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Table of Contents

To use this table of contents, scroll down the page or use the bookmarks in the left-hand frame to move to a new location. Click on the number or the title of the abstract you wish to view.

76 Study on the Effects of the Rehabilitation Method of Realkalization Auxiliary Alcamines Inhibitors
J. Lu, J. Zhang, K. Wang, and W. Qu

A2 - Nanotechnology General Session

All Divisions / New Technology Subcommittee

77 Electroless Deposition for New Challenges in Nanoelectronics and Microelectronics
T. Khoperia and N. Khoperia

78 Electrodeposition of Copper Nanoparticles from Industrial Electrolytes
P. Los, A. Lukomska, and A. Plewka

79 Synthesis of Copper and Copper Ruthenium Nanoparticles in Ionic Liquids for Advanced Metallization of Interconnect Structures
P. Arquilliere, P. Haumesser, and C. Santini

80 Self-Assembled Monolayers of Aminoalkyl-Monothiol and Dithiol on Copper Substrates towards Improved Adhesion in Printed Circuit Board Devices
J. Denayer, J. Delhalle, and Z. Mekhalif

81 Copper Particles Electrodeposition on Nickel: Induction Heating vs. Conventional Heating Impact on Morphology and Crystallinity
S. Devillers, Q. Lemineur, J. Delhalle, and Z. Mekhalif

82 Electrochemical and Chemical Depositions of Copper Metal on TiO_2 Nanotube Arrays
X. Le and D. Bélanger

83 Spontaneous Galvanic Displacement Reactions: Effects of Template and Surface Ligand Interaction
B. Larsen, C. Chang, S. Pylypenko, and B. Pivovar

84 Nanocopper Filled Polymer Composites Metamaterials
P. Los, R. Jeziórska, J. Krupka, A. Lukomska, and S. Kowalska

85 Chemically Synthesized Magnetic Nanoparticles Coated onto Carbon Microcoils
M. Shima, K. Sakai, K. Oguri, N. Takao, H. Katoh, Y. Ohya, Y. Ikuhara, Y. Sasaki, Y. Hishikawa, and K. Kawabe

86 Fabrication of High Performance Logic Inverter Based on ZnO Nanowire and Mesowire Field Effect Transistors
Y. Lee, R. Ha, H. Choi, and S. Im

87 Controlling Magnetic Anisotropy of Ferromagnetic Segments with Various Aspect Ratio by Electrochemical Deposition
R. Liu

88 New Fabrication Method for 3D Si-Based Photonic Crystal Structures with a Single Self-Aligned Etch
G. Dang, M. Taysing-Lara, and W. Zhou

89 Competitive Nanotechnology for Deposition of Films and Fabrication of Powder-Like Particles
T. Khoperia, T. Zedginidze, and N. Khoperia

90 Growth of ZnSe/ZnCdSeTe Superlattice Nanotips
C. Hsiao, S. Hung, S. Young, T. Chen, S. Wang, and S. Chang

91 Synthesis the Tungsten Oxide Thin Film by Sol-Gel Method and the Fabrication UV Photodetector
C. Lin, C. Hsiao, B. Huang, S. Young, S. Chang, and T. Chen

109 Electrochemical Deposition of Sol-Gel Based Nanohybrids
R. Toledano, R. Okner, and D. Mandler

110 Mesoscale Transport in Self-Assembled Nanogranular Material: New Insights into Insulator-To-Metal Transitions
A. Dhirani, P. Joanis, and M. Tie

111 Atomistic Simulations of Early Stages of Oxidation and Oxide Growth on Metal Nanoclusters
R. Subbaraman and S. Sankaranarayanan

112 Electric Field Assisted Oxidation and Oxide Growth on Metal Nanoclusters
R. Subbaraman and S. Sankaranarayanan

113 Electrochemical Growth of Polythiophene into Nanostructured Porous Silicon Layers
F. Harraz and A. Salem

114 Water Effect on Nanostructure and Properties of Glass-Ceramic $La(PO_3)_3$-$Ca(PO_3)_2$
G. Zhang and L. DeJonghe

115 Hybrid Photoanodes for the Production of Hydrogen
P. Aurora and L. Thompson

116 The Effect of Particle Size on Hydrogen Release from Sodium Alanate
T. Mueller and G. Ceder

117 Synthesis and Properties of Hybrid Co-Ag Nanocomposites for Surface Sensing Applications
R. Sachan, H. Krishna, N. Shirato, S. Yadavalli, J. Strader, V. Ramos, H. Garcia, A. Gangopadhyay, and R. Kalyanaraman

118 Tailoring the Electronic Properties of CVD Nanodiamond Films for Selective Detection of Neurotransmitters and Interfering Biochemicals
S. Raina, W. Kang, J. Davidson, and J. Huang

119 Electrochemical Manipulation of Gold Nanoparticles Stabilized with 4-Dimethylaminopyridine
D. Lemay and J. Shepherd

120 Functionalization of a NiTi Surface with Phosphonic Acid Self-Assembled Monolayers
H. Dadafarin, J. Katic, M. Metikos-Hukovic, and S. Omanovic

121 Near-Field Coupling of Beta-Amyloid Proteins by the Use of Nano-Particles in a Micro-Fluidic Channel
K. Song, H. Sung, J. Ju, J. Suh, H. Hong, and C. Kim

122 In situ Liquid Cell Transmission Electron Microscopy of Dendrite Formation in Zinc-Based Batteries and Battery Interfaces
P. Narang, D. Steingart, Y. Gogotsi, and F. Ross

123 Recession and Characterization of Patterned Nanowires Grown by Electroless Etching of Silicon
R. Mertens and K. Sundaram

124 High PL-Efficiency Nanofibers Derived from Naphthylamine-Based Aramids via Electrospinning
C. Chen, H. Yen, and G. Liou

125 Grid-Type DSSC Module Employed with Novel Nano-Platinum Counter Electrode
J. Lan, C. Wan, T. Wei, W. Hsu, and Y. Chang

A3 - Electrochemistry and Climate Change

All Divisions

126 Enhancing Solid Oxide Fuel Cell Performance for Electricity Generation and Carbon Capture/Storage Applications
V. Birss and D. Lawton

127 Phosphine Poisoning of the Ni-YSZ Anode in SOFCs Using Syngas Fuel
H. Finklea, C. Xu, J. Zondlo, M. Gong, and X. Liu

128 Micromagnet-Modified Electrochemical Power Systems
H. Lee, P. Motsegood, and J. Leddy

129 Energy Storage Materials: Past and Future—Beyond Li-Ion
M. Whittingham

130 Hybrid Halogen Flow Battery for Intermittent Renewable Electricity Storage and Carbon Sequestration
J. Rugolo, B. Huskinson, and M. Aziz

131 Novel Alloy Oxide Electrocatalysts for Use in Halogen Flow Batteries
B. Huskinson and M. Aziz

132 Ionomer Binders Can Improve Discharge Rate Capability in Lithium-Ion Battery Cathodes
J. Oh, O. Geiculescu, D. Desmarteau, and S. Creager

133 Carbon Miser Battery Components
M. Armand, J. Tarascon, N. Recham, S. Grugeon, and S. Laruelle

134 Systems Challenges in Battery Implementation
E. Takeuchi, K. Takeuchi, and A. Marschilok

135 Energy and Time-Efficient Synthesis of Oxide Semiconductors for Solar Photovoltaic and Photocatalytic Applications
K. Rajeshwar

136 Photocatalytic Degradation of Methyl Orange Using Hydrothermally Synthesized Bismuth Titanate ($Bi_{12}TiO_{20}$)
Y. Smith and V. Subramanian

137 Role of Surface Oxide in Reactivity of III-V Photocathodes for Photoelectrochemical Hydrogen Production
B. Wood, T. Ogitsu, and E. Schwegler

