries
X. Li, A. Li, W. Qu, H. Wang, R. Hui and J. Zhang

763 Water Management Diagnosis and Auto-Recovery Methods for PEM Fuel Cell Stacks
P. Pei, X. Yuan and P. Chao

764 Microwave Synthesis of Metal Phthalocyanines on Carbon Substrates and its Effect on Li-Air Cell Performance
T. Hirai and E. Yamashita

765 Understanding Electrocatalysts for Rechargeable Lithium-Air Batteries
G. Veith, Y. Xu, W. Shelton, J. Hodges, J. Howe and N. Dudney

766 Influence of Solid Solution Elements on Electrochemical Corrosion Hehavior of Mg Anodes
Y. Feng, R. Wang, C. Peng, N. Wang and K. Qiu

C1 - Electrochemistry in Medicine and Biomedical Applications

Organic and Biological Electrochemistry / Sensor / Physical and Analytical Electrochemistry

767 Electrochemical Sensors in Medicine: Meeting Needs for the 21st Century
M. Meyerhoff

768 The Need for Assaying Nitric Oxide in Cancer and Inflammation and Its Selective Assay Through Capture by Emeraldine Acid Polyradical
A. Murthy and A. Heller

769 Fluorescence Spectroelectrochemical Sensor for 1-Hydroxypyrene, a Biomarker for PAH Exposure
W. Heineman, T. Pinyayev and C. Seliskar

770 Single Cell Measurements of Genomic and Protein Biomarkers Using Microimmuno Sensors
S. Prabhulkar and C. Li

771 Electrochemiluminescent Array for Protein Cancer Biomarkers Using Single-Wall Carbon Nanotube Forests and $[Ru\text{-}(bpy)_3]^{2+}$-Doped Silica Nanoparticles
N. Sardesai, S. Pan and J. Rusling

772 Electrochemical Behavior of α-Lipoic Acid
C. Krishnan and M. Garnett

773 DNA Conformational Switches as Sensitive Electronic Biosensors for the Detection of Plasma Proteins
H. Yu

774 Spin Coupled DNA
M. Garnett, C. Krishnan and B. Jones

775 Scanning Electrochemical Microscopy of Individual Pancreatic Islets
J. Wilburn, M. Ciobanu and D. Cliffel

776 Electrochemistry-Based Dynamic Control of Cellular Adhesion and Functions
K. Nagamine and M. Nisizawa

777 Combined Chitosan Nano-Bead with Microfluidic-Microelectric Traps of Lead (II) Chelation in Continuous Bloodstream Flow
M. Wang

778 Silver Nanocrystal Synthesis under Controlled Microfluidic Mixing and in the Presence of Silver-Binding Proteins
C. Grosh, F. Baneyx and D. Schwartz

801 The Study of Corrosion Resistance of Magnesium with Apatite Film Forming by Electrochemical Deposition
M. Chen and P. Hsieh

C2 - Manuel M. Baizer Award Symposium on Organic Electrochemistry

Organic and Biological Electrochemistry

802 Electrosynthesis of Organofluorine Compounds Toward Green Sustainable Chemistry
T. Fuchigami

803 Competition Studies and Nitrogen-Trapping Groups: New Insights into the Anodic Olefin Coupling Reaction
H. Xu and K. Moeller

804 Amphiphilic Viologen in Water: Electro-Generation of Organic Reductants in Water and Application to Reductive Coupling of Ar-X
T. Yamamoto, M. Kuroboshi and H. Tanaka

805 Stability of and Electron Transfer Through Self-Assembled Monolayers of Conformationally Constrained Peptides
S. Antonello, P. Gobbo, I. Guryanov, M. Hesari, M. Zamuner and F. Maran

806 Iron Salt-Catalyzed One Pot Nazarov/Michael Reaction in an Ionic Liquid Solvent System
T. Itoh, C. Ibara, M. Fujiwara, S. Hayase, M. Kawatsura and M. Nanjo

807 Boron-Doped Diamond Electrodes as Novel Tools for Electroorganic Synthesis
S. Waldvogel

808 Electroreduction of Nitrocyclopropanes
F. Couture-Martin, C. Cristea, A. Sardashti, J. Chapuzet and J. Lessard

809 Synthesis of Epoxyquinols via Anodic Oxidation and Evaluation of NF-κB Inhibitory Activity
T. Saitoh, E. Suzuki, A. Takasugi, R. Obata, Y. Ishikawa, K. Umezawa and S. Nishiyama

810 ArS^+ Initiated Addition of ArSSAr to Dienes via Intramolecular C-C Bond Formation
J. Yoshida, K. Matsumoto, S. Fujie, S. Suga and T. Nokami

811 Bithiophene Electropolymerization: Comparing the Effect of the Medium Acidity Level in Acetonitrile
P. Espinoza-Montero and B. Frontana-Uribe

812 Electrochemical Transformation of α-Silylcarboxylic Acids into Novel Disilylalkanes
A. Shtelman and J. Becker

813 Development of a Chemoselective Cross-Coupling Reaction System Using a Micro-Flow Reactor
F. Amemiya, T. Fuchigami and M. Atobe

814 Further Exploration of the Redox Chemistry of Strained Hydrocarbons and the Pseudopterosins
S. Yoo, W. Zhong, J. Mallory, D. Day, R. Jacobs and D. Little

815 Synthesis of 2-Aryl-3,3,3-Trifluoropropanoic Acids, β,β,β-Trifluorinated Analogues of Non-Steroidal Anti-Inflammatory Drugs, by Electrochemical Carboxylation of (1-Bromotrifluoroethyl)arenes
H. Senboku, Y. Yamauchi and S. Hara

816 Electrochemical Reduction of 1-(2-Chloroethyl)-2-Nitrobenzene at Carbon Electrodes in Dimethylformamide
P. Du and D. Peters

817 Catalytic Function of Polymer-Supported B_{12} Complex Utilizing Electron Transfer
H. Shimaoshi, M. Nishi, A. Tanaka and Y. Hisaeda

818 Scope and Mechanistic Study of Electroreductive Intramolecular Cyclization of Haloaryl Ethers
K. Mitsudo, Y. Nakagawa, J. Mizukawa, S. Suga, R. Akaba and H. Tanaka

819 Pd/TEMPO-Catalyzed Electrooxidative Coupling of Arylboronic Acids and Terminal Alkynes
K. Mitsudo, T. Shiraga, J. Mizukawa and H. Tanaka

820 Long-Range Electron Transfer Mediated by Carbon-Carbon Bond Formation
R. Akaba, Y. Okada and K. Chiba

821 Progress Toward a General Correlation of Structure with Redox Potential
A. Davis and A. Fry

822 Preparation of Pt-Pd Bimetal Material by Hydrogen Reduction and Electron Transfer Method
S. Maki, T. Saitoh and S. Nishiyama

823 Anodic Fluorination of Conjugated Polymers: Main-Chain and Side-Chain Modifications
S. Inagi, S. Hayashi and T. Fuchigami

824 Electrochemical Oxidation and Cation Radicals of All-Five and All-Six 1-Substituted Atranes (M = Si, Ge): Spectroelectrochemical Study
V. Jouikov

825 Voltammetric Investigations of Ketone Complexation by Lewis Acids
G. Cheek

826 Environmental-Friendly Emulsion Electrosyntheses Using Acoustic Emulsification
M. Atobe, S. Ikari, F. Amemiya, R. Asami and T. Fuchigami

827 Photo-Induced Dehalogenation Reactions Mediated by Hydrophobic Vitamin B_{12}
Y. Hisaeda, K. Tahara and H. Shimakoshi

828 Electrochemical Reduction of Molecules with More Redox Centers: Mono-, Di-, Tri- and Tetranitrocalix-[4]-arenes and Their Models
J. Ludvik and A. Liska

829 Novel Synthesis of 1,4-Dialkoxy-5,6,7,8-Substututed-2,3-Dicyanonaphthalenes Through Electron-Transfer from Mg-Metal and Development of New Naphthalocyanines
I. Nishiguchi, T. Miyazaki, A. Harada and H. Maekawa

830 Chemistry on Microelectrode Arrays: Developing New, Stable Porous Reaction Layers
L. Hu and K. Moeller

831 Trialkylammonium Thiocyanate Molten Salts Bearing Hydroxyl Group and Its Application to the Solid-State Dye-Sensitized Photovoltaic Cells
A. Konno

832 Electroreductive Block Copolymerization of Dichlorosilanes in the Presence of Disilane Additives
M. Ishifune, C. Sana and S. Kashimura

833 Electrochemical Bond Generation Between Fe, Ru and Group (XIV) Elements
S. Neuhold, J. Albering, M. Flock and C. Grogger

834 Electrochemical Determination of Bromoform in Water by Stripping Analysis
A. Peverly and D. Peters

835 Intramolecular Electron Transfer Through Non Conjugated Network: Probing by the Formation of Cyclobutane Ring
Y. Okada, R. Akaba and K. Chiba

C3 - Organic and Biological Electrochemistry General Poster Session

Organic and Biological Electrochemistry

836 Electrochemical Copolymerization of Azulene and 3-Thiophene Acetic Acid
C. Lete, F. Teodorescu, M. Marin and N. Totir

837 Selective Permeation of Redox Probes in DMPC Supported Bilayers on Gold
M. Daza Millone, M. Vela, N. Tognalli, A. Fainstein and R. Salvarezza

838 Electropolymerization of Ferrocene-Modified Polypyrrole in Aqueous Micellar Solutions
D. Hickey, M. Meredith and D. Glatzhofer

839 Antioxidative Activity of Wines and Individual Phenolics Determined Using a Recently Developed Assay Based on DC Polarography
S. Gorjanović, N. Potkonjak, M. Novaković and D. Sužnjević

840 Effect of Electrical-Discharging on Surface Properties and Biocompatibility of $Ti^{6}Al^{4}V$ Alloy
Y. Pan, P. Peng, H. Lin and K. Ou

841 Study on Real Time Monitoring of TDMAT for TiN Metal Organic Chemical Vapor Deposition
J. Yun, S. Kang, J. Kim and Y. Shin

842 The Electrolytic Dissociation of 1,1-Cyclopropanedicarboxylic and 1,1-Cyclobutanedicarboxylic Acids
E. Kvaratskhelia and R. Kvaratskhelia

843 Carbazole-Tripheylamine-Based Dye-Sensitized Solar Cells
C. Yang and S. Liao

D1 - Corrosion General Session

Corrosion

844 A Green Pathways: Investigation of Corrosion Inhibitors and Inhibitive Effect of Some Novel Organic Dyes on the Corrosion of 2S Aluminum in Alkaline Media
P. Patel

845 The Explaining and Analysis of Metal Passivation with Electron Theory
L. Li

846 Study of Corrosion Behavior of Ni-Cu-P- Nano Al_2O_3 Electroless Composite Coatings by EN Method and Comparison with EIS and Polarization Results
H. Ashassi-Sorkhabi and H. Aminikia

847 Corrosion Inhibitory Effects of a New Synthetic Symmetrical Schiff-Base on Mild Steel In 1.0M HCl And 0.5M H_2SO_4 Media
A. Dadgarinezhad and F. Baghaei Ravari

848 Inhibition of Aluminum Corrosion in 0.5 MH_2SO_4 Using the Propargyl Alcohol
F. Baghaei Ravari and A. Dadgarinezhad

849 Synergistic Effect of Different Salts on the Inhibition Efficiency of a Cationic Surfactant on Steel Corrosion in Acid Medium
D. Asefi, M. Arami and N. Mahmoodi

850 Corrosion Inhibition of Titanium in Acidic Media Containing Fluoride with Bixin
J. Chauhan and D. Gupta

851 Decision of Corrosion Protection Potential for FSWed Dissimilar Aluminum Alloy via Slow Strain Rate Test
S. Kim, J. Park, M. Han and S. Jang

852 Anodic Behavior of Iron in Hydrocarbonate Media with Addition of Nitrate- and Sulphate-Ions in Different Thermal Conditions
S. Kaluzhina, N. Nafikova and N. Lapunina

853 Compute of the Diffusion Coefficient to the Alloy Fe - Ni, Using the Radless-Sevsik Correlation, in Basic NaOH Solutions Environment
B. Martínez, A. Oropeza and C. Martínez

854 Formation of Anodic Oxidation Films on As-Cast Surface of AC2A Casting Al Alloy
S. Moon, C. Yang and Y. Jeong

855 Modeling of Corrosion Resistance of Some Titanium Base Alloy in Aggressive Environments
M. Popa, E. Vasilescu, P. Drob, C. Vasilescu, S. Drob and J. Mirza Rosca

856 Corrosion Resistance of a New Bioalloy in Physiological Fluids
M. Popa, E. Vasilescu, P. Drob, C. Vasilescu, S. Drob and M. Popa

857 Studies on the Stability of Zn and Zn-TiO_2 Nanocomposite Coatings Prepared by Pulse Reverse Current
A. Gomes, T. Frade and M. da Silva Pereira

858 High Temperature Corrosion Study for T22 Alloy Applying Electrochemical Techniques
C. Cuevas-Arteaga

859 Deposition and Characterization of Corrosion-Resistant Amorphous Chromium Carbide Thin Films
J. Högström, M. Hanson, S. Urbonaite, A. Furlan, W. Fredriksson, S. Franson, K. Edström, U. Jansson and L. Nyholm

881 Assessment of Corrosion Resistance and Biocompatibility of Ti-Ta and Ti-Ta-Cr Alloys
P. Gill, N. Munroe, W. Haider, C. Pulletikurthi, S. Pandya and V. Tek

882 The Coefficient γ is the Quantitative Characteristic of the Activating or Inhibiting Properties of Inorganic Oxidizing Agent
M. Reda

883 Effect of Current Density and Time on AC/DC Spark Anodization of Al-Cu Alloys
E. Alsrayheen, R. Rateick and V. Birss

884 On Time-Constant Distributions Associated with the Constant-Phase Element
B. Hirschorn, M. Orazem, B. Tribollet, V. Vivier, I. Frateur and M. Musiani

885 EIS Study on the Corrosion Behavior of $CuFeS_2$ Thin Film
A. Ghahremaninezhad, E. Asselin and D. Dixon

886 The Impact of Core-Shell Micelles on Steel Properties and Microstructural Characteristics in Reinforced Mortar after Corrosion and Cathodic Prevention
D. Koleva, J. Hu, K. van Breugel and N. Boshkov

887 Hybrid Composite Aggregates for Superior Corrosion Performance of Low-Carbon Steel in Model Solutions
D. Koleva, J. Hu, K. van Breugel, N. Boshkov, T. Radeva and V. Milkova

888 Preliminary Study on the Self-Healing of Steel, Resulting from the Presence of Nano-Aggregates in Cement Extract
J. Hu, D. Koleva, K. van Breugel and P. Petrov

889 The Bi-Layer Point Defect Model for Passive Films
D. Macdonald and G. Englehardt

890 Location and Estimation of Oxygen Reduction Reaction on a Corroding Metal Surface Covered with Metal Oxide: A Porous Electrode Model
M. Venkatraman, I. Cole and B. Emmanuel

891 New Scientific Definition of the Phenomenon of Passivity
M. Reda

892 The Role of Alumina in Aluminum Corrosion and Passivation
J. Skrovan, A. Alfantazi and T. Troczynski

893 Influence of Microstructure on Corrosion Performance of Cu-Lean 7003 Aluminum Alloy Extrusions
C. Krishnan and J. Kish

894 Ferromagnetic $CoPt_3$ Nanowires Using a Porous Anodic Alumina Template
R. Liu

895 High Temperature Corrosion of 625 Superalloy under Iron-Zinc Oxide/Lead Sulfate Salt Mixture
E. Mohammadi Zahrani, A. Alfantazi and D. Verhelst

896 Effect of Particle Angular Velocity on Erosion Enhanced Corrosion of 304 Stainless Steel
F. Mohammadi and J. Luo

897 Corrosion Protection Mechanisms of Cerium-Based Conversion Coatings on Aluminum Alloys
W. Pinc, S. Maddela, W. Fahrenholtz and M. O'Keefe

898 Acid Pickling Treatments to Enhance the Performance of Cerium Conversion Coating on AZ31 Magnesium Alloys
H. Su, Y. Huang, W. Li and C. Lin

899 Directly Deposited $CePO_4$ Coatings for the Corrosion Protection of Al 2024-T3
D. Heller, W. Fahrenholtz, M. O'Keefe and G. Fair

900 Effect of Humidity on Cerium Based Conversion Coatings
S. Joshi, W. Fahrenholtz and M. O'Keefe

901 Characterization of Transport Processes in a Praseodymium-Based Coating
B. Treu, W. Pinc, W. Fahrenholtz, M. O'Keefe, E. Morris and R. Albers

902 Electrochemical Analysis of a Polypyrrole/Aluminum Flake Composite Pigment: The Influence of the Dopant
C. Vetter, M. Yan, S. Hoge and V. Gelling

903 Coatings for Early Corrosion Detection
H. Wheat and G. Liu

904 The Electrochemical Polarization and Galvanic Couple Behavior of the Primary Phase of 55% Al-Zn Coating
T. Lowe, G. Wallace and A. Neufeld

905 Investigation of the Corrosion Barrier Properties of Multilayer Oxides by High Throughput Electrochemical Screening
T. Muster, S. Dligatch, T. Markley, P. Martin, A. Bendavid, D. Lau, A. Trinchi and A. Bradbury

906 Corrosion Protection for 316 Stainless Steel Using Nanoporous, Nanoparticulate Thin-Films Oxide Coatings
M. Tejedor and M. Anderson

907 Electrodeposited Ni-Al_2O_3 Composite Coatings from Supercritical Carbon Dioxide Fluid
S. Chung, S. Chiu and W. Tsai

908 Microstructures and Corrosion Properties of Multilayered TiAlN/SiN_x Coatings
Y. Chan and J. Duh

909 Review of Studies on Corrosion of Electrodeposited Nanocrystalline Metals and Alloys
N. Nik Masdek and A. Alfantazi

910 Corrosion Protection of Steel by Al-Mg Plasma Spray Coating
Y. Takeyoshi, S. Takase, Y. Shimizu, M. Sueyoshi and Y. Uchida

911 The Effect of Copper Undercoat on the Corrosion and Wear Resistance of a Cr-C Deposit Electroplated from a Trivalent Chromium-Based Bath
Y. Liu, S. Hsu, C. Chuang and C. Huang

912 Improvement of Electrochemical Migration Resistance by Sn Coating on Cu Electrode in Printed Circuit Board
M. Jung, S. Lee, H. Lee, C. Ryu, Y. Ko, H. Min and Y. Joo

E1 - Advanced Gate Stack, Source / Drain, and Channel Engineering for Si-Based CMOS 6: New Materials, Processes, and Equipment

Electronics and Photonics / Dielectric Science and Technology / High Temperature Materials

913 More after Moore to Get More from Moore
C. Smith, M. Hussain, W. Loh, C. Kang, D. Gilmer, G. Bersuker, P. Majhi, P. Kirsch and R. Jammy

914 Silicon Photonics Technologies for Monolithic Electronic-Photonic Integrated Circuit
G. Lo, K. Ang, T. Liow, Q. Fang, J. Zhang, M. Yu and D. Kwong

915 Scaling FETs to 10 nm: Coulomb Effects, Source Starvation, and Virtual Source
M. Fischetti, S. Jin, T. Tang, P. Asbeck, Y. Taur, S. Laux, N. Sano and M. Rodwell

916 Cross-Sectional UV-Raman Measurement for Two-Dimensional Channel-Stress Profile in Extremely High-Performance pMOSFET
H. Akamatsu, M. Takei, D. Kosemura, K. Nagata, S. Mayuzumi, S. Yamakawa, H. Wakabayashi and A. Ogura