138 Cu-Containing Oxygen Reduction Catalysts for Sustainability
A. Gewirth, M. Thorum, and C. Tornow

139 Anodic Deposition of a Robust Iridium Water-Oxidation Catalyst from Organometallic Precursors
J. Blakemore, N. Schley, M. Kushner-Lenhoff, G. Brudvig, and R. Crabtree

140 Synthesis of New Catalyst Design for Proton Exchange Membrane Fuel Cell
A. Ferrandez, C. Coutanceau, S. Baranton, and P. Buvat

141 Enhanced Oxygen Evolution Activity Using Fe-Doped NiO Catalysts
J. Landon and J. Kitchin

142 STEP Decrease of Anthropogenic CO_2: Solar Thermal Electrochemical Production of Energetic Molecules, A Different Solar Energy Conversion Process
S. Licht, H. Wu, Z. Zhang, C. Hettige, and H. Ayub

143 Denitrification of Wastewater through Ammonia Electrolysis
G. Botte and L. Diaz

144 Characterizing Electrosynthetic Microbial Production of Acetate
M. Nielsen and P. Girguis

145 Role of Carbonic Anhydrase on the Bioelectrocatalytic Reduction of Carbon Dioxide
P. Addo, R. Arechederra, A. Waheed, and S. Minteer

146 Potential Impact of Microbial Fuel Cells on Sensing and the Environment
J. Sumner, C. Sund, and A. Finch

147 Electrochemical and Microbial Properties of a Photosynthetic Bio-Cathode
S. Strycharz-Glaven, L. Tender, and R. Glaven

148 Economically Viable Electrochemical Conversion of CO_2 to Formate/Formic Acid. II: 3D Cathode Performance in Continuous Full Cells and Value Chain Analysis
A. Agarwal, Y. Zhai, D. Hill, K. Hilgefort, and N. Sridhar

149 Economically Viable Electrochemical Conversion of CO_2 to Formate/Formic Acid. I: Cathode Performance Improvement in Gas-Liquid-Solid Half Cells
Y. Zhai, A. Agarwal, L. Chiacchiarelli, G. Frankel, and N. Sridhar

150 Nanostructured Materials as New Substrates for Interfacial Studies in Surface-Enhanced Raman Scattering
Z. Luo, J. Yao, and B. Loo

151 Beyond Oil and Gas: The Methanol Economy
G. Prakash

152 Microscale Platform for the Study and Optimization of CO_2 Conversion
P. Kenis and D. Whipple

153 Electrochemical Conversion of CO_2 to Organics: Single Electron Redox Catalysis of a Multielectron Process
A. Bocarsly, K. Keets, P. Lakkaraju, A. Morris, R. McGibbon, and E. Zeitler

154 Electrochemical Technologies for Environmental Remediation
D. Bélanger

155 Developing Unique Research Tools to Study Carbon Sequestration and Energy Storage
D. Baer, N. Hess, D. Hoyt, A. Lea, and C. Wang

156 Electrochemical Conversion of CO_2 to Formic Acid — An Engineering Approach
N. Sridhar, Y. Zhai, A. Agarwal, D. Hill, L. Chiacchiarelli, and G. Frankel

157 Diffusion Coefficients and Heterogeneous Electron Transfer Rate Constant in Room Temperature Ionic Liquids
N. Siraj, G. Grampp, and S. Landgraf

158 The Formic Acid — Carbon Dioxide System for Electrochemical Storage and Release of Renewable Energy
P. Pickup, R. Smith, and A. Begum

159 Cobalt-Porphyrin Catalyzed Electrochemical Reduction of Carbon Dioxide in Water
K. Leung, I. Nielsen, N. Sai, C. Medforth, and J. Shelnutt

A4 - Tutorials in Nanotechnology: Focus on Dielectrics in Nanotechnology

All Divisions

160 The Perspective of Nanotechnology and Its Convergence with Future Information Technology
J. Kim

161 Status Review of Nanocrystals Embedded High-K Nonvolatile Memories
Y. Kuo

162 Si Nanowire FET Technology
H. Iwai, K. Natori, K. Shiraishi, J. Iwata, A. Oshiyama, K. Yamada, K. Ohmori, K. Kakushima, and P. Ahmet

163 The Physics of Nanonet Fabrics and Its Applications in Electronic, Optical, Biosensing, Energy Storage, and MEMS Devices and Systems
M. Alam

164 Sensor Systems for Healthcare and Homeland Security
V. Seena, S. Patil, S. Mukherji, and V. Rao

B1 - Batteries and Energy Technology Joint General Session

Battery / Energy Technology

165 Development of a New Ceramic Seal for Use in $Na/NiCl_2$Cells
A. Mali and A. Petric

166 Electrical Conductivity of Molten $NaAlCl_4$ in the ZEBRA Battery
T. Javadi and A. Petric

167 A Study of Low and High Temperature Zebra Cell Performance
M. Hosseinifar and A. Petric

168 Electrochemical Studies on $NaFePO_4$ as a Cathode Material for Na^+/Li^+ Mixed-Ion Batteries
A. Sun, J. Guo, C. Wang, and A. Manivannan

169 Structural Studies on $NaFePO_4$ as a Cathode Material for Na^+/Li^+ Mixed-Ion Batteries
M. Paranthaman, C. Bridges, A. Huq, A. Sun, and A. Manivannan

170 Chemically Modified Carbon Fabric Electrodes for Asymmetric Supercapacitors
Z. Algharaibeh and P. Pickup

171 Synthesis of Nano Fiber Form of Polyaniline Salt Containing Dual Dopant by Interfacial Polymerization Pathway for Supercapacitor
S. Palaniappan, S. Bal Sydulu, and S. Pabba

172 Mediator Enhanced All-Solid-State Supercapacitors
X. Zhou, X. Zhou, Y. Yin, Z. Wang, H. Huang, and A. Mansour

173 Supercapacitor Response of Doped Nitride and Carbon Composite Hetero-Structures
P. Hanumantha, M. Datta, A. Manivannan, and P. Kumta

174 Nonlinear Charging Dynamics of Porous Electrodes for Rational Design of Pseudocapacitors
Y. Fu, T. Ferguson, M. Biesheuvel, and M. Bazant

175 Development of High-Performance Supercapacitor Electrodes Using Novel Ordered Mesoporous Tungsten Oxide Materials with High Electrical Conductivity
S. Yoon, J. Lee, E. Kang, J. Kim, and C. Lee

176 A Novel High Energy Density Li-Ion Capacitor
W. Cao and J. Zheng

B2 - Direct Alcohol Fuel Cells

Physical and Analytical Electrochemistry / Energy Technology

B3 - Electrolytes for High Voltage Cathodes - Solids and Liquids

Battery

B4 - Metal/Air, Metal/Sulfur, and Metal/Water Batteries

Battery / Energy Technology

441 An Evaluation of Aqueous-Cathode Alkali-Ion Battery
Y. Lu and J. Goodenough

442 Nitrogen Doped Carbon Nanotube as Oxygen Reduction Reaction Catalyst for Zinc Air Battery Cathode
Z. Chen, S. Zhu, H. Wang, H. Li, and Z. Chen

B5 - Microstructure, Mechanisms, and Modeling of Battery Materials

Battery

443 Three Dimensional Characterization of Battery Microstructures
P. Shearing, J. Gelb, R. Bradley, P. Withers, S. Harris, and N. Brandon

444 First-Principles Study of the Native Point Defects in and on the Li Metal Surface
M. Park

445 Lithium Diffusion in $Li_{4/3}Ti_{5/3}O_4$ Particle during Insertion and Extraction
N. Takami, K. Hoshina, and H. Inagaki

446 Local Tortuosity Inhomogeneities in a Lithium Battery Composite Electrode
D. Kehrwald, P. Shearing, N. Brandon, and S. Harris

447 Mechanism of Lithium Insertion in Lithium Titanate $Li(Li_xTiO_{1-x})_2O_4$ over a Wide Voltage Range by Synchrotron In situ XRD and Electron Energy-Loss Spectroscopy
F. Wang, J. Hong, C. Ma, L. Wu, D. Su, Y. Zhu, and J. Graetz

448 Microstructure and Degradation Mechanisms of a Tin-Coated Carbon Fibre Electrode for Lithium-Ion Batteries
M. Shafiei and A. Alpas

449 Raman Spectroscopy Studies of SnO_2/CNTs Composite Thin Film Li-Ion Batteries Anodes
A. Dhanabalan and C. Wang

450 Ordered Macroporous Carbons: Monoliths Vs. Composites
D. Tonti, M. Torralvo, E. Enciso, J. Amarilla, and J. Sanz

451 Studies of Reaction Mechanisms in Nano-Structured Conversion Electrodes Using Magnetic Properties
N. Chernova, R. Zhang, F. Omenya, M. Whittingham, N. Pereira, and G. Amatucci

452 Mapping of Reaction and Transport Processes in Ionically Conductive Solids below 10-nm Level
N. Balke, S. Guo, T. Arruda, A. Tselev, S. Jesse, N. Dudney, and S. Kalinin

453 In situ Stress Diagnosis and Size Effects during the Lithiation of Patterned Amorphous Si Thin Films
S. Soni, B. Sheldon, X. Xiao, A. Tokranov, H. Baradaran, and H. Gao

454 Anisotropic Li Incorporation in Semiconductor Electrodes
B. Long and A. Gewirth

455 Modeling Interfacial Delamination and Critical Dimension in Patterned Silicon Thin Film Electrodes for Improved Cycling Stability
H. Haftbaradaran, X. Xiao, S. Soni, A. Chng, M. Verbrugge, W. Curtin, B. Sheldon, K. Kim, and H. Gao

456 Measurement of Mechanical Properties and Stress-Potential Coupling in Lithiated Silicon
V. Sethuraman, M. Chon, and P. Guduru

457 Structure and Properties of Li-Si Alloys for Li-Ion Battery Anodes: A First Principles Study
C. Chou, H. Kim, and G. Hwang

515 Neutron Imaging LFP Pouch Cells: Spatially Resolved Changes in Lithium Concentration
J. Siegel, X. Lin, A. Stefanopoulou, D. Hussey, and D. Jacobson

516 Electrochemical and Thermal Modeling of Reactions for Lithium-Ion Batteries along with Multidimensional Transport
C. Shaffer, A. Sabau, S. Pannala, S. Allu, and P. Mukherjee

517 Aging of a Commercial $LiFePO_4$/Graphite Cell under Different Cycling and Storage Conditions: Experiments and Modeling
M. Safari, M. Morcrette, A. Teyssot, and C. Delacourt

518 Effect of Particle Size and Volume Fraction on Rheological Properties and Performance of a Semi-Solid Flow Battery
M. Wang, B. Van Tassel, S. Lever, B. Lee, A. Joshi, D. Steingart, and Y. Sun

519 Origin of Sharp Decrease of Potential during Discharge in Lithium-Ion Batteries
R. Cornut, D. Lepage, and S. Schougaard

520 Enabling Interphases for Self Formed Secondary Batteries
W. Yourey, L. Weinstein, A. Halajko, and G. Amatucci

B6 - Nanostructured Materials for Energy Storage and Conversion

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

521 Effects of Thickness on Cycleability of Si Nano Platelet Anodes in Lithium-Ion Cells
M. Inaba, T. Yamada, M. Saito, A. Tasaka, C. Yodoya, A. Kamei, and T. Takenaka

522 How to Make Optimized Arrays of Si Nanowires Suitable as Superior Anode for Li-Ion Batteries
E. Quiroga González, E. Ossei-Wusu, J. Carstensen, and H. Föll

523 Substoichiometric TiO_2 Thin Films as a Support Catalyst for Hydrogen Fuel Cells
R. Hansen, R. Phillips, and E. Eisenbraun

524 Fabrication and Characterization of Ordered Single-Crystal Metal-Assisted Chemically Etched Si Nanowire Anodes for Lithium Batteries
W. McSweeney, O. Lotty, J. Holmes, and C. O'Dwyer

525 Novel Quantenary Ammonium Based Ionic Liquid for Stable, High Capacity Si Nanowire Based Li-Ion Battery
V. Chakrapani, F. Rusli, M. Filler, and P. Kohl

526 Chemical Grafting Strategies for Preparing Silicon-Carbon Nanocomposites for Lithium-Ion Batteries
C. Ramirez-Castro, O. Crosnier, C. Martin, R. Retoux, F. Christien, P. Nowakowski, D. Bélanger, and T. Brousse

527 In situ Observation of Lithiation and Delithiation in Self-Assembled TiO_2 Nanotubes
R. Shahbazian Yassar, Q. Gao, and H. Ghassemi

528 Nanosilicon Dispersed in a SiCN Ceramic Matrix: New Composite Anode Material for Lithium Ion Batteries
L. Reinold, M. Graczyk-Zajac, and R. Riedel

529 Surface Modification of Lithium Titanate Electrode with Atomic Layer Deposited Oxide Coating to Improve Cycling Stability at Low Voltage
D. Ahn and X. Xiao

581 $LiNi_{0.33+\delta}Mn_{0.33+\delta}Co_{0.33-2\delta}O_2$ (0.025 {less than or equal to} δ {less than or equal to} 0.075) Cathode Materials for Li-Ion Batteries: Local Structure
K. Benkamel, G. Benamor, N. Amdouni, A. Mauger, H. Groult, and C. Julien

582 Electrochemical Features of $LiNi_{0.33+\delta}Mn_{0.33+\delta}Co_{0.33-2\delta}O_2$ (0.025 {less than or equal to} δ {less than or equal to} 0.075) Cathode Materials for Li-Ion Batteries
K. Benkamel, N. Amdouni, J. Trottier, K. Zaghib, A. Mauger, H. Groult, and C. Julien

583 Boron Doped $LiCoO_2$ as Cathode Materials for Rechargeable Lithium Batteries
A. Mauger, X. Zhang, H. Groult, and C. Julien

584 Single-Walled Carbon Nanotubes Based Counter Electrode for Dye Sensitized Solar Cells: Morphological and Electrocatalytic Properties
M. Akhtar, U. Kim, S. Kongmany, D. Kwak, D. Park, and O. Yang

585 Nanowire Electrode Materials and Improved Electroactivity
L. Mai, L. Xu, X. Xu, and H. Chunhua

586 The Effect of Synthesis Routes for Preparation of Si Nanostructures for Lithium Ion Battery Anodes
T. Mokkelbost, E. Sheridan, A. Fossdal, A. Martinez, and &. Dahl

587 Binary Platinum-Cobalt Alloy Nanowires as Stable Oxygen Reduction Reaction Catalysts for PEM Fuel Cells
D. Higgins and Z. Chen

588 An Investigation of the Electrochemical Performance of Porous NiO Films as an Anode Material for Lithium Ion Batteries
T. Kim, X. Li, W. Chen, and C. Wang

589 New Anode Materials: Nanocarbon Decorated with Sn Nanoparticles for Lithium Ion Batteries
H. Kim, Z. Wen, K. Yu, G. Lu, O. Mao, and J. Chen

590 Evidence of the "Lock Step" Mechanism for Grain Growth in Platinum Gas Diffusion Layers
H. Rivera and E. Smotkin

591 Synthesis and Electrochemical Properties of Aerogel-Like Vanadium Oxides with Ionic Liquid for Lithium Battery
C. Chang, Y. Lee, and Y. Chen-Yang

592 Sulfonic Acid Bisphenol a Membranes for Fuel Cell Applications
L. Toloza Blanco, F. Moro Loureiro, R. Pacheco Pereira, and A. Rocco

593 Strategies to Incorporate Sulfonation Resistant Aromatic Hydrophobic Segments to Facilitate Hydrophobic- Hydrophilic Domain Segregation in PEMs
S. MacKinnon, A. Mokrini, and L. Robitaille