917 Novel Noncontact Approach to Characterization of Mobility in Inversion Layers Using Corona Charging of Dielectric and SPV Monitoring of Sheet Resistance
J. Everaert, E. Rosseel, A. Meszaros, K. Kis-Szabo, P. Tutto, A. Pap, T. Pavelka, M. Wilson, A. Findlay, L. Jastrzebski and J. Lagowski

918 Effect of Carrier Scattering Phenomena on Drain Current Variability in Si MOSFETs
K. Ohmori, T. Matsuki, Y. Ohkura, J. Yugami, K. Ikeda, Y. Ohji, Y. Yasuda, T. Endoh, K. Shiraishi and K. Yamada

919 Carrier Mobility Variations in Self-Aligned Germanium MOS Transistors
Y. Low, D. Tantraviwat, P. Rainey, P. Baine, D. William, N. Mitchell, B. Armstrong and H. Gamble

920 Strained Si:C Using ClusterCarbon Implant
K. Sekar and W. Krull

921 Epitaxial Growth of Si:C Alloys: Process Development and Challenges
A. Dube

922 Electrical and Materials Analysis of III-V Semiconductors for MOSFETs with Gate Lengths below 20nm
D. Barlage, M. Veety, M. Vaidyanathan and M. Johnson

923 Investigation of the New Physical Model of Ohmic Contact for Future Nanoscale Contacts
Y. Takada, M. Muraguchi, T. Endoh, S. Nomura and K. Shiraishi

924 Advanced (Millisecond) Annealing in Silicon-Based Semiconductor Manufacturing
S. Govindaraju, C. Shih and R. Panchapakesan

925 Advanced Source/Drain Engineering for MOSFETs: Schottky Barrier Height Tuning for Contact Resistance Reduction
Y. Yeo

926 Oxygen Transport in High-k Metal Gate Stacks and Physical Characterization by SIMS Using Isotopic Labeled Oxygen
M. Hopstaken, J. Bruley, D. Pfeiffer, M. Copel, M. Frank, E. Cartier, T. Ando and V. Narayanan

927 Ultimate EOT Scaling (< 5Å) Using Hf-Based High-κ Gate Dielectrics and Impact on Carrier Mobility
T. Ando, M. Frank, K. Choi, C. Choi, J. Bruley, M. Hopstaken, M. Copel, R. Haight, H. Arimura, H. Watanabe and V. Narayanan

928 Physical and Electrical Properties of MOCVD Grown $HfZrO_4$ High-k Thin Films Deposited in a Production-Worthy 300 mm Deposition System
S. Consiglio, C. Wajda, G. Nakamura, R. Clark, S. Aoyama and G. Leusink

929 Atomic Vapor Deposition and Atomic Layer Deposition of High-k and Electrode Materials
M. Heuken, U. Weber, P. Lehnen, P. Baumann, Y. Senzaki, J. Lindner, B. Lu and Z. Karim

930 Transformation of Crystalline Structure of HfO_2 by La- or Y-Oxide Capping and Annealing
T. Suzuki, T. Matsuki, T. Morooka, M. Sato, J. Yugami, K. Ikeda and Y. Ohji

931 Rare Earth Materials for Semiconductor Applications
S. Van Elshocht, C. Adelmann, M. Popovici, J. Swerts, A. Delabie, L. Nyns, X. Shi, H. Tielens, G. Pourtois, T. Schram, D. Pierreux, J. Maes, A. Hardy, M. Van Bael and J. Kittl

932 Impact of the Metal Gate on Carrier Transport in HK/MG Transistors
M. Cassé, X. Garros, L. Bruent and G. Reimbold

933 High Performance and Highly Uniform Metal Hi-K Gate-All-Around Silicon Nanowire MOSFETs
J. Sleight, S. Bangsaruntip, G. Cohen, A. Majumdar, Y. Zhang, S. Engelmann, N. Fuller, L. Gignac, S. Mittal, J. Newbury, T. Barwicz, M. Frank and M. Guillorn

934 Determination of Band Offsets, Chemical Bonding and Microstructure of the $(Tb_xSc_{1-x})_2O_3$/Si System
I. Geppert, M. Eizenberg, N. Bojarczuk, L. Edge, M. Copel and S. Guha

935 Electrical Characteristics of Metal-Ferroelectric ($BiFeO_3$) - High-k Insulator ($LaGdO_3$) -Semiconductor Capacitors and Field-Effect Transistors
R. Thomas, T. Kalkur, S. Pavunny, N. Murari and R. Katiyar

936 Electrical Characterization of ALD Al_2O_3 and HfO_2 Films on Germanium
D. Tantraviwat, Y. Low, P. Baine, N. Mitchell, D. McNeill, B. Armstrong and H. Gamble

937 Electrical and Physical Properties of High-k Gate Dielectrics on $In_xGa_{1-x}As$
E. Vogel, A. Sonnet, R. Galatage, M. Milojevic, C. Hinkle and R. Wallace

938 Effect of Ozone Concentration on Atomic Layer Deposited High-k Dielectric on Si and GaAs
K. Chung, T. Park, P. Sivasubramani, J. Kim and J. Ahn

939 Investigation of High-K Dielectrics on Compound Semiconductors for Applications in RF, Mixed Signal and Power Electronics
V. Misra, R. Suri, D. Lichtenwalner and C. Kirkpatrick

940 $(NH_4)_2S$ Passivation of High-k/$In_{0.53}Ga_{0.47}As$ Interfaces: A Systematic Study of $(NH_4)_2S$ Concentration
E. O'Connor, B. Brennan, R. Contreras, M. Milojevic, K. Cherkaoui, S. Monaghan, G. Hughes, M. Pemble, R. Wallace and P. Hurley

941 SiO Emission and Incorporation in Silicon Oxidation Process Using Molecular Dynamics Method
N. Takahashi, T. Yamasaki and C. Kaneta

942 Analytical Characterization of ALD Thin Film Precursors
L. Milstein, P. Clancy and H. Gotts

943 Atomic Layer Deposition of Boron Oxide as Dopant Source for Shallow Doping of Silicon
B. Kalkofen and E. Burte

944 Effective Mass, Mobility, On-Current and Transconductance of FETs on SSOI and SOI
S. Feste, T. Schäpers, D. Buca, Q. Zhao, J. Knoch, M. Bouhassoune, A. Schindlmayr and S. Mantl

945 Low Temperature Epitaxy of Si and SiGe Using Disilane Based Chemistry for Electronic Purposes
J. Damlencourt

946 Dopant Transport in Tungsten Silicide Buried Layers for Application in SSOI
S. Liao, M. Bain, P. Baine, J. Montgomery, D. McNeill, B. Armstrong and H. Gamble

947 Dependence of SOI Property on Memory Characteristic in a Cap-Less Memory Cell
T. Shim, S. Kim, T. Kim and J. Park

948 Niobium Precursors for Atomic Layer Deposition of Nb_2O_5
A. Zauner, M. Karakachian, C. Lachaud, V. Lahootun and A. Pinchart

949 Impact of Work Function Optimized S/D Silicide Contact for High Current Drivability CMOS
Y. Nakao, R. Kuroda, H. Tanaka, T. Isogai, A. Teramoto, S. Sugawa and T. Ohmi

950 The Investigation of Interface Oxide of HfO_2 and Al_2O_3 Stacks on GaAs(100) Surfaces
Y. Cho, D. Suh, D. Ko and M. Cho

951 Atomically Flattening Technology at 850 ºC for Si(100) Surface
X. Li, A. Teramoto, T. Suwa, R. Kuroda, S. Sugawa and T. Ohmi

952 Improvement of Electrical Performances of Tungsten Dual-Work Function Gate Electrode Using WSiN/WN/Ti Stacks as a Diffusion Barrier Metal
H. Kim, I. Rho, C. Kim, M. Gil and H. Kang

953 Quasistatic Capacitance-Voltage Characterization of Thin Ta_2O_5 Films
L. Sanchez, N. Nedev, R. Zlatev, M. Curiel and B. Valdez

954 Electrical Characterization of High-Pressure Reactive Sputtered Sc_2O_3 Films on Silicon
H. Castán, S. Dueñas, A. Gómez, H. García, L. Bailón, P. Feijoo, E. San Andrés, I. Mártil and G. González-Díaz

955 Selective Epitaxial Growth of Silicon Layer Using Batch-Type Equipment for Vertical Diode Application to Next Generation Memories
K. Lee, D. Yoo, Y. Yoo, J. Han, S. Kim, H. Jeong, C. Kang, J. Moon, H. Park, H. Jeong, G. Kim and B. Choi

956 Electrical Extraction of One Dimensional MOSFET Transistor Channel Doping Profiles by Threshold Voltage Measurement
H. Park, K. Lee, H. Jeong, G. Kim and B. Choi

957 Studies on Hole Trapping and SILC of Dual Layer nc-ITO Embedded ZrHfO Memories
C. Lin, C. Yang and Y. Kuo

958 Optical Characterization of Surface Profile of Various $Si_{1-x}Ge_x$/Si Wafers Before and After Annealing Step
W. Yoo, T. Ueda, T. Ishigaki and K. Kang

959 Nondestructive Characterization of Ge Content and Ge Depth Profile Variations in $Si_{1-x}Ge_x$/Si by Multiwavelength Raman Spectroscopy
W. Yoo, T. Ueda, T. Ishigaki and K. Kang

960 Influence of Postdeposition Annealing on Physical and Electrical Properties of High-k Yb_2TiO_5 Gate Dielectrics
T. Pan, L. Yen, M. Tsai and T. Chao

961 Structural and Electrical Properties of High-k $HoTiO_3$ Gate Dielectrics
T. Pan, L. Yen, C. Hu and T. Chao

962 Electron Tunneling Between Si Quantum Dots and Two Dimensional Electron Gas under Optical Excitation at Low Temperatures
Y. Sakurai, S. Nomura, Y. Takada, K. Shiraishi, M. Muraguchi, T. Endoh, M. Ikeda, K. Makihara and S. Miyazaki

963 Hydrogen Implantation in Germanium
Y. Low, P. Rainey, R. Hurley, P. Baine, D. McNeill, N. Mitchell, H. Gamble and B. Armstrong

964 Analysis of the Homogeneous Thermal Decomposition of the Tungsten Dimethylhydrazido Complex $Cl_4(CH_3CN)W(NNMeM_2)$ Using In Situ Raman Spectroscopy and DFT Calculations
J. Lee, D. Kim, O. Kim, T. Anderson, J. Koller and L. McElwee-White

965 Improved Performance of MIC Poly-Si TFTs Using Driven-In Nickel Induced Crystallization with Cap SiO_2 by F Implantation
M. Lai, Y. Wu, T. Tung and H. Wu

966 Fabrication of High Electrical Performance NILC-TFTs Using FSG Buffer Layer
C. Chen, Y. Wu, T. Tung and H. Wu

967 Effect of In Situ Hydrogen Annealing on Dielectric Property of a Low Temperature Silicon Nitride Layer in a Bottom-Gate Nanocrystalline Silicon TFT by Catalytic CVD
Y. Lee, K. Lee, J. Hwang, K. No and W. Hong

968 CMP Chemistry and Process for Cu Interconnection with Co and Ru Barrier
Y. Wang, M. Gage, W. Tu, Y. Wang, L. Karuppiah, K. Xu and Y. Chen

969 Application of Atmospheric Plasma for Low Temperature Wafer Bonding
Y. Low, P. Rainey, P. Baine, J. Montgomery, D. McNeill, N. Mitchell, H. Gamble and B. Armstrong

970 Decomposition Characteristics of Metal-Organic Materials of Ga Doped Zinc Oxide for Evaluation as MOCVD Precursor
S. Yamashita, K. Watanuki, H. Ishii, M. Kitano, Y. Shirai and T. Ohmi

E2 - Dielectrics for Nanosystems 4: Materials Science, Processing, Reliability, and Manufacturing

Dielectric Science and Technology

971 Changing Front-End Dielectric Requirements for End-of-the-Roadmap CMOS and Beyond
L. Register, N. Shi, M. Hasan, D. Basu, D. Reddy and S. Banerjee

972 A Brain-Inspired VLSI Architecture for Nano Devices and Circuits
T. Shibata

973 High-k Gate Dielectrics for Nanoscale CMOS Devices: Status, Challenges, and Future
D. Park

974 (Invited) ALD High-k as a Common Gate Stack Solution for Nanoelectronics
P. Ye and J. Gu

975 Towards the Ultimate Scaling of MOSFET Gate Dielectrics: Direct Contact of High-k and Silicon
P. Ahmet, K. Kakushima and H. Iwai

976 Quantitative Correlation Between Low-Field Mobility and High-Field Carrier Velocity in Quasi-Ballistic-Transport MISFETs with High-*k* Gate Dielectrics
K. Tatsumura, M. Goto, S. Kawanaka and A. Kinoshita

977 Effect of the Chemical Oxide Layer Thickness on the Interfacial Quality of ALD-grown HfO_2 on Silicon
S. Li and Z. Chen

978 A Comparison of O_3 and H_2O as Oxygen Sources for Atomic Layer Deposition Processing of $HfAlO_x$ Thin Films for High-k Dielectric Nanocapacitor Applications
R. Phillips and E. Eisenbraun

998 Statistical Analysis of Factors Affecting the Performance of MIM Tunnel Junctions
R. Ratnadurai, S. Krishnan, S. Bhansali, E. Stefanakos and Y. Goswami

999 Resistive Switching Behaviors of NiO Bilayer Films with Different Crystallinity Layers
K. Kita, A. Eika, T. Nishimura, K. Nagashio and A. Toriumi

1000 Correlation of Negative Bias Temperature Instability and Breakdown in HfO_2/TiN Gate Stacks
N. Rahim and D. Misra

1001 Reliability Characteristics of D_2O-Radical Annealed ALD HfO_2 Dielectric
C. Tu, F. Chiu, C. Chen, C. Hou, Z. Lee, H. Chen, S. Chen, H. Huang, T. Wu and H. Hwang

1002 Temperature and Thickness Dependence of Cerium Oxide Dielectric Breakdown
C. Chen, W. Shih, H. Huang and F. Chiu

1003 The Degradation of Thin Silicon Dioxide Film Subjected to Pulse Voltage Stresses at Nanoscale
Y. Wu, J. Lin, S. Chang and C. Huang

1004 Dielectric Anomaly in Mg Doped ZnO Thin Film Deposited by Sol-Gel Method
A. Singh, P. Khanna, A. Kumar, M. Kumar and D. Kumar

1005 Effect of Processing Conditions on the Electrical Characteristics of Atomic Layer Deposited Al_2O_3 and HfO_2 Films
J. Rafí, M. Zabala, O. Beldarrain and F. Campabadal

1006 Relaxation of Photoexcitations in Optically Excited Systems Formed by 'Weakly Amorphous' or Crystalline Si Nanoparticles Embedded Within a Wide-Gap Dielectric Matrix
V. Stuchinsky, T. Korchagina and V. Volodin

1007 A Model for the Hump Feature Observed in the Capacitance-Voltage Characteristics of MOS Structures with Oxide-Hosted Si Nanoparticles
V. Stuchinsky

1008 Annealing Effect on the Resistance Switching Properties of TiN/SiO_2/FeO_x/Fe-Contented Electrode Structures
L. Feng, C. Chang, Y. Chang, W. Chen, S. Wang, P. Chiang and T. Chang

1009 Bulk Matter Resistivity of Ti Based TiAlN Dielectric Thin Films
A. Razeghi and M. Hantehzadeh

1010 A Mechanism for Increasing Growth Rate of Undoped SACVD Film
Y. Sokolov, J. Harrison and B. Harward

1011 Ultra-Thin (AlCrTaTiZr)N_x/AlCrTaTiZr Bilayer Structures of High Diffusion Resistance to Cu Metallization
S. Chang and D. Chen

1012 CeO_2 Optical Properties and Electrical Characteristics
W. Shih, C. Chen, F. Chiu, C. Lai and H. Hwang

1013 New Metal-High-k-High-k-Oxide-Semiconductor Capacitors and Field Effect Transistors Using Al/Y_2O_3/Ta_2O_5/SiO_2/Si Structure for Nonvolatile Memory Applications
W. Shih, F. Chiu and H. Hwang

1015 Advanced FinFET Technologies: Extension Doping, V_{th} Controllable CMOS Inverters and SRAM
Y. Liu, K. Endo, S. O'uchi, T. Matsukawa, K. Sakamoto and M. Masahara

1016 Flexible Titanium Dioxide Memory
N. Gergel-Hackett, L. Stephey, B. Dunlap, B. Hamadani, D. Gundlach and C. Richter

1017 Atomistic Guideline for MONOS-Type Memories with High Program/Erase Cycle Endurance
K. Shiraishi, K. Yamaguchi, A. Otake and K. Kobayashi

1018 Highly Stable $SrZrO_3$ Bipolar Resistive Switching Memory by Ti Modulation Layer
M. Wu, M. Lin, Y. Yeh, C. Lin and T. Tseng

1019 Nanocrystalline Materials: Optimization of Thin Film Properties
J. Heitmann

1020 The Direct Patterning of Organosilicate Interconnect Materials by Nanoimprint Lithography
C. Soles

1021 MgO Tunnel Barriers in Magnetic Nanostructures and Devices
R. Heindl, W. Rippard and M. Pufall

1022 PE-TEOS Wafer Bonding Enhancement at Low Temperature with a High-κ Dielectric Capping Layer
C. Tan and G. Chong

1023 Whisker Formation in Pb-Free Surface Finishes
G. Stafford, J. Shin, M. Williams, K. Moon and W. Boettinger

1024 (Invited) Surface Passivation of High-Voltage and High-Power Semiconductor Devices
K. Shenai

1025 Fabrication and Properties of Three-Dimensionally Structured Back-Contact Thin Film Photovoltaic Devices
D. Josell, C. Beauchamp, C. Hangarter, S. Jung, B. Hamadani, N. Zhitenev, T. Moffat and J. Guyer

1026 Statistical Low-Frequency Noise Model for MOSFETs under Large Signal Cyclo-Stationary Excitation
G. Wirth, R. da Silva, P. Srinivasan and R. Brederlow

1027 Temperature Dependence of Flicker (1/f) Noise in Analog and Digital 45 nm n-MOSFET Devices
P. Srinivasan, K. Benaissa, F. Hou, D. Studdard, S. Martin, A. Marshall and J. McKee

1028 Microfabricated Nanocomposite Polymers and Thin Films for Flexible Substrate Microfluidics and MEMS
B. Gray

1029 Metrology of Molecular Devices Made by Flip Chip Lamination
C. Hacker, M. Coll and C. Richter

1030 Using Interfacial Chemistry to Improve the Performance of Organic Semiconductor Devices
D. Gundlach

1031 Incorporation of BCB into Wafer-Scale Assembly MMIC's
D. Eaves, P. Chang-Chien, W. Luo, D. Farkas, X. Zeng, R. Elmadjian, D. Li, L. Dang, K. Hennig, C. Cheung, X. Lan, M. Battung, W. Lee, M. Parlee, J. Uyeda and M. Barsky

E3 - Integrated Optoelectronics 5

Electronics and Photonics / Dielectric Science and Technology

1032 The Impact of Optoelectronics on Health, Communications and Entertainment
W. Ishak

1033 Gastrointestinal Imaging Technologies: Can We Turn the Gut Inside Out?
L. Liu

1034 Endoscopic Ultrasound: Imaging and Beyond
F. Tse

1035 In Vivo Characterization of Lung Cancers Using Endoscopic Raman Spectroscopy: A Pilot Study
M. Short, S. Lam, A. McWilliams and H. Zeng

1036 Time-Resolved Fluorescence Spectra of Upper GI Tract: An Ex-Vivo Study
M. LePalud, F. Tse, J. Jo, M. Krishnamoorthy, R. Leung, D. Cappon, Z. Nie and Q. Fang