594 Synthesis of Pt/Mesoporous Silica by Microwave-Assisted Method for Hydrogen Generation from Ammonia-Borane
P. Yu, J. Jhang, H. Tsai, S. Chang, and Y. Chen-Yang

595 Influence of Carbon-Contamination in Pd Nanoparticles on the Oxygen Reduction Reaction
T. Jeon, S. Kim, S. Lim, D. Peck, D. Jung, and Y. Sung

596 Novel Graphene-Conducting Polythiophenes Materials for Applications in the Electrochemical Supercapacitors
F. Alvi, M. Ram, P. Basnayaka, E. Stefanakos, A. Hoff, and A. Kumar

597 Sol Gel Deposited CdO: in Films
K. Murali, K. Kalaivanan, S. Sivaramamurthy, and S. Perumal

599 Platinum and Platinum-Ruthenium Electrodeposition at High Surface Area Carbon Bulk Nanomaterials
D. Santiago, A. Mayoral, M. Jose-Yacaman, L. Echegoyen, and C. Cabrera

600 High Purity SWCNTs as a Conductive Additive Replacement in Cathode Composites
M. Ganter, C. Schauerman, R. DiLeo, R. Rogers, R. Raffaelle, and B. Landi

601 Carbon Supported IrNi Core-Shell Nanoparticles: Synthesis, Characterization, and Catalytic Activity for H_2 Oxidation
K. Sasaki, K. Kuttiyiel, L. Barrio, W. Chen, D. Su, A. Frenkel, N. Marinkovic, D. Mahajan, and R. Adzic

602 Application of Nanostructured Carbon Materials toward Electrocatalysts
A. Hayashi, K. Kato, Y. Hayashi, and M. Tanemura

603 Electrochemical Capacitance of Mesoporous Carbon Structures Templated from KIT-6 Silica and Core-Shell Silica Spheres
F. Li, M. Morris, and K. Chan

604 Electrocatalytic Reduction of Oxygen at Pt-Carbon Nanostructured Electrodes: Effect of the Carbon Structure
Z. Hamoudi, M. El Khakani, and M. Mohamedi

605 Thermal Studies of Hydro-Québec $LiFePO_4$ Cathode in Lithium Ion Cells
A. Ben Mayza, M. Ramanathan, R. Radhakrishnan, S. Ha, V. Ramani, J. Prakash, and K. Zaghib

606 Magnéli Phase Ti_nO2_{n-1} Nanobelts as Anodes for Hybrid Electrochemical-Cells
W. Han and X. Wang

607 SEI Formation on Tio_2 Rutile - An XPS Study
M. Pfanzelt, S. Jacke, P. Kubiak, W. Jägermann, and M. Wohlfahrt-Mehrens

608 Nanoscale Hybrid Electrolytes
J. Nugent, S. Moganty, D. Yanga, N. Jayaprakash, and L. Archer

609 Tri-Continuous Manganese Oxide Electrodes Demonstrating Ultra-High Capacity
E. Engstrom, A. Engstrom, and C. Friesen

610 Electrochemical Behavior of Carbide Derived Carbons in $LiClO_4$, $LiPF_6$ and Their Mixed Salt Nonaqueous Electrolytes
A. Laheäär, A. Jänes, and E. Lust

611 MnO_2 Nanosheets Thin-Film Electrodes for Electrochemical Capacitors
M. Yano, S. Suzuki, and M. Miyayama

612 Material Design of Nanosheet-Derived MnO_2 Electrodes for Electrochemical Capacitors
H. Jang, S. Suzuki, and M. Miyayama

613 Mn Oxide Electrodeposited on Graphene Used as Electrode in a Hybrid Electrochemical Supercapacitor
P. Perret, P. Malenfant, C. Bock, and B. MacDougall

614 Electrochemical Investigation of Lithium Intercalation in MOCVD Prepared Nanostructured Anatase-Rutile TiO_2
M. Graczyk-Zajac, A. Lazar, D. Chaumont, M. Sacilotti, and R. Riedel

615 Dispersion of Niobium Oxide on Carbon and Copper Nanotubes and Their Application as Supercapacitor Electrodes
M. Hasan, M. Jamal, and K. M. Razeeb

616 Novel Nanometric Cobalt Oxides for the Positive Electrode of Hybrid Supercapacitors
G. Godillot, L. Guerlou-Demourgues, P. Taberna, P. Simon, and C. Delmas

634 Low Equivalent Weight Sulfonated Poly(Etheretherketone) Membranes for High Temperature Hydrogen Fuel Cell Applications
S. Rhoden, C. Linkous, D. Diaz, N. Mohajeri, D. Slattery, and J. Fenton

635 $Ba_2In_2O_5$ as a Proton-Conductive Electrolyte in an Intermediate Temperature (200-500℃) Fuel Cell
J. Jankovic, D. Wilkinson, and R. Hui

636 Nano- and Microstructure Design by Mechanochemical Approach of Ceramic Ionic Composite $Zr_{0.88}Sc_{0.12}O_{1.94}/ZrO_2$
V. Zyryanov, N. Uvarov, and A. Ulihin

637 Effect of Relative Humidity on the Current and Temperature Distributions within a 5-5 Segmented H_2/Air PEM Fuel Cell
A. Abdullah, A. Mohammad, T. Okajima, F. Kitamura, and T. Ohsaka

638 An Electrochemical Impedance Spectroscopy Study of Manganese Oxide/MWNTs Nanocomposite for Electrochemical Capacitor Application
S. Yoon and K. Kim

639 X-ray Characterization of Dispersed Silver for Selective Logistics Fuel Desulfurization
J. Heinzel, R. Quinlan, and A. Mansour

640 Shape Selective Nanoscale Catalysts with Energy Applications
S. Hunyadi Murph

641 Low Temperature Behavior of TiO_2 Rutile as Negative Electrode Material for Lithium-Ion Batteries
M. Marinaro, M. Pfanzelt, P. Kubiak, R. Marassi, and M. Wohlfahrt-Mehrens

642 Silicon Films as Anode Materials for Li-Ion Batteries
W. Chen, N. Jiang, and C. Wang

643 Functionalized Graphene Oxide as a New Highly Proton Conductive Composite Membrane for High Temperature PEMFCs
H. Zarrin, Y. Jun, M. Fowler, and Z. Chen

B7 - Solid Oxide Fuel Cells XII (SOFC-XII)

High Temperature Materials / Battery / Energy Technology / SOFC Society of Japan

644 Recent Developments in the SECA Program
S. Vora

645 Status of National Project for SOFC Development in Japan
K. Hosoi, M. Ito, and M. Fukae

646 European SOFC Technology - Status and Trends
R. Steinberger-Wilckens

647 Solid Oxide Fuel Cells Canada NSERC Strategic Research Network
V. Birss, A. Petric, and S. Thomas

648 Recent Results in Solid Oxide Fuel Cell Development at Forschungszentrum Juelich
R. Steinberger-Wilckens, L. Blum, H. Buchkremer, L. de Haart, M. Pap, and R. Steinbrech

649 Development of Solid Oxide Fuel Cells at Versa Power Systems
B. Borglum, E. Tang, and M. Pastula

650 Recent Progress in Development and Manufacturing of SOFC at Topsoe Fuel Cell A/S and Risø DTU
N. Christiansen, H. Holm-Larsen, S. Primdahl, M. Wandel, S. Ramousse, and A. Hagen

688 Fabrication and Characterization of $La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-\delta}$-Yttria Stabilized Zirconia Composites Cathode Prepared by Infiltration Method
M. Han, Z. Liu, and J. Qian

689 Exploring Mixed Protonic/Electronic Conducting Oxides as Cathode Materials for Intermediate Temperature SOFCs Based on High Temperature Proton Conductor Electrolytes
E. Fabbri, L. Bi, D. Pergolesi, and E. Traversa