1037 Fluorescence Excitation Emission Matrix Spectroscopy for Endogenous Skin Fluorescence Characterization
J. Zhao, F. Feng, M. Tsai, H. Zeng, D. McLean, E. Ruvolo, N. Kollias and H. Lui

1038 In Vivo Near-Infrared Auto-Fluorescence Imaging of Pigmented Skin Lesions: Methods and Preliminary Clinical Results
S. Wang, S. Siow, J. Zhao, H. Lui, D. McLean, Q. He and H. Zeng

1039 Optical Molecular Imaging for Translational Surgery
D. Farkas

1040 Confocal Laser Endomicroscopy in Gastroenterology: Initial Clinical Experiences and Comments
D. Armstrong

1064 Photocurrent Modeling of Resonant Tunneling Quantum Dot Infrared Photodetectors
M. Naser, M. Deen and D. Thompson

1065 Fabrication of Silicon Photomultipliers for the Readout of Scintillation Radiation Detectors
P. Barton and D. Wehe

1066 Random Telegraph Signal Noise in CMOS Imagers and Its Impact on Image Quality
S. Majumder, M. M. El-Desouki, O. Marinov and M. Deen

1067 Electrochemically Prepared Photo-Sensitive Metal-Insulator-Semiconductor Devices with Stepped Insulating Layer
K. Stella, D. Kovacs, W. Brezna, J. Smoliner and D. Diesing

1068 Ultravilet to Visible Detection by Silicon Nanostructures
S. Hu, C. Li and T. Li

1069 Polymer and Silicon Optical Wires and Devices for VLSI Photonic Circuit Application
E. Lee

1070 Analysis of InAs Self-Assembled Quantum Wires in an $In_xGa_yAl_{1-x-y}As$ Matrix Grown Lattice Matched to InP
D. Thompson, K. Cui and G. Botton

1071 Fabrication and Electrical Characterization of Conducting Polymer Nanopillars by Current Sensing Atomic Force Microcopy
L. Marsal, A. Santos, R. Palacios, P. Formentin, J. Ferré-Borrull and J. Pallarès

1072 Fabrication of Magneto-Optical Microstructure by Using Femtosecond Laser Direct Writing
Y. Li, B. Liu, Y. Li, W. Shi, J. Tian and Q. Sun

1073 Formation of Optically Transparent, Electrically Conductive Ga-Doped ZnO Fine Patterns by Wet-Chemical Etching Technique
N. Yamamoto, S. Osone, H. Makino, T. Yamada and T. Yamamoto

1074 Photoluminescence of GaN/Quantum Dots/GaN Wafer Bonded Structure
Y. Li and E. Stokes

1075 Beam Propagation in Nano-Waveguide and Its Applications
Y. Li, L. Zhao, J. Qi, J. Xu and Q. Sun

1076 Experimental Study on Low-Frequency Noise in Optical Coupling Devices
Y. Zhuang, J. Bao and D. Lei

1077 Effect of Rear Surface Texture on Laser Irradiation Induced Group-III Interdiffusion in InAs/InAlGaAs Quantum Dash Structure
Y. Ding, H. Sun, C. Tan, V. Hongpinyo, C. Dimas, Y. Ding and B. Ooi

1078 Enhancing the Performance of Photovoltaic Cells by Using Gold Nanoparticles and Periodic Arrays of Nanoholes on Gold Films
P. Wang, M. Rahman and A. Brolo

E4 - Nanoscale Luminescent Materials

Luminescence and Display Materials / Dielectric Science and Technology

1079 Novel Processing for Si-Nanocrystal Based Photonic Materials
M. Halsall, I. Crowe, N. Hylton, O. Hulko, R. Jalili-Kashtiban, U. Bangert, A. Knights and R. Gwilliam

1080 Photoluminescent Group IV Nanostructures Synthesized by Reactive Pulsed Laser Deposition
F. Rosei

1081 Photoluminescence from Si^+ Ion Implanted Silicon Nitride Films Deposited via PECVD
J. Anstey, A. Knights and P. Mascher

1082 Photoluminescence Efficiency of Ge Dots Self-Assembled on SiO_2 and TiO_2 Films
D. Lockwood, N. Rowell, I. Berbezier, G. Amiard, A. Ronda and D. Grosso

1083 Effect of Annealing Time on the Growth, Structure, and Luminescence of Nitride-Passivated Silicon Nanoclusters
P. Wilson, T. Roschuk, K. Dunn, E. Chelomentsev, J. Wojcik and P. Mascher

1084 Electrical Properties of Silicon-Rich Silicon Carbide Films Prepared by Using Catalytic Chemical Vapor Deposition
K. Lee, J. Hwang, Y. Lee, K. No and W. Hong

1085 Photoluminescence Properties of Alkaline-Earth Oxide Nanoparticles
P. Sushko, K. McKenna, A. Sternig, S. Stankic, M. Muller and O. Diwald

1086 Excitation Mechanisms of Green Emission from Terbium Ions Embedded Inside the Sol-Gel Films Deposited onto Nanoporous Substrates
A. Podhorodecki, M. Bański, J. Misiewicz and N. Gaponenko

1087 Electropolymerized Poly(para-phenylene)vinylene Films onto and Inside Porous Si
B. Gelloz, T. Djenizian, R. Mentek, L. Jin and N. Koshida

1088 Synthesis and Characterization of Photoluminescence Polymer Nanopillar Arrays
L. Marsal, R. Palacios, P. Formentin, E. Martinez-Ferrero, A. Santos, J. Ferré-Borrull and J. Pallarès

1089 Synthesis and Photoluminescence Characteristics of $Sr_3Y_{1-x}(PO_4)_3$:xTb^{3+} Nanoparticles
S. Khatkar, S. Han and M. Kumar

1090 Co-Doping Effects of Zn^{2+} on Upconversion Luminescence of Gd_2O_3:Er Nanophosphors
L. Xu, Y. Sheng, J. Liu, D. Zhai and Z. Zhang

1091 New Electrochromic Systems for the Color e-Paper
C. Noh, S. Jeon, R. Das, D. Chung and Y. Jin

1092 Luminescent Metal-Organic Frameworks: A Nanolaboratory for Probing Energy Transfer via Interchromophore Interactions
M. Allendorf, P. Doty, S. Meek and R. Houk

1093 Optical Response of II-VI Semiconductor Nanowires
H. Ruda, J. Salfi, U. Philipose, C. de Souza, S. Nair, A. Saxena and C. Fernandes

1094 Surface and Size Manipulation of the Magnetic Properties of CdSe Quantum Dots
R. Meulenberg, J. Lee, S. McCall, K. Hanif, D. Haskel, J. Lang, L. Terminello and T. van Buuren

1095 Doped Nanoparticles for Optoelectronics Applications
M. Godlewski

1096 Nanostructuring the Er^{3+} and Si Nanoparticle Distributions to Enhance the 1.5 μm Emission in Codoped Al_2O_3 Thin Films
R. Serna, S. Núñez-Sánchez and P. Roque

1097 Excitation Mechanism of Europium Ions Embedded into TiO_2 Nanocrystalline Thin Films
A. Podhorodecki, D. Kaczmarek, J. Domaradzki, E. Prociow, D. Wojcieszak, P. Sitarek, G. Zatryb and J. Misiewicz

1098 Investigation into the Photophysics of Water Soluble Quantum Dots Using Fluorescence Correlation Spectroscopy
R. Peters, S. Shehata and C. Fradin

1099 Emission Quenching of Semiconductor Quantum Dots and its Application to Biosensing
S. Kuwabata, T. Uematsu and T. Torimoto

1100 Synthesis and Photoluminescence Properties of $InVO_4$:Eu^{3+} Phosphors Synthesized Using Sol-Gel Method
Z. Shi, H. Chen, Y. Tsai, S. Wu and Y. Chang

1101 Combustion Synthesis and Photoluminescence Characteristics of $Y_{1-x}CaAl_3O_7$:xEu^{3+} Nanophosphor
S. Khatkar, S. Han and M. Kumar

1102 Tartaric Acid Assisted Sol-Gel Synthesis and Photoluminescence Characteristics of $SrY_{2(1-x)}O_4$: xTb Nanoparticles
V. Taxak and M. Kumar

1103 Identification of Two Luminescence Sites of Sr_2SiO_4:Eu^{2+} and $(Sr,Ba)_2SiO_4$:Eu^{2+} Phosphors
H. Nguyen, I. Yeo and S. Mho

1104 Optical Properties of $Eu^{(3+, 2+)}$ Ions Doped in $NaCaPO_4$
J. Yoon, K. Jang, M. Jayasimhadri, J. Jeong, H. Lee, S. Lee and J. Jeong

1105 Luminescent Properties of Eu^{3+}-Doped $Y(V_{(1-x)},Nb_{(x)})O_4$ and $(Y_{(1-x)},Bi_{(x)})VO_4$ Phosphors
R. Balakrishnaiah, D. Kim, S. Yi, S. Kim, K. Jang, H. Lee, B. Moon and J. Jeong

1106 Luminescent Properties of Ce^{3+}-Doped $(Y_{(1-x)},Gd_{(x)})VO_4$ Phosphors
R. Balakrishnaiah, S. Yi, S. Kim, K. Jang, H. Lee and J. Jeong

1107 Preparation of $(Y,Gd)_3Al_{5-2y}(Si,Mg)_yO_{12}$:Ce Phosphor by Spray Pyrolysis: Effect of Precursor Type and Flux on Its Luminescence Characteristics
M. Maniquiz and K. Jung

1108 Luminescence Properties of Color-Tunable Oxynitrides Phosphor for White LED Applications
Y. Fang and S. Chu

1109 Fabrication of High Luminous Field Emission Display Using GaN Nanorods and Low Voltage Phosphor
Y. Wu, K. Lee, Y. Nien and I. Chen

1110 Synthesis and Photoluminescence Properties of $Y_2O_3:Eu^{3+}/SiO_2$ Nano Phosphor Core/Shell Particles
J. Han, J. Talbot and J. McKittrick

1111 CVD Preparation and Photoluminescence of ZnS Nanowires from Zn(TMHD)2
J. Juarez and F. Juarez

1112 Si Nanocrystal MOSLEDs: From Materials to Transistors
B. Garrido, M. Perálvarez, Y. Berencén, J. Carreras and O. Jambois

1113 Electroluminescence in Metal-Oxide-Semiconductor Tunnel Diodes with a Silicon Nanolayer
M. Morita, K. Matsumura, R. Yamada, J. Uchikoshi and K. Arima

1114 High Performance Quantum Dot Microtube Lasers and Nanowire LEDs on Si
Z. Mi, Y. Chang, F. Li and J. Wang

1115 Coupling Silicon Nanocrystal Fluorescence to Optical Bottle Resonators
P. Bianucci, J. Veinot and A. Meldrum

1116 Dual Properties of NaF Ultrathin Film as Buffer Layer on Organic Light Emitting Devices
Y. Chen and S. Chu

E5 - Thermal and Plasma CVD of Nanostructures and their Applications

Dielectric Science and Technology / Fullerenes, Nanotubes, and Carbon Nanostructures

1117 (Invited) Directing Energy and Matter at Nanoscales in Plasma-Surface Interactions: Towards Sustainable Future
K. Ostrikov

1118 (Invited) Plasma Synthesis of Silicon Nanocrystal Inks and their Applications in Printed Silicon Technology and Hybrid Solar Cells
C. Liu, X. Pi and U. Kortshagen

1119 (Invited) Influence of Plasma Parameters on the Growth of Metal Oxide Nanowires
M. Mozetic and U. Cvelbar

1120 Electric Fields and Chemical Vapor Deposition
M. Warwick, R. Smith, N. Furlan, J. Crane and R. Binions

1121 Silicon Oxide Nanodots by Direct Plasma Synthesis
U. Cvelbar, I. Junkar, I. Levchenko and K. Ostrikov

1122 CF_4 Plasma Treatment on Gd_2O_3 Nanocrystal Memory for High Performance Nonvolatile Memory Application
C. Lin, J. Wang, C. Lai, J. Hsu and C. Ai

1123 A Combined Experimental with Computational Study of Precursor Stability and ALD Growth Mechanism in Tantalum Nitride Deposition
P. Pullumbi, A. Correia Anacleto, D. Cany-Canian, C. Ko, A. Zauner, J. Gatineau and M. Hugon

1124 Analysis of the Homogeneous Thermal Decomposition of the Tungsten Dimethylhydrazido Complex $Cl_4(CH_3CN)W(NNMe_2)$ Using In Situ Raman Spectroscopy and DFT Calculations
J. Lee, D. Kim, O. Kim, T. Anderson, J. Koller and L. McElwee-White

1125 Phase-Change InSbTe Nanowires Grown In Situ at Low Temperature by MOCVD Method
J. Ahn, K. Park, H. Jung, S. Hur and S. Yoon

1126 (Invited) Rational Growth of 1D Carbon Nanostructures for Via Interconnect Applications
X. Sun, C. Li, J. Gao and C. Yang

1127 (Invited) Controlled Growth of Single-Walled Carbon Nanotubes with Metallic Conductivity
G. Sumanasekera

1128 (Invited) Microscale Plasma Discharges in Aqueous Solutions: New Technique for Localized Synthesis of Nanoparticles
D. Staack

1129 Microplasma Reduction of Metal Cations Dispersed in Polymeric Films for Fabrication of Patterned Nanoparticles
S. Lee and R. Sankaran

1130 Bulk Production of Metal Oxide Nanowires Using an Atmospheric Microwave Plasma Reactor
V. Kumar, J. Kim, J. Jasinski and M. Sunkara

1131 Novel Surface-Wave-Excited PE-CVD System with Reciprocated Substrate Ambulation Mechanism
K. Azuma, S. Ueno, M. Suzuki, Y. Konishi and S. Ishida

1132 Epitaxial Si Films by LPCVD and Their Application for TFT/NVM Devices
K. Jang, S. Jung, J. Cho, W. Lee and J. Yi

1133 Hot Wire Chemical Vapor Deposition of $Ge_2Sb_2Te_5$ Thin Films
D. Reso, M. Silinskas, B. Kalkofen, M. Lisker and E. Burte

1134 Effect of Boron Doping Concentration at the p/i Interface of the Thin Film Silicon Solar Cell Using Impedance Spectroscopy Analysis
S. Park, S. Lee, J. Park, Y. Kim, D. Yang and J. Yi

1135 Gallium Assisted PECVD Synthesis of Silicon Nanowires
A. Gewalt, B. Kalkofen and E. Burte

1136 The Effect of the Hydrogen Gas Ratio on p-Type Amorphous Silicon Suboxides Layer and Its Application to Amorphous Silicon Solar Cells
J. Park, Y. Kim, S. Park, K. Yoon, S. Lee, Y. Lee, K. Jang, H. Park, S. Jung and J. Yi

E6 - Wide-Bandgap Semiconductor Materials and Devices 11

Electronics and Photonics / Sensor / Luminescence and Display Materials

1137 Studies of Electron Trapping in ZnO Semiconductor
L. Chernyak and E. Flitsyian

1138 The Effect of Moisture on the Bias Illumination Temperature Instability in GIZO TFTs and the Associated Investigation on Passivation Systems
K. Lee, J. Jung, K. Son, J. Park, T. Kim, J. Kwon, B. Koo and S. Lee

1139 Aluminum-Doped Zinc Oxide Thin Films for Opto-Electronic Applications
N. Hirahara, B. Onwona-Agyeman and M. Nakao

1140 Investigation and Fabrication of Bottom Gate ZnO:Al TTFTs with Various Thicknesses of ZnO Buffer Layers
Y. Lin, H. Lee and C. Lee

1141 Solution Based Fabrication of ZnO Nanowires and Their Novel Heterostructures Array: Characterization and Applications
K. Yong

1142 High Responsivity Ultraviolet Photodetector Based on p-GaN/i-ZnO Nanorod /n-ZnO:In Nanorod
C. Chen, J. Yan and C. Lee

E7 - Graphene, Ge/III-V, and Emerging Materials for Post-CMOS Applications 2

Dielectric Science and Technology

1186 Formation and Transport of Correlated Electron States at Room Temperature in Graphene Bilayers
J. Shumway and M. Gilbert

1187 Bilayer Graphene System: Transport and Reliability
T. Yu, E. Lee, B. Briggs, B. Nagabhirava and B. Yu

1188 Infrared Images of Heat Dissipation in Graphene Ambipolar Transistors
M. Bae, Z. Ong, D. Estrada and E. Pop

1189 Extraordinary Thermal Conductivity of Graphene: Applications in Thermal Management
A. Balandin

1190 Thermal Transport in Graphene Nanostructures
Y. Chen

1191 Ultra-High Vacuum Processing and Characterization of Chemically Functionalized Graphene
M. Hersam

1192 Advances in Graphene Metrology
A. Diebold, T. Zhang and F. Nelson

1193 Characterization of a Single Metal Impurity in Graphene
E. Cockayne, G. Rutter and J. Stroscio

1194 Noise Reduction in Graphene Transistors
A. Balandin

1195 Scanning Tunneling Spectroscopic Studies of the Effects of Dielectric Gate Materials on the Local Electronic Characteristics of Graphene
N. Yeh, M. Teague, M. Bockrath, J. Velasco and C. Lau

1196 Probing the Underlying Physics of Graphene with Raman Spectroscopy
I. Calizo, G. Cheng, J. Simpson and A. Hight Walker

1197 Graphene Quantum Size Effect, Zigzag Edge States and Substrate Semitransparency
J. Lyding, K. Ritter, K. He, J. Koepke, S. Schmucker, J. Wood, Y. Xu and N. Aluru

1198 Graphene as a Material for Nanoelectronics
G. Iannaccone, G. Fiori, M. Cheli, P. Michetti, M. Macucci, A. Betti and P. Marconcini

1199 Reconfigurable Graphene Logic
S. Tanachutiwat and W. Wang

1200 Optical and Electrical Properties of Percolated Graphene Networks from Liquid Exfoliation of Graphite
J. Obrzut, D. Pristinski and M. Yoonessi

1201 Electronic Transport Properties of Graphene pn Junctions and Its Electron Optics Devices
T. Low and M. Lundstrom

1202 Dielectric Interfaces for Graphene-Based Devices
A. Pirkle, B. Lee, C. Floresca, S. McDonnell, L. Colombo, J. Kim, M. Kim, Y. Chabal and R. Wallace

1203 Graphene Veselago Device: Fabrication and Characterization of Graphene p-n Junction Devices
J. Lee

1204 High Mobility SiGe Channel NonPlanar Devices
C. Hobbs, C. Smith, H. Adhikari, S. Lin, I. Ok, K. Akarvardar, S. Lee, B. Coss, C. Young, M. Cruz, P. Majhi and R. Jammy

1205 Trap-Assisted Tunneling in Deep-Submicron Ge pFET Junctions
G. Eneman, M. Bargallo Gonzalez, G. Hellings, B. De Jaeger, G. Wang, J. Mitard, K. DeMeyer, C. Claeys, M. Meuris, M. Heyns, T. Hoffmann and E. Simoen

1206 Tetragonal ZrO_2-Gated Ge MOS Capacitors Fabricated on Si Substrate
M. Wu, L. Chen, J. Wu and Y. Wu

1207 The Effect of Applied Magnetic Fields on Silicon Transport in Liquid Phase Diffusion Growth of SiGe
N. Armour, A. Kidess and S. Dost

1208 III-V Devices for Advanced CMOS
N. Waldron, D. Nguyen, D. Lin, G. Brammertz, G. Hellings, B. Vincent, A. Firrincieli, S. Sioncke, B. De Jaeger, G. Wang, R. Krom, J. Mitard, W. Wang, M. Passlack, M. Heyns, M. Caymax, M. Meuris, S. Biesemans and T. Hoffman