690 Investigation of the Particle Size Change of a La(Ni, Fe)O_3 Cathode
Y. Yoshida, R. Chiba, M. Yokoo, K. Hayashi, H. Orui, and H. Arai

691 A Novel Lamellar Structure for High-Performance Cobalt-Iorn Based Cathode for IT-SOFC
Z. Tong, Y. Yin, Y. Guo, J. Yin, L. Sun, and Z. Ma

692 Simple Infiltrated Microstructure Polarization Loss Estimation (SIMPLE) Model Predictions of Today and Tomorrow's SOFC Nano-Composite SOFC Cathodes
L. Wang and J. Nicholas

693 Nanocomposite Cathode Materials for Intermediate Temperature Solid Oxide Fuel Cells
T. Kharlamova, S. Pavlova, V. Sadykov, Y. Bespalko, T. Krieger, V. Pelipenko, V. Belyaev, Y. Okhlupin, N. Uvarov, and A. Smirnova

694 Microstructural Aspects of Cation Inter-Diffusion across the LSCF/GDC Interface
M. Brito, M. Izuki, K. Yamaji, H. Kishimoto, T. Shimonosono, T. Horita, and H. Yokokawa

696 Influence of Cathode Thickness on the Oxygen Reduction Kinetics at the Intermediate Temperature SOFC Cathodes
I. Kivi, I. Drovtar, E. Anderson, K. Tamm, G. Nurk, P. Möller, M. Vestli, R. Kanarbik, and E. Lust

697 Detailed Microstructure Analysis and 3D Simulations of Porous Electrodes
J. Joos, T. Carraro, M. Ender, B. Rüger, A. Weber, and E. Ivers-Tiffée

698 Firing Temperature Effect on 3D Microstructure and Performance of LSM-YSZ Composite SOFC Cathodes
J. Cronin, K. Muangnapoh, Z. Patterson, K. Yakal-Kremski, and S. Barnett

699 Characterization of SOFC Cathodes Prepared by Pulse Laser Deposition
F. Napolitano, L. Baqué, S. Cho, S. Qing, H. Wang, A. Caneiro, A. Soldati, and A. Serquis

700 High Surface Area, Mesoporous Catalysts in Solid Oxide Fuel Cell Cathode
R. Chao, P. Salvador, J. Kitchin, and K. Gerdes

701 Microstructural Control of Composite Cathode by Wetting Nature of Infiltrated Solutions
S. Lee, N. Miller, and A. Manivannan

703 Cathode Materials for $La_{26}O_{27}(BO_3)_8$ Proton Ceramic Electrolyte
K. Kravchyk, E. Quarez, M. Caldes, and O. Joubert

705 Chemical, Electronic and Nanostructure Dynamics on $Sr(Ti_{1-x}Fe_x)O_3$ Thin-Film Surfaces at High Temperatures
Y. Chen, W. Jung, Y. Kuru, J. Kim, H. Tuller, and B. Yildiz

706 Comparison of XCT and FIB-SEM in 3D Elemental Mapping of the Composite LSM/YSZ SOFC Cathode Microstructure
G. Nelson, W. Harris, J. Lombardo, J. Izzo, W. Chiu, P. Tanasini, M. Cantoni, J. Van Herle, C. Comninellis, J. Andrews, Y. Liu, P. Pianetta, and Y. Chu

707 Potential and Limitation of Application of Pulsed Laser Deposited Nanostructure LSC Thin Film Cathode to YSZ Electrolyte SOFC
J. Son, H. Noh, D. Myung, J. Hwang, H. Lee, and J. Lee

727 In situ Observation of the Deformation and Mechanical Damage of SOFC Cell/Stack
K. Sato, T. Sakamoto, A. Kaimai, K. Yashiro, K. Amezawa, T. Hashida, J. Mizusaki, and T. Kawada

728 Demonstration of a Highly Efficient SOFC System with Combined Partial Oxidation and Steam Reforming
D. Schimanke, O. Posdziech, B. Mai, S. Kluge, and C. Wunderlich

729 System Relevant Redox Cycling in SOFC Stacks
J. Brabandt, Q. Fang, D. Schimanke, M. Heinrich, B. Mai, and C. Wunderlich

730 Portable μ-SOFC System Based on Multilayer Technology
S. Reuber, M. Schneider, and M. Stelter

731 System Tests and Operation Control Strategies of an SOFC-CHP-Device for Field Testing
R. Belitz, M. Heddrich, M. Jahn, R. Näke, J. Paulus, and M. Pohl

732 Metal-Supported Cells with Comparable Performance to Anode-Supported Cells in Short-Term Stack Environment
M. Rüttinger, R. Mücke, T. Franco, O. Büchler, N. Menzler, and A. Venskutonis

733 SOFC Module Material Development at Fuel Cell Energy
P. Huang and H. Ghezel-Ayagh

734 CeO_2 Addition for Improving Electrochemical Behavior of $La_{1-x}Sr_xMnO_3$ Cathodes Sintered at High Temperature
J. Wiff, M. Suzuki, and S. Suda

735 High Performance LSM-Based Cathode Boosted by Stabilized Bismuth Oxide for Low to Intermediate Temperature Solid Oxide Fuel Cells
K. Lee, D. Jung, H. Yoon, M. Camaratta, N. Sexson, and E. Wachsman

736 Quantification of Microstructural Change at the Interface between (La,Sr)$MnO_{3+\delta}$ Cathode and YSZ Electrolyte upon Discharge Operation
T. Matsui, Y. Mikami, H. Muroyama, and K. Eguchi

737 Oxygen Nonstoichiometry and Defect Equilibrium of Perovskite-Type $La_{0.6}Sr_{0.4}Co_{1-y}Fe_yO_{3-\delta}$ (y=0, 0.2, 0.4, 0.5, 0.6, 0.8, 1) SOFC Cathode Materials
M. Kuhn, Y. Fukuda, S. Hashimoto, K. Sato, K. Yashiro, and J. Mizusaki

738 Oxygen Non Stoichiometry in Nanocrystalline $La_{0.5}Sr_{0.5}5CoO_{3-x}$ Thin Films
S. Wang, S. Cho, H. Wang, and A. Jacobson

739 Electrical Conductivity and Oxygen Diffusivity of Perovskite-Type Solid Solution $La_{0.6}Sr_{0.4}Co_{1-y}Fe_yO_{3-\delta}$ (y=0.2, 0.4, 0.5, 0.6, 0.8)
K. Yashiro, I. Nakano, M. Kuhn, S. Hashimoto, K. Sato, and J. Mizusaki

740 Microstructure of Sol-Gel Derived Nanoscaled $La_{0.6}Sr_{0.4}CoO_{3-\delta}$ Cathodes for Intermediate-Temperature SOFCs
L. Dieterle, P. Bockstaller, D. Gerthsen, J. Hayd, E. Ivers-Tiffée, and U. Guntow

741 Sm(Sr)CoO_3 Nano Cone Cathode and Ni-Fe Metal Support for High Power Density and Reliability
T. Ishihara, Y. Ju, and S. Ida

742 Performance of Metal-Supported Composite and Single-Phase Cathodes Based on LSCF and SSC
J. Harris and O. Kesler

743 Low Temperature Preparation of $LaFe_{1-x}Ni_xO_3$ as New Cathode Material for SOFC: Advantage of Liquid Phase Mixing Method
E. Niwa, C. Uematsu, E. Miyashita, T. Ohzeki, and T. Hashimoto

1008 Long Term Testing of Short Stacks with Solid Oxide Cells for Water Electrolysis
J. Schefold, A. Brisse, M. Zahid, J. Ouweltjes, and J. Nielsen

1009 Hydrogen and Power by Fuel-Assisted Electrolysis Using Solid Oxide Fuel Cells
G. Tao and A. Virkar

1010 Production of Sustainable Fuels by Means of Solid Oxide Electrolysis
J. Hansen, N. Christiansen, and J. Nielsen

C1 - Organic and Biological Electrochemistry General Poster Session

Organic and Biological Electrochemistry

1011 Electrochemical Study of Major Fat-Soluble Composition in Salvia
Z. Jia and W. Li

1012 The Regularities of Electrolytic Dissociation of 1,2-Cyclopropanedicarboxylic Acids
E. Kvaratskhelia and R. Kvaratskhelia

1013 Electrodeposition of Organic-Inorganic Films for Biomedical Applications
I. Deen and I. Zhitomirsky

1014 Covalent Attachment of Half-Sandwich Complexes to Electrode Surfaces
W. Barker

1015 Anodic Electrochemistry and Ligand Exchange Reactions of Cymantrenyl Tamoxifen Compounds
K. Wu, W. Geiger, and E. Hillard

1016 Electron Transfer Reactions of Siliranes
M. Kako and H. Satoh

1017 The Chemical and Electrochemical Activity of Citrate on Pt Electrodes
O. Berkh, L. Burstein, Y. Shacham - Diamand, and E. Gileadi

1018 Investigation of Structure and Function of Thin Films of Nitric Oxide Synthase and Polyethylenimine Formed Using the Layer-by-Layer Deposition Method
B. Gunasekera and M. Bayachou

1019 One Atmospheric Pressure Plasma Treatment of FTO Glass for Improving the Efficiency of DSSC
S. Kim, V. Dao, and H. Choi

1020 Preparation of the Bioactive Porous Layer on Titanium by AC Electrolysis in Sulfuric Acid
S. Tanaka, Y. Fukushima, I. Nakamura, and G. Jerkiewicz

1021 Voltammetric Determination of Antioxidant Capacity in Plasma Samples from Stroke Patients
C. Lete, M. Marin, B. Manolescu, E. Oprea, C. Comninellis, and M. Berteanu

1022 Synthesis and Characterization of Tetrasulfonated Poly(Arylene Biphenylsulfone Ether)s for Proton Exchange Membranes
D. Yoo, S. Hyeon, A. Kim, and K. Nahm

1023 GDC/LSCF Nanopowder Synthesis for IT-SOFC by Induction Plasma Spraying
Y. Shen and G. François

1024 Anatomical Variations in Dopamine Transporter Functionality in Rat Brain: Electrochemical Investigations of Dopamine Release and Uptake
P. Lukus and J. Schenk

1025 Effects of Applied Potential, Protein Concentration, and Time on Adsorbed Protein Layers on Metal Electrodes
M. Everist and H. Andreas

C2 - Recent Progress in Synthetic and Mechanistic Organic Electrochemistry

Organic and Biological Electrochemistry

1026 Anodic Electrochemistry: Probing the Chemistry of Radical Cation Intermediates
K. Moeller

1027 Electrochemical Reduction of Arylsulfonyl Chlorides
A. Houmam and E. Hamed

1028 Reactions of Diarylcarbenium Ion Pools with Benzylsilanes. Single Electron Transfer vs. Electrophilic Aromatic Substitution
T. Suehiro, T. Nokami, and J. Yoshida

1029 Synthesis of Electrochemically Modified Prolyl Peptides Based on Hydrophobically Tagged Strategy
S. Kitada, K. Yamamoto, M. Sugihara, T. Kawai, S. Kim, and K. Chiba

1030 Electrochemically Initiated Degradation of a New Energetic Material 2,2-Didnitroethene-1, 1-Diamine (FOX-7)
L. Simkova and J. Ludvik

1031 Selective Electrochemical Fluorination of Indole Derivatives
B. Yin, S. Inagi, and T. Fuchigami

1032 Direct Reduction of 6-Halo-1-Phenyl-1-Hexynes at Silver Cathodes
L. Strawsine and D. Peters

1033 Electrochemical Carboxylation of Benzylic Carbonates as an Alternative Method for Efficient Synthesis of Arylacetic Acids
H. Senboku, M. Ohkoshi, J. Michinishi, and S. Hara

1034 Voltammetric Study of Fluorenone Complexation by Lewis Acids in an Ionic Liquid
G. Cheek

1035 The Reduction of Diazonium Salts in Organic Synthesis
F. Barba and B. Batanero

1036 Bioinspired Hydrogen Production and Molecular Transformation Catalyzed by Vitamin B_{12}-TiO_2
H. Shimakoshi, Y. Nagami, and Y. Hisaeda

1037 Controlling the Reactivity of Thiophenoazomethines Radical Cations Contingent on Degree of Conjugation - towards New Easily Prepared Electrochromic Materials
N. Ayadi, S. Bishop, A. Bolduc, and W. Skene

1038 Bipolar Patterning of Conducting Polymer Film via Electrochemical Doping and Reaction
S. Inagi, Y. Ishiguro, and T. Fuchigami

1039 Electrochemical Synthesis of Low-Bandgap Amine Functionalized Poly(Phenylthiophenes)
O. Lukoyanova, M. Lepeltier, and D. Perepichka

1040 Phosphoric Acid-Doped Polyamide as the Ion-Exchange Membranes for Potential Use in Fuel Cells
J. Xie, J. Qiao, and G. Li

1041 Dendritic Diarylcarbenium Ion Pools Electrochemical Preparation and Thermal Stability
N. Musya, T. Watanabe, T. Morofuji , T. Nokami, and J. Yoshida

1042 Kolbe Electrolysis of α-Silylacetic Acids
A. Shtelman and J. Becker

1043 Electroanalytical Contribution to Understanding of Processes in Determination of Amino Acids
P. Zuman, E. Kulla, and J. Ludvik

1044 Electrochemical Reduction of Carborane and Its Mediatory Application
K. Hosoi, S. Inagi, and T. Fuchigami

1045 Electrochemical Reduction of 1,1,2-Trichloro-1,2,2-Trifluoroethane (CFC-113)
E. Wagoner and D. Peters

1046 Investigation of Radical-Radical and Related Crosslinks of Small Biological Molecules Formed On-Line by Electrochemistry Electrospray Ionization FT ICR Mass Spectrometry (EC ESI MS)
A. Brajter-Toth and D. Looi

1047 New Anodic Reactions of Cyclooctatetraenes
A. Fry, P. Lambert, J. Bours, and B. Sheludko

1048 Me_3SiCl-Promoted Electroreduction of Triphenylphosphine Oxide to Triphenylphosphine
H. Tanaka, T. Yano, K. Kobayashi, S. Kamenoue, M. Kuroboshi, and H. Kawakubo

1049 Electron Transfer-Induced Reversible Intermolecular Olefin Cross-Coupling Reactions Based on "Redox Tag" Strategy
Y. Okada and K. Chiba

1050 Investigation of Anodically Generated Intermediates of Conjugated Polyazomethines - Achieving Reversible Behavior Contingent on Structure
W. Skene and S. Barik

1051 Carbon-Skeleton Rearrangement Reaction Mediated by Simple Vitamin B_{12} Model Complex with Electrochemical Duet Process
Y. Hisaeda, Y. Chen, L. Pan, K. Tahara, T. Masuko, and H. Shimakoshi

1052 Comparative Electrochemical Investigation of Pt, Au and Ti Electrodes on Liquid Crystal Polymer for the Application of Neural Prostheses
S. Mohtashami, M. Howlader, T. Doyle, and M. Taheri

1053 Hofer-Moest Oxidative Decarboxylation Dimethyl Methoxymalonate as a Versatile Reagent for Orthoester Synthesis by Organic Electrochemistry(C2)
C. Mathot and I. Markó

1054 Reactivity of Isoquinoline Alkaloids toward Superoxide Anion Radical: An Electrochemical Study
M. Abasq, P. Courtel, and J. Hurvois

D1 - Corrosion General Session

Corrosion

1055 Model for Corrosion of Metals Covered with Thin Electrolyte Layers
M. Venkatraman, I. Cole, and B. Emmanuel

1056 Influence of Electrode Surface Condition on Constant Phase Element Characterization
K. Allahar, D. Butt, and M. Orazem