1209 (Invited) Scaling of InGaAs MOSFETs into Deep-Submicron
P. Ye and Y. Wu

1210 InGaAs HFETs for Beyond-the-Roadmap CMOS
D. Kim and J. A. del Alamo

1211 Sputtering Behavior and Evolution of Depth Resolution upon Low Energy Ion Irradiation of GaAs
M. Hopstaken, D. Pfeiffer, M. Gordon, E. Kiewra, Y. Sun, D. Sadana, T. Topuria, P. Rice, P. Ronsheim, C. Gerl, C. Marchiori, M. Richter, M. Sousa and J. Fompeyrine

1212 Novel Ga(NAsP)-Based Heterostructures for the Integration of Optoelectronic Functionalities on (001) Si-Substrate
B. Kunert, K. Volz and W. Stolz

1213 Hetero-Epitaxy of III-V Compounds by MOCVD on Silicon Substrates
C. Tang, Z. Zhong and K. Lau

1214 Growth of III/V Materials on Large Area Silicon
B. Schineller and M. Heuken

1215 Merging Standard CVD Techniques for GaAs and Si Epitaxial Growth
A. Sammak, W. de Boer, A. van der Bogaard and L. Nanver

F1 - Dealloying Process and Related Synthetic Opportunities

Electrodeposition / Corrosion

1216 The Role of Surface and Near-Surface Composition in Electrocatalysis
C. Wang, D. Strmcnik, P. Paulikas, D. van der Vliet, C. Lucas, A. Brownrigg, N. Markovic and V. Stamenkovic

1217 Dealloyed Nanoporous Metals for Electrocatalysis
R. Wang and Y. Ding

1218 Dealloyed Bimetallic PtM_3 Nanoparticle Electrocatalysts
M. Oezaslan, Z. Liu and P. Strasser

1219 Assessment of the Electrocatalytic Properties of Nanoporous Metals Formed by Dealloying Binary and Ternary Alloys
J. Snyder and J. Erlebacher

1220 Electrodeposition of Pt-(Ni, Co, Cu, Pb) Alloys for Fuel Cell Applications
T. Moffat, S. Hwang, L. Ou Yang, U. Bertocci, J. Bonevich and J. Kim

1221 Stability of Pt Alloy High Surface Area Catalysts
K. Mayrhofer, K. Hartl and M. Arenz

1222 Dealloying at the Nanoscale
K. Sieradzki

1223 Nanoporous Gold: A Novel Catalyst with Tunable Properties
A. Wittstock, J. Biener and M. Bäumer

1224 Size and Surface/Interface Controlled Properties of Nanoporous Gold
J. Biener, M. Biener, L. Zepeda-Ruiz, A. Hamza, A. Wittstock, M. Bäumer, R. Viswanath, J. J. Weissmüller and A. Hodge

1225 First Principles Studies of Metal-on-Metal Dissolution and Deposition
J. Greeley and D. Torres-Rangel

1226 Recent Progress in Dealloying Studies of $Cu_3Au(111)$
F. Renner

1227 Simulations of Morphological and Topological Coarsening of Dealloyed Nanoporous Metals
J. Erlebacher

1228 Plastic Flow of Nanoporous Gold, and How It Relates to Electrochemistry
H. Jin and J. Weissmueller

1229 In Situ X-Ray Diffraction and Small Angle Scattering of the Formation of Nanoporous Gold Via Dealloying
C. Dotzler, B. Ingam, B. Illy, M. Toney and M. Ryan

1230 Dealloying Kinetics and Morphology in Engineering Alloys, and Comparison with Noble-Metal Alloys
S. Parida, D. Artymowicz, Z. Coull and R. Newman

1231 Nanoporous Ni Electrodes Developed by Dealloying of Cu from Electrodeposited Ni-Cu Alloys for Supercapacitor Applications
J. Chang, Y. Li, S. Hsu, M. Deng, W. Tsai and I. Sun

1232 Electrochemical BET or UPD of Metals in Surface Area Measurements
Y. Liu, S. Bliznakov and N. Dimitrov

1233 In Situ STM Studies of Electrochemical Alloying-Dealloying of an Atomic Layer Deposited on Au(111)
A. Damian, F. Maroun and P. Allongue

1234 Surface Alloying/Dealloying in UPD Systems: Pb/Au(111) and Pb/Cu(100)
N. Vasiljevic, J. Nutariya, J. Velleuer and W. Schwarzacher

1235 Microstructure and Optical Properties of Nanoporous Metals Synthesized by Dealloying
M. Chen

1236 Analytical Applications of Porous Gold Electrodes Prepared from Electrochemical Alloying/Dealloying Process
C. Tai, J. Chang, Y. Lin, W. Hsuei, W. Lo and I. Sun

1237 Alloying Effects on the Selective Dissolution of CuZr-Based Metallic Glasses
Z. Wang and J. Wang

1238 Origin of Interface Instability during the Initial Growth of Porous Anodic Oxide Films
K. Hebert and W. Hong

1239 In Situ Mass and Stress Measurement during Sn Electrodeposition Using an Electrochemical Double Quartz Crystal Microbalance (E-DQCM) Technique
J. Li, X. Xiao, F. Yang and Y. Cheng

F2 - Electrochemical Engineering for the 21st Century (dedicated to Richard C. Alkire)

Electrodeposition / Industrial Electrochemistry and Electrochemical Engineering / Corrosion / Energy Technology

1240 Water Transport in the Ionomer-Phase and Across Its Interfaces in Catalyst Coated Membranes for Proton Exchange Membrane Fuel Cells
V. Gurau and J. Mann

1241 Surface Morphology of Lithium Metal Anodes
M. Karulkar and J. Adams

1242 Continuum and Multiscale Modeling of Performance Curves and Capacity Fade in Lithium-Ion Batteries
V. Subramanian, V. Ramadesigan, R. Methekar, K. Chen and R. Braatz

1243 Formation of Localized Corrosion-Relevant Surface Defects on Aluminum: Experimental Studies and Kinetic Monte Carlo Simulation
K. Hebert, G. Zhang, J. Ai and G. Stafford

1244 Simulation of Three-Dimensional Solid-by-Solid Model and Application to Electrochemical Engineering
Y. Kaneko, Y. Hiwatari, K. Ohara and F. Asa

1245 (Keynote) Electrochemical Engineering: The Need for Next-Generation Methods
R. Alkire

1246 (Keynote) An Algorithm for Simulation of Electrochemical Systems with Surface-Bulk Coupling Strategies
M. Buoni and L. Petzold

1247 Characteristic Timescales in Multiscale Feature Metallization
J. Adolf and U. Landau

1248 Adsorptive SPS Dissociation Within the c(2x2)-Cl Matrix on Cu(100) under Reactive Conditions: A Combined In Situ STM and DFT Study
N. Hai, W. Reckien, A. Fluegel, M. Hahn, A. Wagner, D. Mayer, T. Bredow and P. Broekmann

1249 (Keynote) The Metallization of SAMs: Molecular Double Deckers
F. Eberle, M. Manolova, D. Kolb, H. Boyen and M. Saitner

1250 Metallization of DNA Origami Templates for the Fabrication of Nanoelectronic Circuits
J. Harb, J. Liu, Y. Geng, E. Pound, J. Ashton, S. Gyawali and A. Woolley

1251 Combined Electrochemical and In Situ STM Studies on the Redox-Activity of Leveler Additives
A. Fluegel, N. Hai, M. Hahn, A. Wagner, D. Mayer and P. Broekmann

1252 Nanomanufacturing by Orchestrated Structure Evolution
S. Kitayaporn, S. Abbasi, K. Böhringer and D. Schwartz

1253 Nanosheet Formation by Electrodeposition and Its Application to Miniaturized Reference Electrodes
S. Safari-Mohsenabad, P. Selvaganapathy, A. Derardja and M. Deen

1254 Creating Metallic Conductivity in TiO_2 Nanotubes
R. Hahn and P. Schmuki

1255 Density Functional Theory Study on the Oxidation Reactivity of Hypophosphite Ion as a Reductant for Electroless Deposition Process
M. Kunimoto, H. Nakai and T. Homma

1256 Wet Etching Process on Semiconductors: A Typical Electrochemical Engineering Challenge
A. Causier, M. Bouttemy, I. Gérard and A. Etcheberry

1257 Simulation of Cu Surface Morphology Evolution during Electropolishing
J. Thomas and S. Brankovic

1258 Porosity of Electrodeposited Cobalt Hard Gold: Effects of Reversed Pulse Current
Z. Liu, M. Zheng, R. Hilty and A. West

1259 Direct Copper Plating on a RuTa Substrate
M. Nagar, A. Radisic, K. Strubbe and P. Vereecken

1260 (Keynote) Establishment of Electrochemical Device Engineering
T. Osaka

1261 One-Dimensional Molecular-Junction Arrays Fabricated Using Anodic Aluminum Oxide Templates
Y. song, J. Fang and Z. Chen

1262 Future Challenges in Electrochemical Engineering from Microelectronics to Solar Thin Films
H. Deligianni, Q. Huang, L. Romankiw, R. Vaidyanathan, S. Ahmed, S. Jaime, P. Grand, V. Charrier and O. Kerrec

1263 Analysis and Control of Plating Baths in the Electrodeposition of Copper Indium Gallium Selenide Films with Ion Chromatography
J. Wang, S. Aksu and M. Pinarbasi

1264 Roughness Control of Electrodeposited CIS Thin Film
H. Huang and C. Lin

1265 Preparing Electrochemical Engineers for the 21st Century - The Henry B. Linford Award Address of The Electrochemical Society
D. Schwartz

1266 Microfluidic Platforms for Catalyst and Electrode Optimization
F. Brushett and P. Kenis

1267 Electro-Oxidation on the Ti/SnO_2-Sb_2O_5 Anode for Wastewater Treatment
Q. Ni, D. Kirk and S. Thorpe

1289 A Generalized Multidimensional Mathematical Model for Li-Ion Intercalation Batteries
S. Pannala, S. Allu, J. Nanda and W. Shelton

1290 Low Temperature Studies of EC:DMC Mixture in Lithium-Ion System
A. Drews, J. Adams, R. Kudla, M. Karulkar and C. Paik

1291 Carbon Nanotube-Confined MnO_2 Nanocomposites for Electrochemical Capacitors
W. Chen, K. Bechtold, M. Beidaghi, V. Penmatsa and C. Wang

G1 - Industrial Electrochemistry and Electrochemical Engineering General Session

Industrial Electrochemistry and Electrochemical Engineering

1292 Towards Energy Storage for Renewable Generation: The Vittorio de Nora Award Presentation
D. Pletcher

1293 Optimization of Power and Energy Density in Supercapacitors
D. Robinson

1294 Structural Characterization of Electrodeposited Technetium on Gold Foil
E. Mausolf, F. Poineau, T. Hartmann and K. Czerwinski

1295 Electrochemical Synthesis and Characterization of Copper/Ceria Composite Functional Coatings for Electrochemical Cells Applications
J. Melnik, J. Luo, A. Sanger, K. Chuang and Q. Yang

1296 Alternating Flow Patterns for Copper Plating Uniformity
H. Garich, L. Gebhart, S. Snyder, E. Taylor, J. Van Zee and S. Shimpalee

1297 Co-Electrodeposition of Co Alloys and Inorganic Fullerene WS_2 from Gluconate Bath with Anionic and Cationic Surfactants
D. Weston, Y. Zhu, D. Zhang, C. Miller, D. Kingerley, C. Carpenter and S. Harris

1298 Optimization of SiO_2 and Al_2O_3 Asymmetric Electrodes in a Capacitive Deionization System
J. Wouters, M. Tejedor, J. Lado and M. Anderson

1299 Meso-Scale Computer Simulations of Carbon Corrosion in Catalyst Layers of Polymer Electrolyte Fuel Cells
K. Malek and A. Franco

1300 Modeling Water Transport and Swelling in Polymer Electrolyte Membranes
T. Silverman, J. Meyers and J. Beaman

1301 Direct Carbon Fuel Cell Anode Modeling
C. Chen and J. Selman

1302 Perchlorate Impurity in Chlorate Electrosynthesis: Effects and Control
T. Drackett, F. Mok, R. van Heek and G. Thibault

1303 Hydrogen Oxidation Improvements for Low Voltage Base Production
B. Boggs, N. Jalani, R. Gilliam and B. Constantz

1304 Impedance Response of a Rotating Disk Electrode below the Mass-Transfer-Limited Current
S. Wu, M. Orazem, B. Tribollet and V. Vivier

1305 Electrocatalysis of n-Type TiO_2 Thin Films for Ozone Production by Water Electrolysis
K. Kitsuka, K. Kaneda, M. Ikematsu, M. Iseki, K. Mushiake, D. Nilushika, T. Okajima and T. Ohsaka

1306 On the Direct Solid-State Electrochemical Synthesis of Silicon Tetrachloride from Silica at Ambient Temperatures and Pressures
B. Ari-Wahjoedi

1307 Electrochemical Behavior of Zirconium in LiCl - KCl Eutectic Molten Salt
C. Fabian, C. Caravaca Moreno, C. Griffith, V. Luca and G. Lumpkin

1308 Novel Membrane Capacitive Deionization System with Improved Energy Efficiency
C. Kim, H. Kim, H. Yang, J. Lee and H. Kang

1309 Characterization and Reinforcement of Porous Pb-Ag Anode for Energy-Saving in Zinc Electrowinning
J. Li, L. Jiang, Y. Lai, X. Lv and Y. Liu

1310 Electrochemical Reduction of UO_2 Pellets in a Molten LiCl Salt
S. Jeong, E. Choi, J. Hur, I. Choi and H. Lee

1311 Coal Oxidation in Hydrochloric Acid Solution with Different Liquid Catalysts
R. Yin, H. Liu, Y. Zhao, S. Lv and Q. Fan

1312 The New Multipurpose Electrochemical Cell
L. Rafailovic, T. Trisovic, B. Grgur and G. Nauer

1313 Advantages of Turbulence Models and Wall Functions for Simulating Mass Transport in a Rotating Cylinder Electrode Reactor
E. Rivero, F. Rivera, M. Cruz and I. González

1314 Effect of Dissolved Species on the Fluoride Electro-Removal from Groundwater
C. Montero-Ocampo and J. Martínez Villafañe

1315 Properties of Pulse Electrodeposited CdS_xTe_{1-x} Films
P. Thirumoorthy and R. Murali

1316 Optimization of Low Voltage Base Production in the Presence of Dissolved CO_2
M. Kostowskyj, N. Knott, S. Gorer, R. Gilliam and B. Constantz

1317 Screen Printed Phosphorus Diffusion for Low-Cost and Simplified Industrial Mono-Crystalline Silicon Solar Cells
D. Yang, T. Kwon, M. Ju, W. Jung, S. Kim, Y. Lee and D. Gong

1318 Micromachining of Silicon Wafers with Catalytic Needle Electrodes in HF Solution
T. Sugita, T. Hirai, S. Ikeda and M. Matsumura

1319 The Kinetics for Electrochemical Removal of Ammonia in Coking Wastewater
Z. Liang, H. Sun, W. Guo, C. Fan, X. Hao and S. Liu

1320 Characteristics of Pulse Plated ZnS Films Using Nonaqueous Solvents
R. Murali, S. Kala and P. Elango

1321 Nondestructive Testing Development for Laser Peening Process Using Electrochemical Impedance Spectroscopy
J. Hu

G3 - Electrochemical Technologies for Hydrogen Production

Industrial Electrochemistry and Electrochemical Engineering / Energy Technology / High Temperature Materials

1322 La_2O_3-Modified Nickel-Cobalt Composite Coating for HER Cathode in Acid Medium
Y. Liang, P. He, Q. Jiang, J. Sun and H. Liu

1323 Hydrogen Evolution on the Y_2O_3–Modified Ni-Co Composite Layers
X. Yi, P. He, Y. Liang, Y. Chen, J. Sun and Q. Jiang

1324 Effect of Gd_2O_3 on the Hydrogen Evolution Property of Nickel-Cobalt Coatings Electrodeposited on Titanium Substrate
X. Yi, P. He, Y. Liang, Y. Chen, J. Sun and Q. Jiang

1325 Exploration of Surface Treatments for Semiconductor-Based Photoelectrochemical Water Splitting
K. Menningen

1326 Fabrication of Co-Ni-P Catalysts on TiO_2 Nanotube Substrate and the Catalytic Generation of Hydrogen from an Alkaline $NaBH_4$ Solution
K. Yun, W. Beom and C. Park

1327 Bimetallic Electrocatalysts Supported on TiO_2 for PEM Water Electrolyzer
R. Fuentes, S. Rau, T. Smolinka and J. Weidner

1328 Exploring Tin Tantalates and Niobates as Prospective Catalyst Supports for Water Electrolysis
O. Velikokhatnyi and P. Kumta

1329 Influence of the Electrolyte on Electrochemical Properties of Iridium Oxide Films
L. Owe, M. Tsypkin, I. Lervik and S. Sunde

1330 Oxygen Evolution Catalysts for Alkaline Water Electrolysers
X. Li, D. Pletcher and F. Walsh

1331 Catalytic Inverse Opals for Water Electrolysis in an Alkaline Electrolyte
L. Wang, Y. Chang and P. Wu

1332 Polymer Electrolyte Membranes for the Hybrid Sulfur Thermochemical Cycle
J. Staser and J. Weidner

1333 Quantification of Voltage Loss in the Proton Exchange Membrane Reactor for Electrolyzing Hydrogen Bromide to Produce Hydrogen
R. Zhang and J. Weidner

1334 CuCl-HCl Electrolysis for Hydrogen Production in the Cu-Cl Thermochemical Cycle
V. Balashov, R. Schatz, E. Chalkova, M. Fedkin and S. Lvov

1335 High Performance Anode Materials for Hydrogen Production Via the Cu-Cl Thermochemical Cycle
E. Easton and S. Ranganathan

1336 Comments on the Undesirable Copper Deposition during Electrolysis of the CuCl/HCl Aqueous System for the Production of Hydrogen
M. Reda

1337 SOFC-Driven Steam-Carbon Electrolyzer for CO-Free Hydrogen Production
B. Alexander, A. Lee, R. Mitchell and T. Gür

1338 Origin of Polarisation Losses in Solid Oxide Electrolysis Cells Operated at High Current Density
R. Knibbe, S. Ebbesen and M. Mogensen

1339 High Pressure Electrochemical Hydrogen Purification Process Using a High-Temperature Polybenzimidazole (PBI) Membrane
J. Jiang, T. Aulich and K. Luo

1340 Electrochemical Compression of Hydrogen
G. Sozhan, S. Vasudevan, S. Ravichandran, R. Balaji, S. Navaneethakrishnan, A. Sankari and J. Lakshmi

1341 A Solar Process to End Anthropogenic Global Warming? The STEP (Solar Thermal Electrochemical Photo) Generation of Energetic Molecules
S. Licht

1342 Modelling and Evaluation of a Photoelectrochemical Reactor for H_2 Production
C. Carver, Z. Ulissi, C. Ong, S. Dennison, K. Hellgardt and G. Kelsall

1343 (Invited) New Materials Search for Solar Hydrogen Using Nanowires
M. Sunkara, C. Pendyala, B. Chernomordik, D. Cummins, H. Russell, J. Kim and J. Thangala

1344 Conductive Polymer-Titania Photocathode Development for Hydrogen Production
D. Bruce and D. Wilkinson

1345 Hybrid Noble Metal-Semiconductor Nanomaterials for Efficient Electrochemical Hydrogen Generation
M. Dirmyer, E. Luther, A. Burrell, B. Tappan and A. Mueller

1346 Nanostructured MoS_2 for Solar Hydrogen Production
Z. Chen, S. Choi, J. Kibsgaard and T. Jaramillo

1347 In Search of Efficient Anode and Cathode Materials for Double Junction Amorphous Solar Cell Driven all Solar Electrolysis of Water to Hydrogen and Oxygen Gases
M. Frites, W. Ingler Jr. and S. Khan

1348 Manganese Oxide Thin Films for Photoelectrochemical Hydrogen Production
B. Pinaud and T. Jaramillo

1349 Photoelectrochemical Behavior of Birnessite-type MnO_2 Nanosheet in Response to Visible Light
Y. Hsu, Y. Chen, L. Chen and K. Chen

G4 - Electrochemistry in Mineral and Metal Processing 8 (EMMP 8)

Industrial Electrochemistry and Electrochemical Engineering

1350 Surface Forces Measured Between Xanthate-Coated Gold Surfaces
J. Wang and R. Yoon

1351 A SERS Study of the Interaction of n-Octanohydroxamate with a Copper Electrode
G. Hope, R. Woods and G. Parker

1352 Interaction of Hydroxamates with Malachite
G. Hope, R. Woods and G. Parker

1353 A Raman Spectroscopic Investigation of Pyrite Oxidation and Flotation Reagent Interaction
G. Parker and G. Hope

1354 Surface Oxidation of Cuprite
R. Woods, B. Fleming, A. Buckley and B. Gong

1355 Ex Situ Surface Chemical Characterization in Minerals Processing Research: The Effect of Hydrophilic Organic Solvents on Sulfide Mineral Surfaces
A. Buckley, S. Goh and L. Fan

1356 AR-XPS and SXPS Evidence for Surface Stabilization and Cu Activation of Sphalerite $Zn_{1-x}Fe_xS$ (110) Surfaces
S. Harmer, H. Nesbitt, W. Skinner and A. Buckley

1357 Fine Structure in XPS and XANES Spectra Acquired From a Series of Sphalerite Samples
A. Pratt

1358 Electrochemical and Spectroscopic Analysis of the Arsenopyrite (FeAsS) Oxidation under Calcareous Soil Conditions
R. Lara, R. Briones, M. Monroy, J. Ehrhardt, M. Mullet and R. Cruz

1359 Production of Oxidizing Intermediates During Corrosion of Iron; Implications for Remediation of Contaminants from Mineral and Metal Processing
A. Pham, D. Sedlak and F. Doyle

1360 Electrochemical Analysis of Highly Reactive Pyrite
K. Watling, E. Burton, M. Johnston, R. Bush and L. Sullivan

1361 Surface Characterization by X-Ray Photoelectron Spectroscopy and Cyclic Voltammetry of Products Formed during the Potentiostatic Oxdation of Chalcopyrite
D. Nava, I. González, D. Leinen and J. Ramos-Barrado

1362 Duality of Pyrite Semiconductor Properties Influence on Flotation
V. Chanturiya, V. Vigdergauz and S. Vorobyev

1363 Influence of Surfactant Adsorption on the Leaching of Copper Sulfides
P. Nowak

1364 A Novel Mathematical Model for the Study of Electrochemical Nucleation of Metals on Foreign Substrates from the Analysis of Potentiostatic Current-Transients
T. Vargas, M. Colet and J. Salgado

1365 The Pyrite Catalysed Oxidation of Sulfide Ions
D. Hewitt, P. Breuer and M. Jeffrey

1366 Electrochemical Study of Massive Chalcopyrite Electrodes Bioleached by Moderately Thermophilic Microorganisms at 48°C
W. Zeng, Y. Zhang, G. Qiu, M. Chen and B. Follink

1367 Galvanic Interactions Between Pyrite and Chalcopyrite and their Effect on Galvanically Assisted Leaching
M. Eghbalnia and D. Dixon

1368 Attributes of Electrochemical Potential in a Multiphysics Heap Leach Model
J. Gebhardt, D. McBride and M. Cross

1369 An Approach to the Reactivity of Isomorphous Proustite (Ag_3AsS_3) and Pyrargyrite (Ag_3SbS_3) in Cyanide Solutions
A. Meléndez, I. González and R. Arroyo

1370 Modeling the Kinetics of Anodic Dissolution of Chalcopyrite Based on Electrochemical Measurements Conducted Directly on Chalcopyrite Particle Electrodes
H. Jordan and T. Vargas

1371 Using Electrochemical Impedance Spectroscopy to Investigate Gold Dissolution in Thiourea and Thiocyanate Acid Solutions
X. Yang, M. Moats and J. Miller

1372 A Spectroelectrochemical Investigation of the Interaction of Gold with Cyano-Containing Ligands
G. Parker and G. Hope

1373 An Electrochemical Study of the Dissolution of Pure Gold and Gold-Silver Alloys in Thiosulfate Leach Solutions
E. Oraby and M. Jeffrey

1374 Investigating Gold Dissolution during Oxidative Desorption of Alkylthiol Self-Assembled Monolayers
S. Smith, J. Shepherd and E. Guerra

1375 Electrochemical Determination of Minor Elements in Zinc Flotation Concentrates
A. Hernández-Gómez, A. Meléndez, C. Lara and I. González

1376 An Investigation on the Effects of Organic Additives on Zinc Electrowinning from Industrial Electrolyte
D. Dhak, E. Asselin and A. Alfantazi

1377 Electrowinning of Copper from Various Copper Cyanide Eluates at Low pH
X. Dai, P. Breuer and M. Jeffrey

1378 Evaluation of Copper Electrowinning Parameters on Current Efficiency and Energy Consumption Using Surface Response Methodology
Y. Khouraibchia and M. Moats

1379 Comparison of H_2 and NH_3 Treatment for Cu Interconnects
Y. Cheng, T. Chiu and Y. Wang

1380 Lead(Ⅱ) Electrodeposition from Alkaline Solutions Containing Xylitol
G. Yingying, Z. Qionghua, Y. Tianzu, L. Wei and Z. Duchao

1381 Electrochemical Dissolution and Passivation Behavior of Pure Iron in Ammoniacal Solution
S. Roy and E. Asselin

1382 Electrowinning of Iron from Alkaline Solution
S. Tang and G. Haarberg

1383 Electrodeposition of Nickel from Sulfamate Effluents
G. Kelsall and A. Kovaleva

1384 Anodic Formation of Cobalt Oxide During Electrowinning of Cobalt in a Chloride Electrolyte
G. Haarberg, J. Thonstad and O. Kongstein

1385 Electrochemical Deposition of Nanoparticulate Materials
G. Hope, P. Liu, H. Li and G. Heber

1386 $CaTi_xRu_{(1-x)}$ as an Inert Anode for Application in Calcium Chloride-Calcium Oxide Melts
S. Jiao and D. Fray

1387 Application of Current-Pulse Techniques to Analysis of Anode Gas Film Behavior in a Hall-Heroult Cell
K. McGregor, G. Snook, A. Urban and M. Lanyon

1388 Depolarized Gas Anodes for Electrowinning of Metals in Molten Salts
S. Xiao, T. Mokkelbost, G. Haarberg, A. Ratvik and H. Zhu

1389 Direct Electrolysis of Molten Lunar Regolith for the Production of Oxygen and Metals on the Moon
A. Sirk, D. Sadoway and L. Sibille

G5 - Fuel Cell Membranes, Electrode Binders, and MEA Performance

Industrial Electrochemistry and Electrochemical Engineering / Energy Technology

1390 Development of a Methanol Tolerant Nonfluorinated Proton Exchange Membrane for Direct Methanol Fuel Cells Applications
D. Julius, L. Hong and J. Lee

1391 Surface Modified of Heteropolyacids for Proton Exchange Membrane Fuel Cells
J. Sutrisno, A. Fuchs, S. Hopkins, C. Evrensel and F. Gordaninejad

1392 New Approaches to Composite PFSA Membranes for Enhanced Fuel Cell Performance
A. Herring, S. Sachdeva, J. Rajeswari, G. Haugen and S. Hamrock

1393 Polyoxometalate Ionomers: Multi-Generational Design of Novel High Temperature/Low Humidity Membranes
J. Horan, M. Kuo, A. Genpur, A. Perdue, F. Zhang, M. Frey and A. Herring

1394 Influence of Morphology of Block Copolymers on the Conductivity of Proton Exchange Membranes
M. Gross, G. Maier, T. Fuller, S. MacKinnon and C. Gittleman

1395 Intermediate-Temperature Proton Exchange Fuel Cell Based on an Inorganic-Organic Composite Membrane
Y. Jin, K. Fujiwara and T. Hibino

1396 Fabrication of Protic Ionic Liquid/Sulfonated Polyimide Composite Membranes for Nonhumidified Intermediate Temperature Fuel Cells
T. Yasuda, S. Lee, S. Nakamura and M. Watanabe

1397 Synthesis and Characterization of Phosphoric Acid Doped Poly(benzimidazole-*co*-benzoxazole) Membranes for High Temperature PEM Fuel Cells
D. Lee, H. Lee, B. Kim, S. Kim, E. Cho, J. Jang, T. Lim and H. Kim

1398 Nafion/Sulfonated Silica Composite Polymer Electrolyte Membranes
N. De Almeida and E. Easton

1399 Functionalized Titanium Dioxide Nanotube Based Composite Membranes for High Temperature PEMFCs
Z. Chen, Y. Jun and M. Fowler

1400 AFM Investigation of PEM Fuel Cell Membranes and Gas Diffusion Layers
R. Hiesgen, I. Wehl, A. Carreras, J. Kraut, A. Bauder, M. Schulze, K. Friedrich, H. Wang and X. Yuan

1401 A Molecular Dynamics Study of Ionomer and Water Adsorption at Carbon Support Materials
T. Mashio, K. Malek, M. Eikerling, A. Ohma, H. Kanesaka and K. Shinohara

1402 Innovative Catalyst Layer Structures Based on Extended Pt Surfaces
H. Dinh, K. Neyerlin, T. Olson, J. Leong, C. Engtrakul, A. Dameron, L. Simpson and B. Pivovar

1403 In Situ Analyses of Membrane-Electrode Interfaces Using a Microfluidic Platform
F. Brushett and P. Kenis

1404 Sulfonated Carbon Supports For PEM Fuel Cell Electrodes
A. Pedersen, A. Pauric, J. Eastcott and E. Easton

1405 Estimation of Oxygen Transport Resistance in PEFC Electrode Binders by Limiting Current Methods
S. Sambandam and V. Ramani

1406 Nonfluorinated Polyphosphazene as Electrode Binder in PEM Fuel Cell
J. Lin, R. Wycisk, J. Muldoon and P. Pintauro

1407 The Analysis of Performance Loss with Low Platinum Loaded Cathode Catalyst Layers
Y. Ono, T. Mashio, S. Takaichi, A. Ohma, H. Kanesaka and K. Shinohara

1408 Membrane Degradation under Idle Condition in a PEM Fuel Cell Stack
X. Yuan, H. Wang, J. Wu, S. Zhang, C. Sun, R. Hiesgen, K. Freidrich, M. Schulze and A. Haug

1409 Diagnosis of MEA Failure Modes under Accelerated RH Cycling Conditions
V. Singaram, M. Fowler, X. Yuan and H. Wang

1410 A Study on Cathode Degradation of PEMFCs under On/Off Cycling Operation
J. Kim, E. Cho, J. Jang, H. Kim, T. Lim and I. Oh

1411 The Effects of Aluminum and Iron Ions on the Degradation of PEMFC Cathode
H. Li, K. Tsay, S. Wu, H. Wang, J. Zhang, N. Jia, S. Wessel, R. Abouatallah, N. Joos and J. Schrooten

1412 Fuel Cell Operation with Very Low Humidity Causing Voltage Reversal and Overheating Effects
R. Bradean, K. Eggen, D. Adam, F. Berretta, H. Haas and A. Leow

1413 On the Negative Impedance Region and Proton Transfer Mechanism in Fully Hydrated Nafion Membranes
M. Tsampas and C. Vayenas

1414 Effect of Gas Diffusion Media on PEMFC Performance: An EIS Study
P. Gallo Stampino, L. Omati, R. Pelosato, L. Zampori, C. Cristiani and G. Dotelli

1415 A 2D PEMFC Impedance Model Taking into Account the Propagation of the Concentration Oscillations in the Direction of the Gas Channels: The Second Loop Artifact
G. Maranzana, J. Mainka, J. Dillet, S. Didierjean and O. Lottin

1416 A Two-Fluid Model for Hydrogen PEM Fuel Cell Performance Integrating Gas Phase and Water Transport with Porous Media Capillary Effects, Heat Transfer, and Electrochemistry
S. Mukherjee, A. Gidwani, A. Roy, J. Cole, K. Jain, C. Bapat and R. Thomas

1417 Irradiation Methods for Preparation of Nanosized Catalysts in Low Temperature Fuel Cells
M. Min, G. Chai, H. Kim, S. Shin, K. Kim, B. Choi, Y. Han and B. Lee

1418 Fabrication of Branched-Carbon Nanotubes and Their Properties as Supports for Electrocatalysts
H. Joh, S. Kim, J. Prabhuram and H. Ha

1419 Three Dimensional Reconstruction of PEFC Catalyst Layers
S. Thiele, R. Zengerle and C. Ziegler

1420 Effect of Nafion Aggregation within the Catalytic Layers on the Performance of the Passive DMFCs
T. Yuan, Z. Zou, Z. Li and H. Yang

1421 High-Resolution X-Ray Computed Tomography and Direct Simulation of the Carbon-Paper GDLs
Y. Wang and H. Wang

1422 The Relationship Between Hydrophilic Channel Morphology, Water Diffusion and Proton Conductivity
C. Wu and P. Chu

1423 Effect of Spray Parameters, Catalyst Type, Ionomer Type and Ionomer Loading on Electrode Surface Morphology and Electrode Performance of PEM Fuel Cells
R. Brooker, M. Rodgers, L. Bonville, H. Kunz, D. Slattery and J. Fenton

1424 Investigation of the Presence of a Saturating Media during Hot Pressing of Proton Exchange Membranes to Improve Performance
M. Rodgers, B. Pearman, N. Mohajeri, L. Bonville, D. Slattery, H. Kunz and J. Fenton

1425 Impact of Ionomer Content on the Performance of a Direct Methanol Fuel Cell
B. Krishnamurthy and S. Deepalochani

1426 Synthesis and Characterization of Sulfonated Poly(arylene biphenylsulfone ether)s for Proton Exchange Membranes
D. Yoo, S. Hyeon, A. Kim, G. Gnana Kumar, R. Park, I. Hwang and K. Nahm

1427 Oxygen Reduction Reaction of Nitrogen-Doped Carbon Nanofibers With or Without Pt Catalysts
J. Kim, S. Lim, S. Kim, D. Peck, B. Lee and D. Jung

1428 Study on Effects of the Cathode Flow Field on the Current Distribution in DMFC
S. Lee, S. Kim, S. Lim, D. Jung, D. Peck, B. Lee and H. Kim

1429 Experimental Validation of a One Dimensional, Two-Phase Direct Methanol Fuel Cell Model under a Wide Range of Operating Temperatures and Methanol Feed Concentrations
K. Kang and H. Ju

1430 H_2/Air Alkaline Membrane Fuel Cell Performance and Durability Using Novel Anionexchange Materials (Ionomer and Membrane) and Nonplatinum Group Metal Cathode Catalysts
M. Boccia, A. Filpi, E. Flammia, H. Miller, M. Orsini, M. Piana, F. Salusti and S. Santiccioli

1431 Effect of Phosphotungstic Acid in MEA on PEMFC Performance at Elevated Temperature
S. Gopu and A. Bose

1432 Investigation the Effect of Chitosan-Modified Montmorillonite Presence on Fuel Cell Performance of Partially Sulfonated Poly(2,6-dimethyl-1,4-Phenylene Oxide) at Elevated Temperatures
M. Hasani-Sadrabadi, E. Dashtimoghadam, F. Majedi and K. Kabiri

1433 Nanocomposite Ternary Acid-Base Blend Based Polymer Electrolyte Membranes for Fuel Cells
K. Stewart and H. Missan

1434 Long-Term Stable Operation of Direct Methanol Fuel Cell by Control of the Operation Modes
Y. Park, D. Peck, S. Lim, S. Kim, B. Lee, D. Jung and D. Lee

1435 Effects of Operating Temperature on Performance Degradation of PEMFCs under Repetitive Startup/Shutdown Cycling
Y. Jo, E. Cho, J. Kim, J. Kim, T. Lim, I. Oh, J. Jang and H. Kim

1436 Multiscale Simulation of Single-Phase Multicomponent Transport in the Cathode Gas Diffusion Layer of a Polymer Electrolyte Fuel Cell
P. Rama, Y. Li, R. Chen, H. Ostadi, K. Jiang and X. Zhang

1437 Imaging the Electrode-GDL Interface by a Modified Wood's Intrusion Process
U. Kunz, F. Scheiba, N. Benker, H. Fuess and C. Roth

1438 Anode Materials for Mitigating Hydrogen Starvation Effects in PEM Fuel Cells
I. Halalay, S. Swathirajan, B. Merzougui, M. Balogh, G. Garabedian, M. Carpenter and N. Irish

1439 Degradation/Failure Analysis in a PEMFC Stack Tested under Dynamic Load Cycling Linked to Vehicle Application
A. Bose, P. Babburi, R. Kumar, D. Myers, J. Mawdsley and J. Millhuff

1440 Fabrication of Nanoporous Silicon Membrane Based Micro-Direct Methanol Fuel Cell
D. Ge, Y. Zhou, J. Jiao, H. Yang, P. Chen and Y. Leng

1441 In Situ Mass Transport and ORR Kinetics in Solid Sulfonated Polybenzimidazoles Electrolytes
A. Mani, O. Thomas, T. Peckham, Y. Yang and S. Holdcroft

1442 Sulfonated Polybenzimidazoles: Proton Conduction and Acid-Base Cross-Linking
O. Thomas, T. Peckham, U. Thanganathan, Y. Yang and S. Holdcroft

1443 In Situ Analysis of the Effects of Variation of the MEA Microstructure at Different Pt/Nafion Ratio, Pressure and Temperatures
&. Kriston, &. Nemes and G. Inzelt

1444 Regeneration of Pt Electrode Activity in PBI Fuel Cell Following CO Poisoning
E. Ubong, D. Phillips and M. Gieseke

1445 Water Sorption, Ion Conductivity and Hygrothermal Aging of Nafion 115
L. Maldonado, J. Dillet, F. Xu and O. Lottin

1446 Effects of Various PTFE Loadings in the Anode Backing Layer of Direct Methanol Fuel Cells
K. Kang and H. Ju

1447 Nafion-Impregnated Electrospun Polyethersulfone Composite Membrane for Direct Methanol Fuel Cells
H. Hwang, H. Lee, S. Park, S. Choi and Y. Shul

1448 Microwave-Assisted Synthesis of Silica Aerogel Supported Pt Nanoparticle for Self-Humidifying Proton Exchange Membrane Fuel Cell
C. Tsai, F. Yang, C. Chang, W. Wang and Y. Cheng-Yang

1449 Irradiated Poly Vinylidene Fluoride Hexafluoropropylene-Chitosan Composite Membranes for the Application of High Temperature and Lower Humidity Polymer Electrolyte Fuel Cells
G. Gnana Kumar, A. Kim, I. Park, J. Shin, Y. Nho, P. Kim, D. Yoo and K. Nahm

1450 Conducting Polymer/Heteropolyoxometalate Composites as Efficient Electron/Proton Conducting Membranes for Energy Conversion Applications
M. McDonald and M. Freund

H1 - Electron Transfer and Applications of Fullerenes and Nanostructured Materials

Fullerenes, Nanotubes, and Carbon Nanostructures

1451 The Dynamics of Photoinduced Electron Transfer Processes in Porphyrin-[60]Fullerene Supramolecular Interlocked Systems
D. Schuster, J. Megiatto Jr., D. Guldi, S. Abwandner and G. Rojas