1057 Progress in Understanding Porous Oxides for Self-Repair on Corroding Metals - An Overview
I. Cole, M. Venkatraman, S. Thomas, N. Shahzad, N. Birbilis, B. Gabriel, and B. Emmanuel

1058 Passive Film Formation on Iron-Based Amorphous Metals
J. Farmer, S. Menon, L. Brewer, T. Omlor, and L. Hackel

E1 - Silicon Compatible Materials, Processes, and Technologies for Advanced Integrated Circuits, and Emerging Applications

Electronics and Photonics / Dielectric Science and Technology

E2 - Bioelectronics, Biointerfaces, and Biomedical Applications 4

Dielectric Science and Technology / Electronics and Photonics / Sensor

1179 Glucose Specific GDH-PQQ Based Sensor Strip Application of the Engineered GDH-PQQ Harboring *de novo* Designed Loop Region
D. Nagae, M. Nakajima, and K. Sode

1180 Relation between Effective Charge Numbers and Signals Caused by Protein Adsorption on Field Effect Transistor Detection
S. Hideshima, T. Nakamura, S. Kuroiwa, and T. Osaka

1181 Microsensor Arrays for Determination of Biomarkers of Oxidative Stress
M. Hepel and M. Stobiecka

1182 Probing Oxygen Metabolism in Tumour and Normal Living Cells by Scanning Electrochemical Microscopy
S. Rapino, R. Marcu, D. Bonazzi, M. Marcaccio, P. Pelicci, M. Giorgio, and F. Paolucci

1183 Electrochemically Controlled Separation of DNA Oligomers with High Surface Area Conducting Paper Electrode
A. Razaq, M. Stromme, L. Nyholm, and A. Mihranyan

1184 Exploring Tissue Response to Field Mediated Plasmid DNA Delivery
R. Gilbert, A. Llewellyn, and A. Hoff

1185 Analytical Terahertz Chemical Imaging of Molecular Networks in Bio-Medical Applications
K. Ajito, Y. Ueno, H. Song, E. Tamechika, and N. Kukutsu

1186 Use of Electroporation for Efficacious Gene Delivery to the Lungs
D. Dean, M. Barravecchia, and X. Lin

1187 Surface Charge Density Driven Delivery of Drugs and Plasmid DNA to Skin Using Atmospheric Ion Sources
A. Hoff, R. Connolly, and M. Jaroszeski

E3 - Graphene, Ge/III-V, and Emerging Materials for Post CMOS Applications 3

Dielectric Science and Technology

1188 (Thomas D. Callinan Award of the Dielectric Science and Technology Division) Ge-Source TFETs for Ultra-Low-Power Electronics
T. Liu, S. Kim, and Z. Jacobson

1189 Post Si CMOS Graphene Nanoelectronics Technologies
C. Sung

2127 CMOS Scaling with III-V Channels for Improved Performance and Low Power
R. Hill, J. Oh, C. Park, J. Barnett, J. Price, J. Huang, N. Goel, W. Loh, P. Kirsch, P. Majhi, and R. Jammy

1191 Reconfigurable Nanowire Electronics
W. Weber, A. Heinzig, D. Martin, S. Slesazeck, and T. Mikolajick

1192 Parametric Study of the Early Stages of Graphene Growth on Copper
K. Celebi, S. Youn, K. Teo, and H. Park

1193 Nano-Scale Strain-Induced Giant Pseudo-Magnetic Fields and Charging Effects in CVD-Grown Graphene
N. Yeh, M. Teague, R. Wu, S. Yeom, B. Standley, D. Boyd, and M. Bockrath

1194 Spectroscopic Ellipsometry of CVD Graphene
F. Nelson, V. Kamineni, T. Zhang, S. Comfort, J. Lee, and A. Diebold

1230 Atomic Layer Deposition of Al-Doped ZrO_2 Thin Films for Advanced Gate Stack on III-V Substrates
L. Lamagna, A. Molle, C. Wiemer, S. Spiga, and M. Fanciulli

1231 Structural and Electronic Characterization of Metal-Molecule-Silicon Junctions Produced by Flip Chip Lamination
M. Walsh, M. Coll, C. Richter, and C. Hacker

1232 Flexible Memristors Fabricated through Sol-Gel Hydrolysis
J. Tedesco, N. Gergel-Hackett, L. Stephey, M. Hernández-Mora, A. Herzing, L. Richter, C. Hacker, J. Kopanski, and C. Richter

E4 - Nanocrystal Embedded Dielectrics for Electronic and Photonic Devices

Dielectric Science and Technology / Electronics and Photonics

1233 (Invited) Light Emission from Silicon Nanostructures: Past, Present and Future Perspectives
L. Dal Negro

1234 (Invited) Luminescence of Nano-Silicon Related Silicon Nitride Films and Light Emitting Devices
D. Li, M. Xie, and D. Yang

1235 Factors Influencing PL, EL, and Charge Storage Characteristics of Si Nanocrystal Embedded SiO_xN_y Thin Films
P. Joshi, L. Tang, J. Huang, A. Voutsas, and J. Hartzell

1236 (Invited) Optical and Structural Properties of Silicon Nanocrystals and Laser-Induced Thermal Effects
L. Khryashchev (Khriachtchev)

1237 (Invited) Recent Advances in Functionalisation of Silicon Nanocrystals and Ultradispersed Nanodiamonds
L. Siller, P. Coxon, Y. Astuti, Y. Butenko, A. Brieva, L. Alves, N. O'Farrell, B. Horrocks, N. Poolton, M. Newman, and M. Hunt

1238 (Invited) Photoluminescence Efficiency of Self-Assembled Germanium Dots
D. Lockwood, N. Rowell, I. Berbezier, G. Amiard, L. Favre, A. Ronda, M. Faustini, and D. Grosso

1239 (Invited) Ultra Low Energy Ion Beam Synthesis as a New Route toward Nanocrystal Memories
C. Bonafos, G. Assayag, S. Schamm-Chardon, M. Carrada, J. Groenen, F. Gloux, B. Pecassou, P. Dimitrakis, P. Normand, B. Sahu, A. Slaoui, and A. Claverie

1240 Silicon and Metallic Nanocrystals Passivation and Integration as Trapping Layer in Non-Volatiles Memories
J. Colonna, D. Belhachemi, G. Gay, S. Minoret, M. Roure, G. Molas, and E. Jalaguier

1241 Silicon and/or Germanium Nanocrystals Embedded into Oxide Host for Non-Volatile Memory Applications
L. Khomenkova, B. Sahu, A. Slaoui, C. Bonafos, S. Schamm-Chardon, and F. Gourbilleau

1242 Growth Process and Morphological Characterization of Silicon Nanodots Integrated in Non-Volatiles Memories
J. Amouroux, V. Della Marca, P. Boivin, P. Maillot, C. Muller, D. Deleruyelle, E. Jalaguier, and J. Colonna

1260 Si/SiO_2 - Based Superlattice Bridged Quantum Cellular Automata
I. Matyushkin, A. Krasnikov, and S. Yanovich

1261 Improvements of Performance and Stability for Gate-All-Around Poly-Si TFTs Using Vacuum Cavity Structures
H. Liu, S. Chiou, C. Hung, H. Ho, and F. Wang

1262 Magnetic and Ferroelectric Properties of $Pb(Zr_{0.53}Ti_{0.47})_{1-x}$ $(Fe_{0.5}Nb_{0.5})xO_3$ Ceramics Systems
D. Sanchez, A. Kumar, and R. Katiyar

1263 Effects of Additive in Cu Solution for Electrodeposition of $CuInSe_2$ Film
T. Chang, W. Lee, Y. Su, and C. Fang-I

1264 (Invited) Silicon Nanocrystals Coupled to High-Q Optical Microcavities: Theory and Applications
A. Meldrum, Y. Zhi, K. Manchee, V. Zamora, J. Silverstone, P. Bianucci, and F. Marsiglio