1452 Photo-Physical Properties of Simple and Double Strand Multiporphyrinic Polypeptides
N. Solladié

1453 Functionalized Fullerenes: Synthesis and Functions
D. Guldi

1454 Fullerene-Porphyrin Supramolecular Adducts: Photoinduced Processes
N. Armaroli, G. Accorsi, K. Yoosaf and J. Mohanraj

1455 Bio-Inspired Supramolecular Nano-Assemblies for Light Energy Conversion
F. D'Souza

1456 Carbon-13 Isotope Effect on the Delayed Fluorescence of C_{60} and C_{70}
C. Baleizão and M. Berberan-Santos

1457 Supramolecular Assembles of Carbon Nanohorns and Porphyrin for Photovoltaic Devices
M. Vizuete, M. Gómez-Escalonilla, J. Fierro, A. S.D. Sandanayaka, T. Hasobe, M. Yudasaka, S. Ijima, O. Ito and F. Langa

1458 Long Distance Photoinduced Electron Transfer in Triazole-Based Conjugated Polymers with Porphyrin and C_{60} End Groups
C. Haley and D. Schuster

1459 Single Molecule Electronics with Fullerenes
E. Leary, T. González, N. Agraït and N. Martín

1460 Electrochemistry of C_{84} Isomers Modified Electrodes in an Aqueous Solution
L. Liu, S. Wang, B. Sun and M. Li

1461 Single-Walled Carbon Nanotube Complexes with Conjugated Polymers: Preparation and Electrochemical Properties
A. Adronov, X. Pang, P. Imin and I. Zhitomirsky

1462 Vis-NIR and ESR Spectroelectrochemical Study of $Sc_3N@C_{80}(CF_3)_2$
A. Popov, N. Shustova, M. Mackey, C. Coumbe, J. Phillips, S. Stevenson, S. Strauss, O. Boltalina and L. Dunsch

1463 Redox-Tunable Perfluoroalkylfullerene-Based Polymers with Highly Variable Donor/Acceptor Domain Morphologies For OPV Active Layers
N. Escudo, B. Larson, W. Rance, M. Wells, J. Whitaker, I. Kuvychko, T. Bailey, O. Boltalina, E. Chen, N. Kopidakis and S. Strauss

1464 Mechanism of C_{60} Electropolymerization in the Presence of Dioxygen and Application of the Resulting Fullerene Polymer for Preparation of a Conducting Composite with Single-Wall Carbon Nanotubes
P. Pieta, G. Zukowska, S. Das, F. D'Souza, A. Petr, L. Dunsh and W. Kutner

1465 Precise Determination of Electronic States of (n,m)Single-Walled Carbon Nanotubes
Y. Tanaka, Y. Hirana, Y. Niidome, K. Kato, S. Saito and N. Nakashima

1466 The Role of the Selected Metal in Mixed Metal Nitride Clusters
A. Popov, S. Yang, L. Zhang, J. Tarabek and L. Dunsch

1467 Development of Nanostructured Carbon Materials and Their Application Toward Electrocatalysts for Polymer Electrolyte Fuel Cell
A. Hayashi, K. Kimijima and I. Yagi

1468 Redox Properties and Electrochemiluminesce of Corannulene and Its Electrochemically-Generated Film
C. Bruno, G. Valenti, F. Paolucci, M. Marcaccio, L. Scott and C. Fontanesi

H2 - Molecular and Supramolecular Chemistry of Fullerenes and Carbon Nanotubes

Fullerenes, Nanotubes, and Carbon Nanostructures

1489 Supramolecular Recognition of Functionalized Carbon Nanotubes: A Route to Produce Versatile 2D Microstructures
M. Quintana, A. Llanes-Payas and M. Prato

1490 A Click-Click Approach for the Preparation of Functionalized [5:1]-Hexaadducts of C_{60}
J. Nierengarten

1491 Supramolecular Complexes Between C_{60} and Thienylenevinylene Oligomers
R. Caballero, S. Islam, M. Holler, P. De La Cruz, J. Nierengarten, S. Fukuzumi and F. Langa

1492 Morphological Studies of Donor-Acceptor Blends: Trimetallic Nitride Endohedral Fullerenes-Based Organic Photovoltaic Devices
C. Cardona, B. Swain, J. Wall and S. Joslin

1493 m-Phenylalkyne Bridged Oligothienylene Vinylene: A Good Candidate as a Gated Molecular Wire for High-Efficient Electron Transfer in C_{60}-Porphyrin Systems
M. Urbani, S. Islam, S. Fukuzumi and F. Langa

1494 Spectroscopic Signatures of Photogenerated Radical Anions in Polymer-[70]Fullerene Bulk-Heterojunctions
V. Dyakonov, S. Filippone, N. Martín, A. Sperlich, M. Liedtke, C. Deibel and O. Poluektov

1495 Towards Large Openings in Fullerenes
S. Huang, S. Khan and Y. Rubin

1496 In Pursuit of Fullerene Derivatives with New Structures: A Study of Chemical Modifications of Fluorofullerenes
O. Boltalina, I. Kuvychko, N. Shustova, J. Whitaker, S. Strauss, K. Seppelt and A. Popov

1497 Redox Gradients in Hydrogen Bonded Complexes: Containing N,N-Dimethylaniline, Flavin and Fullerene
M. Motonobu, K. Ohkubo, T. Hasobe, V. Sgobba, D. Guldi, F. Wessendorf, A. Hirsch and S. Fukuzumi

1498 Rapid, Efficient Techniques in the Macromolecular Covalent Functionalization of Carbon Nanotubes
R. Chadwick and A. Adronov

1499 Supramolecular Functionalization of Carbon Nanotubes Using Poly(2,7-carbazole)s
N. Rice and A. Adronov

H3 - Carbon Nanotubes and Nanostructures: Fundamental Properties and Processes

Fullerenes, Nanotubes, and Carbon Nanostructures

1500 (Invited) Direct Growth of Metallic Single-Walled Carbon Nanotubes Thin Films
A. Harutyunyan

1501 The Effect of Catalyst Composition on Chirality Distributions of As-Grown Single-Walled Carbon Nanotubes
W. Chiang, D. Dutta, V. Bhethanabotla and R. Sankaran

1502 Synthesis, Characterization and Electron Transfer Properties of Sea Urchin Shaped Carbon Nanostructured Materials
A. Tabet-Aoul Benyoucef, Z. Hamoudi and M. Mohamedi

1503 Pyrolytic Conversion of Organic Aerogels into Monolithic Meso- and Macroporous Carbon
N. Leventis, C. Sotiriou-Leventis, N. Chandrasekaran, C. Chidambareswarapattar, S. Mahadik, D. Mohite, S. Mulik and A. Sadekar

1504 (Invited) The Evolution of Populations of Nanotubes During Synthesis from Optical Imaging and Optical Spectroscopy
P. Finnie, A. Li-Pook-Than, P. Vinten, P. Marshall and J. Lefebvre

1505 (Invited) Low-Energy Dynamics in Single-Walled Carbon Nanotubes
J. Kono

1506 (Invited) Raman Spectroscopy of Chirality-Enriched Single Walled Carbon Nanotubes
S. Doorn, J. Duque, E. Haroz, J. Kono, H. Chen, A. Swan, X. Tu and M. Zheng

1507 (Invited) Effects of Fullerene Encapsulation on Radial Breathing Mode Frequencies of Metallic Single-Wall Carbon Nanotubes
T. Okazaki

1508 (Invited) Optical Properties and Energy Transfer in Carbon Nanotube-Polymer Nanohybrid Structures
R. Nicholas

1509 (Invited) Ultrabright Photoluminescence of Individual Single-Walled Carbon Nanotubes
X. Wang, A. Lee, L. Carlson, J. Smyder, X. Tu, M. Zheng and T. Krauss

1510 (Invited) Exziton Dynamics in Novel Carbon Nanotube-Molecule Aggregates
J. Crochet, T. Ackermann, M. Hailmann, T. Hain, T. Hefner, S. Himmelein, F. Schoeppler, D. Stich and T. Hertel

1511 Emission Energy and Quantum Yield of Photo-Excited Single Walled Carbon Nanotubes: The Influence of Solvent and Surface Bound Molecules
B. Larsen, P. Deria, M. Heben, M. Therien and J. Blackburn

1512 (Invited - Young Investigator Award) Preparation, Characterization, and Application of Monodisperse Carbon-Based Nanomaterials
M. Hersam

1513 (Invited) Optical Detection of Heavy Metals Using DNA-Carbon Nanotube Hybrids
W. Zhao, D. Deloach and A. Kamel

1514 (Invited) Ground and Excited State Charge Transfer Processes in Single-Walled Carbon Nanotubes
J. Blackburn, J. Holt, K. Mistry, J. Rocha, D. Svedruzic-Chang, P. King, A. Ferguson, N. Kopidakis, M. Heben and G. Rumbles

1515 (Invited) Preparation and Characterization of Carbon Nanotube Reference Materials
J. Fagan

1516 (Invited) Novel Near-IR Photoluminescence from Oxidized Single-Walled Carbon Nanotubes
S. Bachilo, S. Ghosh and R. Weisman

1517 (Invited) Squeezing Out Perfection from Single Walled Carbon Nanotubes
F. Papadimitrakopoulos

1518 Emission Saturation of Single-Wall Carbon Nanotubes via Modulation of Surfactant Interaction at the Nanotube Surface
J. Duque, C. Densmore and S. Doorn

1519 The Synergic Effect of Pulse and Pulse-Reverse Parameters with Various Surfactants on the Microstructure and Property of Ni-SWNT Composites
M. Zheng, M. Sullivan and R. Hilty

1520 (Invited) DNA Sequence Motifs for Structure-Specific Recognition and Separation of Carbon Nanotubes
X. Tu and M. Zheng

1521 (Invited) Optically Active Single-Walled Carbon Nanotubes
N. Komatsu

1522 Advanced (n,m) and Enantiomeric Sorting of HiPco Single-Walled Carbon Nanotubes by Nonlinear Density Gradient Ultracentrifugation
S. Ghosh, S. Bachilo and R. Weisman

1523 (Invited) Using SDS to Suspend Single-Walled Carbon Nanotubes: Love It or Hate It?
K. Ziegler

1524 (Invited) (n,m)-Selected Single-Walled Carbon Nanotubes as Molecular Templates
F. Hennrich, S. Lebedkin, N. Stuerzl and M. Kappes

1525 (Invited) Controlling the Surface Features of Carbon Nanotubes Using Designed Reversible Cyclic Peptides
G. Dieckmann, I. Musselman, S. Nielsen, A. Klimenko, P. Bajaj and C. Chiu

1526 (Invited) Advances in the Chemistry and Applications of Carbon Nanotubes and Graphene
R. Haddon

1527 (Invited - Young Investigator Award) Electrochemically Controlled Transport of Water Through Carbon Nanotube Membranes
N. Koratkar

1528 (Invited) Current Saturation and Surface Polar Phonon Scattering in Graphene and Carbon Nanotubes
V. Perebeinos

1529 (Invited) Probing Defects in Carbon Nanotubes Through Multi-Gated Structures
J. Lee

1530 Influence of Surface Pretreatment of MWNT Support on PEFC Performance
S. Mohanapriya, P. Sridhar, S. Pitchumani and A. Shukla

1531 Effects of Different Surface Morphologies and Nitrogen Contents on the Electrochemical Activity of Nitrogen Doped Carbon Nanotubes Towards Oxygen Reduction Reaction for Alkaline Fuel Cells
Z. Chen and Z. Chen

1532 Diffusion-Controlled Growth Model for Electrodeposited Cobalt Nanowires in Highly Ordered Aluminum Oxide Membrane
A. Ghahremaninezhad and A. Dolati

1533 Effects of Quantum Confinement on Interrelation Between DOS Spectrum and C(V) Dependencies of Si Nanowire-Based MOS Structure
V. Ligatchev and S. Chin

1534 Oxygen Reduction on Multiwalled Carbon Nanotube Modified HOPG Electrodes in Alkaline Solution
I. Kruusenberg, M. Marandi, V. Sammelselg and K. Tammeveski

1535 Static Inelastic-Elastic Properties of Carbon Nanotubes and Polypropylene
A. Onanko, O. Lyashenko, G. Prodaivoda, S. Vigva and Y. Onanko

1536 Nanocarbon Synthesis Using Oxidized Diamond-Supported Metal Catalysts
K. Nakagawa, H. Gamo, M. Nishitani-Gamo, T. Ando and H. Oda

1537 Templated Carbons from Bio-Derived Sources for Energy Storage
R. Mayes, D. DePaoli and S. Dai

H4 - Carbon Nanotubes and Nanostructures: Applications and Devices

Fullerenes, Nanotubes, and Carbon Nanostructures

1538 (Invited) Tumor Targetable, Self-Assembling Theranostic Carbon Nanotubes
D. Scheinberg, M. McDevitt, C. Villa, A. Ruggiero and W. Deen

1539 (Invited) Fullerene Immunoconjugates for Cancer Imaging and Treatment
S. Berger, L. Wilson, R. Bolskar, J. Collier, M. Rosenblum and W. Marks

1540 (Invited) Carbon Nanostructures: Chemistry and Biological Applications
T. Da Ros

1541 Radiofrequency Induced Heating of Single-Walled Carbon Nanotubes/Materials
M. Cheney, Y. Mackeyev, S. Curley and L. Wilson

1542 (Invited) Biological Studies with Structurally Sorted SWCNTs
R. Weisman, S. Ghosh, D. Tsyboulski, G. Bartholomeusz and M. Weiss

1543 C_{60} and PCB Decoration of Lipid Bilayers
A. Gewirth, T. Spurlin and A. Campbell

1544 (Invited) Aligned Arrays of Single Walled Carbon Nanotubes: Growth and Implementation in RF Electronics
J. Rogers

1545 (Invited) Characterization of CNT-FETs by Scanning Probe Microscopy
T. Mizutani and T. Takahashi

1546 (Invited) Avalanche, Hysteresis, and Energy Dissipation in Carbon Nanotube Devices
E. Pop, A. Liao, D. Estrada, Z. Ong and S. Dutta

1569 Nanoporous Carbon Engineering by Chemical Vapor Deposition onto Active Carbon Fiber Electrodes for Selective Water Desalination
D. Aurbach, M. Noked, E. Avraham and A. Soffer

1570 (Invited) Nanotube-Peptide Interactions on a Silicon Chip
P. Burke, L. Zheng and D. Jain

1571 Fluorescent Single-Walled Carbon Nanotubes in Ultra Low Density Silica Aerogels for Optical Sensing Applications
J. Duque, G. Gupta, C. Hamilton, K. DeFriend Obrey, A. Dattelbaum and S. Doorn

1572 Integration of Uniform Arrays of Carbon Nanotube-Based Biosensors and CMOS Signal-Processing Circuits into a System-on-a-Chip
B. Lee, S. Seo, M. Sung, D. Lee, M. Lee, J. Lee, J. Cheon, E. Cho, H. Lee, I. Chung, Y. Park, S. Kim and S. Hong

1573 Electrochemical Detection of Nitric Oxide by Carbon Nanopipettes
F. Li, N. Dementev, R. Ghavami, R. Singhal, Y. Gogotsi and E. Borguet

1574 A Carbon Nanotube-Nafion Composite Twin Microsensor for Vapor Phase Detection of a Ketosis Product in Breath and Urine
C. Felice, K. Santhanam and L. Fuller

1575 Thin-Film Field-Effect Transistors Based on Composites of Semiconducting Polymer and Carbon Nanotubes
Z. Liu, Z. Zhang, M. Qu, J. Li, A. López Cabezas, L. Zheng and S. Zhang

1576 Field Emission Properties of Metal-CNT Composite Films Prepared by Electrodeposition Techniques
S. Arai, E. Shinada, Y. Todoroki and M. Endo

1577 Electrodeposition of Copper on GaAs Nanowires
C. Liu, O. Einabad, S. Watkins and K. Kavanagh

1578 Pulsed Electric Fields for Fabrication of Copper/Carbon Nanotube and Carbon Nanotube Films
H. McCrabb, E. Taylor, M. Inman, C. Devlin and M. Leines

1579 A New Method for Supersolublization of Ultrapure Carbon Nanotubes
N. Dementev and E. Borguet

1580 Electrochemically Reduced Graphene Oxide Films for Electrochemical Supercapacitor
X. Peng, X. Liu, D. Diamond and K. Lau

1581 (Invited) Tunable Bandgaps and Excitons in Doped Semiconducting Carbon Nanotubes Made Possible by Acoustic Plasmons
C. Spataru and F. Leonard

1582 (Invited) Molecular Transport in Carboneous Nanochannels: Drag, Electro-Osmosis, Switches, Sieves
P. Kral, B. Wang, A. Titov, E. Vokac, L. Vukovic and K. Sint

1583 (Invited) Casimir Interactions Between Scatterers in Carbon Nanotubes
D. Zhabinskaya

1584 Counterion Condensation on a Polyelectrolyte in the Presence of an Electronically Responsive Cylinder in an Electrolyte Solution
O. Malysheva, T. Tang and P. Schiavone

1585 Two-Dimensional Hexagonally Ordered Mesoporous Carbon Synthesized Via a One-Step Method for Supercapacitors
T. Zhou, F. Jiang, N. Xia, J. Chen and D. Yuan

1586 Carbon Nanostructured Supercapacitors with Large Areal Capacitances
J. McDonough, J. Choi, Y. Yang, F. La Mantia, Y. Zhang and Y. Cui

1587 Stretchable Supercapacitors from Carbon Nanotubes
B. Wei, C. Masarapu, J. Rong, C. Yu and H. Jiang

1588 Design of Carbon Nanotube-Based Hybrid Catalyst for Nonhumid Fuel Cell
T. Fujigaya, M. Okamoto, K. Matsumoto and N. Nakashima

1589 Multifunctional Graphitic Nanotube/Nanofiber Compositions for the Sorption and Catalytic Degradation of Vapor-Phase Toxins
J. Long, M. Laskoski, T. Keller, K. Pettigrew, S. Qadri, G. Peterson and B. Schindler

1590 High Density Directly-Grown Carbon Nanotube Layer for Proton Exchange Membrane Fuel Cell Application
H. Du, C. Wang, S. Yen, L. Chen and K. Chen

1591 Transport and Electrochemical Properties of Nanocomposite Polyelectrolyte Membranes Based on Nafion Ionomer and Functionalized Carbon Nanotube
M. Hasani-Sadrabadi, S. Ghaffarian, E. Dashtimoghadam and F. Majedi

1592 (Invited) New Vistas in Fullerene Endohedrals and Single-Walled Carbon Nanotubes
M. Yamada, T. Tsuchiya, T. Akasaka, Y. Maeda and S. Nagase

H5 - Endofullerenes and Carbon Nanocapsules

Fullerenes, Nanotubes, and Carbon Nanostructures

1593 Theoretical Study of Scandium Carbide Endohedral Metallofullerenes
N. Mizorogi, T. Akasaka and S. Nagase

1594 Regioselective Exohedral Functionalization of La@C_{82} / 1,2,3,4,5-Pentamethylcyclopentadiene and La@C_{82} / Adamantylidene Adducts
S. Sato, Y. Maeda, K. Inada, H. Nikawa, M. Yamada, N. Mizorogi, T. Tsuchiya, T. Hasegawa, Z. Slanina, T. Akasaka, T. Kato and S. Nagase

1595 Host-Guest Interactions in Azafullerene ($C_{59}N$)-Single-Wall Carbon Nanotube Peapod Hybrid Structures
Y. Iizumi, T. Okazaki, Z. Liu, K. Suenaga, T. Nakanishi, S. Iijima, G. Rotas and N. Tagmatarchis

1596 Functionalization of Endohedral Fullerenes
M. Mackey, J. Phillips and S. Stevenson

1597 Synthesis and Electrochemical Properties of $Sc_3N@I_h$-C_{80} Donor Acceptor Systems
J. Pinzón, T. Torres and L. Echegoyen

1598 Synthesis of Endohedral Fullerene Derivatives for Quantum Information Processing
K. Porfyrakis

1599 Bis-Carbene Adduct of $La_2@C_{80}$
M. Ishitsuka, S. Sano, H. Enoki, S. Sato, H. Nikawa, T. Tsuchiya, Z. Slanina, N. Mizorogi, T. Akasaka and S. Nagase

1600 Organic Synthesis of an Endohedral C_{60} Encapsulating a Small Molecule
K. Kurotobi and Y. Murata

1601 Yields in the X@C_{74} and Z@C_{82} Series
Z. Slanina, F. Uhlík, T. Akasaka and S. Nagase

1602 Comparisons of Structural Features of Endohedral Fullerenes from Recently Obtained Crystallographic Data
A. Balch, H. Yang, Z. Liu, B. Mercado, M. Olmstead and C. Beavers

1603 An Endohedal Titanium (III) in a Clusterfullerene: Putting a Nongroup-III Metal Nitride into the C_{80}-I_h Fullerene Cage
S. Yang, C. Chen, A. Popov, W. Zhang, F. Liu and L. Dunsch

1604 Production and Characterization of Single-Wall Carbon Nanotubes Encapsulated Fluorescent Molecules
T. Okazaki

1605 New Metal Encapsulated Heterofullerenes
H. Dorn

1606 Metallic Nitride Fullerenes in Films and Coatings
J. Phillips

1607 The Importance of the Pyracylene Motif for Understanding the Properties and Stability of Endohedral Metallofullerenes
T. Fuhrer and H. Dorn

1608 Free Metal Atom Endohedral Fullerene Structures: $Sm@C_{80}$, $Tm_2@C_{82}$ and Others
C. Beavers, B. Mercado, M. Olmstead, A. Balch, H. Yang, Z. Liu, L. Echegoyen, T. Zuo and H. Dorn

1609 Perfluoroalkylated Endometallofullerenes
N. Shustova, I. Kareev, A. Popov, M. Mackey, C. Coumbe, V. Bubnov, S. Lebedkin, Y. Chen, J. Phillips, S. Stevenson, S. Strauss and O. Boltalina

1610 Recent Advances in OxoMetallic Fullerenes and Metallic Nitride AzaFullerenes
S. Stevenson

1611 Molecular Structures and Bonding Situation in Endohedral Metallofullerenes
A. Popov and L. Dunsch

1612 A Pseudoatom in a Cage: Trimetallofullerene $Y_3@C_{80}$ Mimics $Y_3@C_{80}$ with Nitrogen Substituted by a Pseudoatom
A. Popov, L. Zhang and L. Dunsch

1613 ^{13}C NMR Relaxation Study in Endohedral Fullerenes: Interaction of the Nitride Cluster and the Cage Carbons
S. Klod and L. Dunsch

1614 Structural Determination and Computational Analysis of Nanocapsules and Endohedral Metallofullerenes
B. Mercado, C. Beavers, H. Yang, Z. Wang, A. Jiang, Z. Liu, H. Jin, M. Easterling, S. Stevenson, M. Mackey, C. Coumbe, J. Phillips, J. Phillips, M. Olmstead, J. Poblet and A. Balch

1615 The Source of Nitrogen in Metal Nitride Cluster Fullerene Production
L. Dunsch, S. Yang, L. Zhang, A. Svitova and A. Popov

H8 - Porphyrins and Supramolecular Assemblies

Fullerenes, Nanotubes, and Carbon Nanostructures

1616 (Invited) Bis-Porphyrinic Tweezers for the Molecular Recognition of Bidentate Bases of Various Sizes: Towards the Purification of Polluted Effluents
R. Rein and N. Solladié

1617 (Invited) From the Porphyrin-Based Supramolecular Chirogenesis Towards the Metal-Based Chiral Material
V. Borovkov, T. Kizawa, T. Osawa, S. Ikeda, T. Kitamura and Y. Inoue

1618 (Invited) Nanostructured Films Based on Lutetium Bisphthalocyanines and Tyrosinase as Biosensors for the Detection of Antioxidants
C. Apetrei, P. Alessio, J. Constantino, J. de Saja and M. Rodriguez-Mendez

1619 (Invited) Novel Electron Donor Acceptor Nanocomposites
D. Guldi

1620 (Invited) Catalytic Decomposition of Reactive Oxygen and Nitrogen Species by Corrole Metal Complexes
Z. Gross

1621 'Clickable Porphyrins': A Versatile and Rapid Route Towards Porphyrin Libraries
S. Mohnani and D. Bonifazi

1622 (Invited) Phthalocyanines as Efficient Sensitizers in Photorefractive Polymer Composites
M. Diaz-Garcia, F. Gallego-Gomez, J. Quintana, J. Villalvilla, L. Martin-Gomis, F. Fernandez-Lazaro and A. Sastre-Santos

1623 (Invited) Porphyrin Assemblies for Chemical Sensors Development
D. Monti, S. Nardis, L. Lvova, F. Mandoj, C. Di Natale, A. D' Amico and R. Paolesse

1624 (Invited) Synthetic Strategies for Unsymmetrical Porphyrins
M. Senge

1625 Supramolecular Structures and Photoelectrochemical Properties of Self-Assembled Porphyrin Nanotubes Including Fullerenes
F. Tani, H. Nobukuni, Y. Shimazaki, Y. Naruta, K. Ohkubo, T. Nakanishi, T. Kojima, S. Fukuzumi, S. Seki and H. Uno

1626 (Invited) Porphyrin Conjugated Copolymers for Bulk Heterojunction Solar Cells
H. Imahori

1627 (Invited) Polypeptides with Functionalized Pendant Porphyrins for Self-Assembling Processes and the Elaboration of Novel Type of Glues
N. Solladié

1628 (Invited) Optical Sensing Properties of Distributed Porphyrins Layers
F. Dini, R. Paolesse, A. D'Amico, D. Filippini, I. Lundstrom and C. Di Natale

1629 (Invited) Generation of Porphyrin Nanotube and Its Light-Harvesting Function
Y. Kobuke and A. Satake

1630 (Invited) Design and Synthesis of Porphyrin Frameworks for Multidimensional Molecular Materials
C. Aurisicchio, D. Stassen, V. Corvaglia, C. Fabbro and D. Bonifazi

1631 (Invited) High and Low Potential Porphyrin and Phthalocyanine Sensitizers for Splitting Water to Hydrogen and Oxygen Using Solar Energy
B. Sherman, S. Pillai, J. Bergkamp, J. Tomlin, A. Moore, G. Devens and T. Moore

1632 (Invited) Synthesis and Photophysical Properties of Hydrogen-Bonded Phthalocyanine and Subphthalocyanine-Perylenediimide Assemblies
W. Seitz, A. Jimenez, E. Carbonell, B. Grimm, A. Medina, C. Claessens, S. Rodríguez-Morgade, D. Guldi and T. Torres

1633 (Invited) Gas-Phase Chemistry of Cationic Porphyrins
C. Ramos and M. Santana-Marques

1634 Self-Assembled Porphyrin for Organic Photovoltaics
O. Yoshikawa, Y. Kobuke and S. Yoshikawa

1635 (Invited) Photoinduced Electron Transfer in Supramolecular Assemblies Based on a Doubly Protonated and Saddle-Distorted Porphyrin
T. Kojima, T. Honda, T. Nakanishi, K. Ohkubo and S. Fukuzumi

1636 (Invited) Copper-Free Rotaxanes and Catenanes Decorated with Porphyrin and Fullerene Moieties
J. Megiatto Jr. and D. Schuster

1637 (Invited) Enhancement of Electron-Transfer Oxidation of Zinc Phthalocyanine Coupled with Formation of π-Dimer Radical Cation
K. Ohkubo, R. Iwata and S. Fukuzumi

1638 (Invited) Optical Spectroscopy of Molecular and Supramolecular Porphyrin Assemblies
S. Costa, P. Paulo, R. Teixeira and S. Andrade

H9 - Nanostructures for Energy Conversion

Fullerenes, Nanotubes, and Carbon Nanostructures / Energy Technology

1639 (Invited) The Performances of the $WO_3/BiVO_4$ Photoelectrode Modified with Au Nanoparticles for Water Oxidation under Visible Light Irradiation
C. Ponchio, A. Nosaka and Y. Nosaka

1640 Effects of ZnO Electrode Structure on Photoelectrochemical Properties
H. Hayashi, A. Kira, T. Umeyama, Y. Matano, P. Charoensirithavorn, T. Sagawa, S. Yoshikawa, N. Tkachenko, H. Lemmetyinen and H. Imahori

1641 (Invited) Femtosecond Diffuse Reflectance Transient Absorption to Measure Dye-Sensitized Solar Cells under Operational Conditions
A. Furube, K. Sunahara, Z. Wang, K. Hara, R. Katoh and M. Tachiya

1642 (Invited) Rapid Synthesis of Silver Shells on Gold Nanorods
Y. Niidome

1643 Electrochemical Elaboration and Characterization of the Morphology of Bis-Thiophene Carbazole-Fullerene Double-Cable Polymer Films
N. Berton, C. Ottone, F. Chandezon and S. Sadki

1644 (Invited) Plasmon-Assisted Photo-Energy Conversion in Organic Monolayer System
K. Ikeda, K. Takahashi, T. Masuda and K. Uosaki

1645 Graphene Oxide as 2-D Carbon Support to Anchor Semiconductor and Metal Nanoparticles
I. Lightcap and P. Kamat

1646 (Invited) Tungsten(VI) Oxide Flake-Wall Film Electrodes for Photoelectrochemical Oxygen Evolution from Water
F. Amano, D. Li and B. Ohtani

1647 Mechanism of Light Energy Conversion in Gold-TiO_2 Nanostructures: Importance of Electric Field Enhancement by Plasmon
A. Furube, L. Du, K. Hara, R. Katoh and M. Tachiya

1648 Hybrid Solar Cells with Bulk Heterojunction Between Conjugated Polymer and PbS Nanocrystals
S. Woo, Y. Han, K. Kim, H. Lyu and Y. Kim

1649 Free-Base Porphyrin-Fe Porphyrin Based Supramolecular Solar Cells
F. D'Souza, N. Subbaiyan and E. Maligaspe

1650 Low Temperature Sintering for Plastic Dye-Sensitized Solar Cell Using Electrospray Method
H. Lee, H. Kim, Y. Seo, S. Oh, S. Jo, S. Jang and D. Kim

1651 Nanostructured TiO_2 Electrode by Electrospray for Dye-Sensitized Solar Cells
D. Hwang, H. Lee, S. Jang, D. Kim and D. Kim

1652 Shape Control of Highly Crystallized Titania Nanorods
M. Adachi, K. Yoshida, T. Kurata, K. Tsuchiya, Y. Mori and F. Uchida

1653 (Invited) Nanostructures to Probe and Drive Electrocatalytic Reactions
I. Yagi, A. Hayashi, K. Kimijima, H. Notsu and N. Ohta

1654 Preparation of Nanosheets Bismuth Trioxide as Supercapacitance Materials
N. Xia, J. Chen, T. Zhou, S. Mo and D. Yuan

1655 (Invited) Structural Control of Metal Sulfide and Plasmonic Metal Nanoparticles for Energy Conversion
T. Teranishi

1656 Synthesis and Study of Pd-Based Nanomaterials for Electrosorption of Hydrogen
B. Adams, S. Chen, C. Ostrom and A. Chen

1657 (Invited) Stacked-Structure-Dependent Photoluminescence Properties of CdTe-Au Multilayer Films
T. Torimoto, T. Kameyama, Y. Ohno, T. Kurimoto, K. Okazaki, T. Uematsu and S. Kuwabata

1658 Dual Ionic and Electronic Transport in Nanostructured Poly(ionic liquid)s
S. Lee, G. Becht and M. Firestone

1659 (Invited) Effective Photon Scattering from a Single-Molecule at Plasmonic Metal Nano-Gap
K. Murakoshi

1660 Energy Level Alignment at Organic-Organic Interfaces in Bulk Heterojunction Solar Cells
P. Sehati, S. Braun, L. Lindell, X. Liu and M. Fahlman

1661 (Invited) Plasmon-Assisted Photocurrents in Gold- and Silver-Nanostructures
S. Yamada and T. Akiyama

1662 Tuning Electrocatalysis: Platinum-Based Trimetallic Nanostructures from Sequential Electrodeposition and Surface-Limited Redox-Replacement Reactions
T. Mkwizu, M. Mathe and I. Cukrowski

1663 (Invited) Nanoparticle Plasmon-Assisted Photochemical Reactions
H. Misawa, K. Ueno, N. Murazawa and Y. Yokota

1664 Probing Polymer Photovoltaics: Imaging Photocurrents in Organic Solar Cells
R. Giridharagopal, O. Reid and D. Ginger

1665 (Invited) Charge Separation Induced by Near-Infrared Light at the Anisotropic Ag Nanoparticle-TiO_2 Interface
T. Tatsuma, K. Matsubara, E. Kazuma, I. Tanabe and N. Sakai

1666 Preparation of Nanoporous Titanium Oxide Electrode by Screen Print and Its Application to Dye-Sensitized Solid-State Solar Cell
A. Konno

1667 (Invited) Fabrication of Metal and Semiconductor Nanostructures Based on Ordered Nanohole Array in Anodic Porous Alumina
H. Masuda, T. Yanagishita, T. Kondo and K. Nishio

1668 A New Functional Layer Based on Highly Crystalline Inverse Opal for Application in Dye-Sensitized Solar Cells
H. Jung, S. Han and J. Lee

1669 Formation Mechanism of Highly Crystallized Titania Nanorods
M. Adachi, T. Kurata, K. Yoshida, K. Tsuchiya, Y. Mori and F. Uchida

I1 - Physical and Analytical Electrochemistry General Session

Physical and Analytical Electrochemistry

1670 Mass Transport and Electrode Kinetics Parameters in Room Temperature Ionic Liquids and in Its Binary Mixture with Organic Solvent
N. Siraj, G. Grampp and S. Landgraf

1671 Nonadditivity of Faradaic Currents and Modification of Double Layer Capacitance in the Voltammetry of Mixtures of Solutes in Aprotic and Protic Ionic Liquids
A. Bond, I. Burgar, G. Kennedy, J. Reyna-Gonzalez, M. Shiddiky, A. Torriero and C. Zhao

1672 On the Meaning of Electrode Potentials Measured by Kelvin Probe on Coated and Bare Metal Surfaces
M. Rohwerder

1673 High Sensitivity Permeation Measurement Set-Up Based on Scanning Kelvin Probe
S. Evers and M. Rohwerder

1674 Functionalization of Silicon Surfaces with Redox-Active Organometallic Complexes
B. Fabre, N. Gauthier, G. Argouach, F. Paul, M. Humphrey and P. Hapiot

1675 Effect of Ion-Pairing on the Open Circuit Potential of 3 - Mercaptopropanoic Acid Modified Gold Electrodes
M. Anderson and A. Harper

1676 Dielectric Relaxation in Dimethyl Sulfoxide/Water Mixtures Studied by Microwave Dielectric Relaxation Spectroscopy
Z. Lu, E. Manias, M. Lanagan and D. Macdonald

1677 Experimental Manipulation of Interfacial Molecular Assemblies
M. Anderson

1678 Electropolymerization of Phenol on FTO Modified ZrO_2 Nanoelectrode Arrays: Morphology and Electrochemical Properties
J. Mosa, D. Grosso, C. Laberty-Robert and C. Sanchez

1679 Methodology for Potentiometric Fluoride Analysis with Improved Sensitivity
T. Aarhaug and K. Nagy

1680 Microwave Effects on Electroformation of Metals and Metal Oxides
L. Rassaei, R. Compton and F. Marken

1681 Atomistic Simulation of the Aqueous Sulfuric Acid/ Pt(111) Interface as a Function of Potential
J. Santana, C. Cabrera and Y. Ishikawa

1682 Cyclic Versus Staircase Voltammetry in Electrocatalysis: Theoretical Aspects
B. Hai, Y. Tolmachev, C. Zanelli and D. Scherson

1683 Vaporization Exchange Model for Water Distribution and Fluxes in the Cathode Catalyst Layers of Polymer Electrolyte Fuel Cells
J. Liu and M. Eikerling

1684 Dynamic Electrochemical Impedance of the Electrochemical Behavior of Platinum and Palladium in Acidic Solutions
R. Sacci and D. Harrington

1685 Density-Functional Theory Study of Interactions Between Water and CO Adsorbed on Pt and Pt-Ru Alloy under Electrochemical Conditions
J. Santana and Y. Ishikawa

1686 Electrochemical Oxidation of Ammonia on Platinum Electrodeposited onto Pyrolitic Graphite
S. Le Vot, D. Reyter, L. Roué and D. Bélanger

1687 Methods for the Modification of High Surface Area Electrodes with Ruthenium Complexes
R. Smith and P. Pickup

1688 Electrochemical Behavior of Molten Alkali Hydroxide-Carbonate Mixtures for Fuel Cell Applications
P. Hsieh and J. Selman

1689 Electrodeposition of Platinum Nanowires: Electrochemical Characterization
S. Mahshid, A. Dolati, S. Hashemi Daryan and M. Ghorbani

1690 Electrochemical Behaviour of Curium in Chloride Melts
A. Osipenko, A. Mayorshin, M. Kormilitsyn and A. Bychkov

1691 Fast Catalytic and Electrocatalytic Oxidation of Sodium Borohydride on Palladium Nanoparticles and Its Application to Ultrasensitive DNA Detection
J. Das, K. Jo and H. Yang

1692 Observed Electrochemical Oscillations during the Catalytic Oxidation of Aqueous Sulfur Dioxide on a Platinum Electrode Surface
S. Donne, J. O'Brien and J. Hinkley

1693 Three-Dimensional Computational Simulation of Micro-Direct Methanol Fuel Cell
S. Wang, Z. Zou, Y. Qiao, Q. Huang and H. Yang

1694 Alternations in Quinone Aqueous Electrochemistry When Confined in a Negatively Charged Nanoporous Material
A. Fitch and T. Nelson

1695 Kinetics of H UPD at Noble Metals
B. Losiewicz, R. Jurczakowski, H. Duncan, M. Martin, C. Lebouin and A. Lasia

1696 Application of Nanodiamond in Electrochemical Sensing of Neurotransmitters
J. Huang, Y. Tsai, Y. Chen and W. Kang

1697 Electrochemical and IR Studies of Coupled Electron/Proton Transfer Studies in Benzoquinone Modified Monolayers
W. Zhang, S. Rosendahl and I. Burgess

1698 Enzyme-Amplified Amperometric DNA Hybridization Assay Based on Bioelectrocatalysis Using Redox-Polymer Modified Electrodes
P. Kavanagh, J. Hajdukiewicz, S. Boland and D. Leech

1699 Ion Permeation and Association Effects in Cellulose - Poly-(Diallyldimethylammonium) Membranes Immersed in Acetonitrile
S. Shariki, W. Thielemans, L. Rassaei and F. Marken

1700 Enzymatic Activity of Papain Determined by Ferrocene Affinity Label Detection
C. Baier, A. Schlichtiger, J. Eppinger and U. Stimming

1701 Flame Plasma Electrochemical Sensor for Airborne Particulates: The Case of Pollen
D. Sarantaridis and D. Caruana

1702 Large Amplitude/High Frequency Sinusoidal Voltammetry of Surface-Confined Redox Systems
C. Bell, C. Anastassiou, D. O'Hare, K. Parker and J. Siggers

I3 - Charge Transfer: Electrons, Protons, and Other Ions

Physical and Analytical Electrochemistry / Sensor / Organic and Biological Electrochemistry

1722 Concerted Proton-Electron Transfer Reactions
D. Evans

1723 Charge Transfer Through Peptide Nucleic Acid Oligonucletide Molecules and Self-Assembled Monolayers
E. Wierzbinski, K. Davis, D. Waldeck, S. Bezer and C. Achim

1724 Theoretical Studies of Interfacial Proton-Coupled Electron Transfer Reactions at Metal Electrodes
A. Soudackov and S. Hammes-Schiffer

1725 Mechanistic Aspects of Proton Coupled Electron Transfer: Role of Buffer and Water as Proton Acceptor
C. Costentin, J. Bonin, C. Louault, M. Robert, J. Savéant and A. Teillout

1726 Measuring Electron Transfer Kinetics in Room Temperature Ionic Liquids Using the Scanning Electrochemical Microscope
K. Lovelock and D. Walsh

1727 Structure and Transport of Hydronium Ions in Bulk Water and in Triflic Acid Hydrate Crystals Probed by Ab Initio Molecular Dynamics and Ab Initio Path Integrals
M. Tuckerman

1728 Long-Term Stability and Electrical Performance of Molecular Diodes
R. Popoff and H. Yu

1729 Structure and Ion Transport in Ionic Liquids and Liquid Electrolytes from Molecular Dynamics Simulations
O. Borodin, J. Vatamanu and G. Smith

1730 Dynamic Impedance Spectroscopy of Peroxide Reduction at a Pt(poly) Rotating Disk Electrode in 0.5 M H_2SO_4
G. Hager and D. Harrington

1731 First Principles Molecular Dynamics Simulations of Proton Transport in Phosphoric Acid
L. Vilciauskas

1732 Electrochemistry in Low-Supported Media: Theoretical and Experimental Investigations.
T. Doneux, J. Limon-Petersen, E. Dickinson, N. Rees and R. Compton

1733 Molecular Simulation of Electric Double-Layer Capacitors Based on Carbon Nanotube Forests
L. Pratt

1734 A Low Overpotential Mechanism for the Efficient Electrochemical Conversion of Carbon Dioxide and Water to Methanol
A. Bocarsly, E. Barton Cole, K. Keets, A. Morris and E. Zeitler

1735 The Chemistry and Physics of Thermoelectric Nanowires
A. Hochbaum

1736 Charge Transfer in Li-Ion Batteries
J. Jamnik and M. Gaberšček

1737 Revisiting the Notion of Electrochemical Potential Gives Access to Simple Models of Electrochemical Reaction
E. Vieil

1738 Proton Conduction Phenomena in Membranes and Catalyst Layers of PEM Fuel Cells
A. Roudgar, K. Malek, K. Chan and M. Eikerling

1739 Redox Reactions and Electron Transport in Molecular Electronic Devices
R. McCreery, A. Bonifas, L. Shoute and S. Barman

1740 Proton Transfer and Water Motion in Low EW PFSAs
T. Zawodzinski, M. Maalouf, B. Pyle, C. Sun, M. Schaberg and S. Hamrock

1741 Stability of Epitaxial Gold Silicon Electrodeposited Contacts
W. Li, A. Zavareh, R. Popoff, H. Yu, P. Allongue and K. Kavanagh

1742 The Effects of Fluorine on Proton Transfer in Perfluorosulfonic Acid Functionalized Carbon Nanotubes
B. Habenicht and S. Paddison

1743 Transition of Charge Transfer and Tunneling Effect in Ultrathin Silicon Oxynitride Films
S. Jung, K. Jang, J. Cho and J. Yi

1744 Synthesis of TiO_2 Nanostructures by Pulsed Laser Deposition for Organic Photovoltaic Cells
H. Han, J. Noh, J. Park, J. Kim and K. Hong

I4 - Progress in Spectro-Electrochemistry and Surface Science of Electrocatalytical Interfaces (In Memory of E. B. Yeager)

Physical and Analytical Electrochemistry

1745 Theories for Predicting Reversible Potentials of Reactions on Electrode Surfaces from Internal and Gibbs Energies: Applications to ORR
A. Anderson

1746 In Situ Real Time Investigation on the Structure at Electrode/Electrolyte Interfaces by Surface X-Ray Scattering
K. Uosaki, T. Kondo, T. Masuda, H. Fukumitsu and S. Takakusagi

1747 In Situ NMR Spectroelectrochemistry of High Sensitivity: A New Inside into the Mechanism of Electrode Reactions
S. Klod, F. Ziegs and L. Dunsch

1748 SERS and SFG Studies of Potential Dependent Water Structure on Electrode Surfaces
A. Gewirth and R. Ambrosio

1749 A Comparative Spectroelectrochemical Study of the Redox Electrochemistry of N-(polyvinylamine)-Substituted-o-Nitroaniline
A. Jbarah, I. Roth, S. Spange and R. Holze

1750 Single Molecule SERS from Electrified Interfaces
A. Brolo, G. Andrade, M. Temperini and D. dos Santos

1751 Electrochemical and Fluorescence Microscopy Study of a 1-Octadecanol Layer Doped with a BODIPY-Labeled Phospholipid: Probing Heterogeneity
J. Casanova-Moreno and D. Bizzotto

1752 Electrochromic and Voltammetric Responses of Ni-Al-Cl Layered Double Hydroxide in Presences of Different Complex Metal Ions
D. Mondal and G. Villemure

1753 In Situ ESR-Vis_NIR Spectroelectrochemistry of Thiophene Oligomers
K. Haubner, E. Jähne, J. Tarabek, V. Lukes and L. Dunsch

1754 Quartz-Crystal Microbalance Now Serves as an Indispensable Tool in Characterizing Ionic Fluxes in High-Surface Area Carbons for EDLCs
M. Levi, G. Salitra, N. Levy and D. Aurbach

1755 Design Catalytic Properties of Electrochemical Interfaces
D. Strmcnik, K. Kodama, D. Tripkovic, D. VanderVliet, C. Wang, V. Stamenkovic and N. Markovic

1756 Surface Structure and Electrochemistry of Model Electrocatalysts
A. Brownrigg, C. Lucas, P. Thompson, M. Cormack, V. Stamenkovic, D. Strmcnik and N. Markovic

1757 Catalysis of Electrode Reductions in Salt Electrolytes with Low-Water-Activity
D. Gervasio

1758 In Situ IRRAS and XAS Studies of Ternary Pt-Rh-SnO_2/C Electrocatalysts for Ethanol Oxidation
M. Li, K. Sasaki, N. Marinkovic and R. Adzic

1759 Electrochemical Oxidation of Dissolved CO on Gold Electrode in Acidic and Alkaline Electrolyte by Using Rotating Disk Electrode
B. Wang, S. Lee and A. Lin

1760 Dynamics and Elementary Processes in the Electrooxidation of Small Organic Molecules - Spectro-Electrochemical Adsorption/Reaction Transients
J. Schnaidt, M. Heinen, Z. Jusys and R. Behm

1761 Binding Energy Shifts for Cu and Ag UPD on Rh(111) Determined by Online EC-XPS
D. Anjos, M. Rigsby and A. Wieckowski

1762 Transition Metal Macrocycles as Cathode Electrocatalysts for Borohydride Fuel Cells
A. Botelho, J. Junior, E. Ticianelli and A. Tanaka

1763 The Reduction of Nitrate Ions in Acidic Electrolytes Via Two Heterogeneous Electrocatalysts in Series
Y. Chen, M. Rasmussen and D. Scherson

1764 In Situ Decomposing Prussian Blue Analogues to Form Multimetallic Aggregations with Various Surface Ensemble for Pt-Monolayer Electrocatalyst
K. Gong, K. Sasaki, M. Vukmirovic and R. Adzic

1765 Electrochemical and Spectroelectrochemical Studies of a Cobalt Porphyrin Pentacoordinated Via a Thiol Monolayer on a Glassy Carbon Electrode for Oxygen Reduction Reaction
H. De Paz, C. Medard, M. Mezour, J. Mauzeroll and M. Morin

1766 Catalytic Property and Morphology of Pt Clusters on Graphite Surface
J. Nakamura, T. Kondo, K. Watahiki, Y. Iwasaki, J. Oh, T. Suzuki, Y. Honma and D. Hatake

I5 - In Situ Scanning Probe Microscopy and Spectroscopy in Electrochemistry

Physical and Analytical Electrochemistry

1767 Assembly Behavior and Monolayer Characteristics of OH-Terminated Alkanethiols and Aromatic Thiols: In Situ Scanning Tunneling Microscopy and Electrochemical Studies
Y. Liu and Y. Lee

1768 Electrochemical Scanning Tunneling Microscopy: Adlayer Structure and Reaction at Solid/Liquid Interface
D. Wang and L. Wan

1769 Segregation of a Small Amount of Molecule in Self-Spreading Lipid Bilayer Thourgh Metallic Nanogate
H. Nabika and K. Murakoshi

1770 Study Electrochemical Gate Controlled Electron Transport in Single Molecules Using STM Break Junctions
N. Tao

1771 SECPM Study: Influence of the Tip Material and Its Coating on the Accuracy of Potential Profiling Across Electrical Double Layer at Solid/Liquid Interface
A. Bashir, M. Muglali, F. Hamou and M. Rohwerder

1772 Numerical Simulation of Probing the Electric Double Layer by Scanning Electrochemical Potential Microscopy
F. Hamou, P. Biedermann, A. Erbe and M. Rohwerder

1773 Properties of Metal Phthalocyanine Monolayers on Au(111) Surfaces
M. Khanfar and S. Morin

1774 Surface Reconstruction of Cu(100) Electrodes during Hydrogen Evolution Studied by In Situ Video-STM
H. Matsushima, C. Haak, A. Taranovskyy, Y. Gruender and O. Magnussen

1775 In Situ STM Studies in the Development of Electrochemical ALD
J. Stickney and Y. Kim

1776 Structure and Dynamics of Self-Assembled Mercaptobenzimidazole Monolayers on Au(111)
L. Ou Yang and T. Moffat

1777 Accelerator Surface Phase Associated with Superconformal Cu Electrodeposition
T. Moffat and L. Ou Yang

1778 STM as Quantitative Tool in Electrochemical Model Studies
H. Hoster, O. Alves, A. Engstfeld and R. Behm

1779 Development of New Nanoscale Electrochemical Method Using Scanning Tunneling Microscope
H. Kyoko and K. Mabuchi

1780 The Use of Scanning Electrochemical Microscopy to Study Corrosion Processes
H. He, C. Nowierski, J. Noël, Z. Ding and D. Shoesmith

1781 Heterogeneous Cathodic Activity on Model Al-Cu Alloy Electrodes
N. Missert, R. Copeland, P. Kotula and J. Rivera

1782 Electrochemical SPM Measurement of Charge Storage Processes in Nanoscale Model Oxides
K. Zavadil

1783 Nanoscale Investigation of Localized Corrosion on Metal Surfaces by In Situ Electrochemical Scanning Probe Microscopy
V. Maurice and P. Marcus

1784 High Resolution Study of Hydrogen Permeation Through Metals by Scanning Kelvin Probe Force Microscopy
C. Senoez and M. Rohwerder

1785 Lithium Diffusion Mapping in Cathode Materials for Li-Ion Batteries
N. Balke, S. Jesse, A. Morozovska, E. Eliseev, D. Chung, Y. Kim, L. Adamczyk, E. Garcia, N. Dudney and S. Kalinin

1786 Proton Conducting Domains in PEM Fuel Cells Imaged under Operating Fuel Cell Conditions with Atomic Force Microscopy
J. O'Dea, H. Metiu and S. Buratto

1787 ECSTM Investigation on the Stability of Pt Nanoparticles/HOPG in an Alkaline Electrolyte Solution
Q. Xu, R. Cheng, D. Chu and R. Chen

1788 Characteristics of 3,3'-thiobis-1-propanesulfonic Acid Monolayer Self-Assembled on an Au(111) Surface and Its Effect on the Electrochemical Deposition of the Copper
P. Lin and Y. Lee

1789 In Situ Analysis of Pb Electrodeposition on Polycrystalline Cu Using Ellipsometry
Y. Wang, W. Li and S. Liao

J1 - Sensors, Actuators, and Microsystems General Session

Sensor

1790 Application of Pulsed Discharge Technique for Reliable Detection of Exhaust Gas Components
P. Sekhar, B. Farber, E. Brosha, R. Mukundan, M. Nelson and F. Garzon

1791 An Alumina Substrate-Supported Diesel Particulate Matter Sensor Based on $Sn_{0.9}In_{0.1}P_2O_7$ Proton Conductor
Y. Shen, T. Takeuchi, S. Teranishi, T. Hibino and C. Coumbe

1792 Sensors Based on Electrochemically Deposited Titania Studied by AFM and EIS Techniques
M. Sánchez, C. Cuevas-Arteaga and M. Rincón

1793 Long-Term and Temperature Cycling Stability of Impedancemetric NO_x Gas Sensors Based on Porous Yttria-Stabilized Zirconia
L. Woo, R. Glass, R. Novak and J. Visser

1794 Electrode Stability in Hydrogen Sensors Based on Yttria-Stabilized Zirconia Electrolyte
L. Woo, R. Glass, P. Sekhar, E. Brosha, R. Mukundan, M. Nelson and F. Garzon

1795 Investigation of a Mixed Potential Sensor Prototype for Reliable Detection of Hydrocarbons and NO_x for Emissions Control
P. Sekhar, M. Nelson, E. Brosha, R. Mukundan, T. Williamson and F. Garzon

1796 Sensing Mechanism of Nonequilibrium Solid Electrolyte Based Chemical Sensors
J. Fergus

1797 Cobalt Doped $Sm_{0.95}Ce_{0.05}FeO_{3\pm\delta}$ for Detection of Reducing Gases
S. Bukhari and J. Giorgi

1818 CIGSS Thin Film Solar Cells by Simple Powder Evaporation Process
J. Suh, K. Song, C. Ham, J. Cho and E. Bae

1819 Characterization and On-Chip Device Integration of Energetic Porous Silicon
C. Becker, L. Currano, W. Churaman and C. Stoldt

1820 Optimisation of Chemical Sensors Using the Continuous Gradient - High Throughput Screening Macroscope - CG-HTSM
W. Moritz, A. Tausche, R. Werner, T. Wirth, W. Unger and S. Linke

1821 Novel Ruthenium Oxide Based Ambient Temperature Carbon Monoxide Gas Sensor
A. Adeyemo and P. Dutta

1822 Comparison Between Nafion and Polybenzimidazole (PBI) Membranes for Fuel Cell CO Sensor
K. Mochizuki, T. Kikuchi, M. Sudoh, Y. Ishiguro and T. Suzuki

1823 A Comprehensive Study on the Effect of Thin Film Microstructure on Vapor Sensing Behavior of Carbon-Based Polymeric Conductive Nanocomposites
P. Molla-Abbasi, E. Danesh and S. Ghaffarian

1824 Proton Motion in a Polyelectrolyte: A Probe for Wireless Humidity Sensors
O. Larsson, X. Wang, M. Berggren and X. Crispin

J2 - Electrochemical Nano/Bio Sensors 2

Sensor / Physical and Analytical Electrochemistry / Organic and Biological Electrochemistry / High Temperature Materials

1825 Novel DNA-Hybridization Biosensors for Studies of DNA Underwinding Caused by Herbicides and Pesticides
M. Stobiecka, K. Coopersmith, S. Cutler and M. Hepel

1826 Designing a New Generation of Electrochemical Biosensors for the Detection of *Pseudomonas aeruginosa*
Y. Enríquez, Y. Negrón and A. Guadalupe

1827 Highly Sensitive Amperometric Biosensors for Phenols Based on Polyaniline/carbon Nanotube Composite Modified Electrodes
V. Branzoi, F. Branzoi, B. Cioaca and L. Pilan

1828 Comprehensive Study of Pd/GaN Metal-Semiconductor-Metal Hydrogen Sensors with Metal-Oxide Mixture
T. Huang, S. Chen, K. Huang, Y. Chu, H. Chang, Y. Lee, C. Wu, W. Lour and M. Wu

1829 Cadmium-Free Quantum Dots for Cell Imaging
H. Xu, L. Li, Z. Aguilar, H. Wei and Y. Wang

1830 Multilayer Silver Nanoparticles Modified Optical Fiber Tip for High Performance SERS Remote Sensing
M. Fan, G. Andrade and A. Brolo

1831 Spectroelectrochemical Investigation of the Heterogeneity of DNA Monolayers on Gold Using In Situ Fluorescence Microscopy
J. Murphy, A. Cheng, H. Yu and D. Bizzotto

1832 Evaluation of Electrochemiluminescent Metabolic Toxicity Screening Arrays with Multiple Compounds
S. Pan, L. Zhao and J. Rusling

1833 Design Tools for Characterization of Microeddy Hydrodynamic Tweezers
T. House, V. Lieu, B. Lutz and D. Schwartz

1834 Nanomaterial Interfaces at Electrochemical Carbon-Based Sensors for DNA Damage Detection
J. Labuda, D. Simkova, K. Benikova, A. Ferancova and V. Vyskocil

1835 Morphological Study and Utilization of Galvanostatically Deposited Ultra-thin Polypyrrole-Glucose Oxidase Film for Potentiometric Detection of Glucose
J. Ayenimo and S. Adeloju

1836 Enhancement of Electrocatalytic Activity of DNA-Conjugated Gold Nanoparticles and Its Application to DNA Detection
J. Das, K. Jo and H. Yang

1837 Impedance-Based Sensor Using Gold Nanoparticle-Ara h 2-2 Film for Detection of Anti-Peanut IgE Allergy Biomarkers
H. Liu, R. Malhotra, M. Peczuh and J. Rusling

1838 Direct Electrochemistry Based H_2O_2 Biosensors
C. Li, C. Guo and S. Bao

1839 Glassy Carbon Paste Composite Electrodes for the Electroanalytical Determination of Ciprofloxacin Antibiotic
A. Alsharaa

1840 Electrochemical Biosensor Utilizing Nitrogen-Incorporated Nanodiamond Ultra-Microelectrode Array
S. Raina, W. Kang, J. Davidson and J. Huang

1841 Size- and Shape-Dependent Electrochemical Stability and Biosensing Properties of Surface-Attached Metal Nanostructures
F. Zamborini, O. Ivanova and S. Beeram

1842 Nanofabrication of Robust Nanoelectrodes for Electrochemical Applications
K. Dawson, J. Strutwolf, D. Arrigan, A. Quinn and A. O'Riordan

1843 Graphene Nanosheet Composed Functional Electrodes for Biosensing Applications
S. Alwarappan and C. Li

1844 Electrochemical Gene-Function Analysis for Single Cells with Addressable Microelectrode/Microwell Arrays
T. Matsue, Z. Lin, Y. Takahashi, K. Ino and H. Shiku

1845 Multianalyte Microphysiometry: Electrochemistry in Very Small Volumes
D. Cliffel, J. McKenzie and L. Hiatt

1846 Magnetic Bead Detection Spin Valve Sensors for Cellular Analysis
J. Suh, K. Song, C. Chae, J. Kang and K. Kim

1847 SERS Sensor Design for Extracellular Product Detection
I. Nwaneshiudu, Q. Yu and D. Schwartz

1848 Microeddy Single-Cell Trapping with Embedded SERS Nanosensors for Extracellular Product Detection
V. Lieu, I. Nwaneshiudu, T. House, Q. Yu, B. Lutz and D. Schwartz

1849 Growth of ZnO Nanorods and Its Potential Application as Intracellular Potentiometric Selective Ion Sensor
M. Asif, N. Alvi, O. Nur, M. Willander, P. Strålfors and F. Elinder