1265 (Invited) Self-Organized Nanophotonic Device
T. Yatsui and M. Ohtsu

1266 Realization of Silicon-Nanodots-Based CMOS Backend-Compatible Electrical SPP Source
I. Brunets, R. Walters, A. Kovalgin, A. Polman, and J. Schmitz

1267 (Invited) YAG:Ce Nanoparticles Embedded into TiO_2 Thin Films for White LEDs Elaboration
G. Dantelle, A. Revaux, D. Decanini, A. Haghiri-Gosnet, T. Gacoin, and J. Boilot

1268 On-Nanowire Band-Graded Si: Ge Photodetectors
C. Kim, H. Lee, Y. Cho, J. Yang, R. Lee, J. Lee, and M. Jo

1269 GaN/ GaN Wafer Bonded Structure: Quantum Dot Active Layer as Binding Layer
Y. Li and E. Stokes

1270 Multiscale 3D Patterning of Ag Nanoparticles in Dielectric Layers Using Low-Energy Ion Implantation and Ion- Or Electron-Beam Lithography
R. Carles, G. BenAssayag, C. Bonafos, J. Groenen, P. Benzo, L. Cattaneo, E. Daran, and F. Gourbilleau

1271 Magnetic and Ferroelectric Properties of $Pb(Zr_{0.53}Ti_{0.47})_{1-x}(Fe_{0.5}Nb_{0.5})_xO_3$ Ceramic Systems
D. Sanchez, A. Kumar, and R. Katiyar

E5 - Organic Semiconductor Materials, Devices, and Processing 3

Electronics and Photonics / Dielectric Science and Technology

1272 Highly Conductive PEDOT: PSS as Transparent Electrode of Organic Photovoltaic Cells
Y. Xia, H. Zhang, and J. Ouyang

1273 Organic Transistors and Organic Photovoltaic Solar Cells Using Semiconductor Nanowires
K. Cho

1274 Effect of Degradation in Organic Solar Cells with P3HT:PCBM[70] Blends
L. Marsal, V. Balderrama, M. Estrada, A. Sanchez, P. Formentin, E. Palomares, J. Pallares, and J. Nolasco

1275 Design and Fabrication of Polycarbazole Based High Efficiency Solar Cells
T. Chu, S. Alem, S. Wakim, P. Verly, J. Lu, and Y. Tao

1276 Development of Nanostructures and Organic Dyes for Efficient Dye-Sensitized Solar Cells
C. Tsai, C. Wu, T. Huang, S. Hsu, Y. Tsai, Y. Jhang, L. Hsieh, S. Liu, H. Lin, L. Lin, C. Chen, S. Chou, K. Wong, S. Chen, and A. Tsai

1314 Metal-Oxides Hole Injection Layer in Organic Semiconductor Devices
Y. Gao

1315 Organic Semiconductor Devices Modeling for TCAD and ECAD Applications
S. Mijalkovic

E6 - Processes at the Semiconductor Solution Interface 4

Electronics and Photonics / Energy Technology

1316 Anodic Formation of Nanoporosity in n-InP in KOH
D. Buckley, C. O'Dwyer, R. Lynch, and N. Quill

1317 Fundamentals of III-V Semiconductor Electrochemistry and Wet Etching Processes: Br_2 Etching Properties onto InP
I. Gérard, A. Causier, M. Bouttemy, P. Tran-Van, and A. Etcheberry

1318 Porous InP as Piezoelectric Component in Magneto-Electric Composite Sensors
M. Gerngross, M. Leisner, J. Carstensen, and H. Föll

1319 Modeling Some "Meta" Aspects of Pore Growth in Semiconductors
H. Föll, M. Leisner, and J. Carstensen

1320 Self-Organizing Electrochemistry: Titania Nanotube- and Mesosponge Layers
M. Yang, P. Roy, C. Das, K. Lee, and P. Schmuki

1321 (European Section Heinz Gerischer Award Presentation) Some Major Electrochemical Challenges towards a Sustainable Energy Future
H. Tributsch

1322 Raman Spectroscopy of Metal-Assisted Chemically Etched Si and Li-Si Nanowire Layers
C. Glynn, W. McSweeney, O. Lotty, J. Holmes, and C. O'Dwyer

1323 Formation Process of Silicon Nanowires by Metal-Assisted Etching
N. Geyer, B. Fuhrmann, H. Leipner, and P. Werner

1324 Functionalization of Halogenated Germanium Nanowires
G. Collins, P. Fleming, C. O'Dwyer, M. Morris, and J. Holmes

1325 Functionalization and Behavior in Aqueous Media of Silicon Surfaces for Improved Biochemical Sensing
J. Chazalviel, P. Allongue, A. Gouget-Laemmel, C. Henry de Villeneuve, A. Moraillon, and F. Ozanam

1326 In situ Contrasted Electrochemical Responses of GaAs and InP regarding a Controlled and Promising Process in Liquid Ammonia
A. Goncalves, C. Mathieu, N. Mezailles, and A. Etcheberry

1327 Electroless Oxidation of Diamond Surfaces: Relevance of Concepts Developed for Classical SC Electrochemistry
N. Simon, G. Charrier, J. Vigneron, and A. Etcheberry

1328 Electromigration Characteristics for Electron Down-Flow in Copper Interconnects
Y. Cheng, W. Chung, and Y. Wang

1329 (Research Award of the Energy and Technology Division) (Photo)electrochemistry in the Service of Solar Energy Conversion
C. Lévy-Clément

1330 Electrochemical and Chemical Behavior of InSb Surfaces
D. Aureau, P. Tran-Van, R. Chaghi, and A. Etcheberry

1331 Electrochemical Passivation of Homoepitaxial InP (100) Thin Films for Light Induced Hydrogen Evolution: A SRPES Study
A. Muñoz and H. Lewerenz

1332 Opto-Electronics of Semiconductor Hetero-Nanocrystals and Hetero-Nanocrystal Solids
D. Vanmaekelbergh, M. Casavola, F. Pietra, D. Grodzinska, W. Evers, M. Boneschanscher, Z. Sun, C. de Mello Donega, and P. Liljeroth

1333 Recent Advances in Electrodeposition of Interfacial Buffer Layers in Chalcopyrite-Based Solar Cells
E. Chassaing, N. Naghavi, G. Rocha, V. Bockelee, E. Leite, M. Bouttemy, J. Vigneron, A. Etcheberry, and D. Lincot

1334 Electrochemical ALD Formation of the Phase Change Material GeSbTe, and Ge Deposition from Aqueous Solutions
X. Liang and J. Stickney

1335 Dye-Sensitized Hole Injection at p-type III-V Electrode Interfaces
M. Price and S. Maldonado

1336 Controlled Formation of ZnO Fine-Pattern Transparent Electrodes by Wet-Chemical Etching
N. Yamamoto, H. Makino, Y. Sato, and T. Yamamoto

1337 Study of Cu Bimetallic Corrosion in CMP Chemical Environments Using Optical Scanning and Micropattern Corrosion Screening
N. Thomas, K. Yu, T. Hurd, K. Boggs, K. Pillai, and O. Chyan

1338 Galvanic Deposition of Nanoporous Si onto 6061 Al Alloy from Aqueous HF
A. Krishnamurthy, D. Rasmussen, and I. Suni

1339 Microwave Electrochemical Characterization of the Si/Isolator Interface
E. Martinez Moreno and M. Kunst

1340 Influence of Residual Ions and Gases at Si/SiO_2 Interface in Ultra-Thin Gate Oxide
T. Chen, H. Lu, and J. Hwu

E7 - Silicon Nitride, Silicon Dioxide, and Emerging Dielectrics 11

Dielectric Science and Technology

1341 Fluctuations in Electronic Properties of MOS Interface in Nanoscale MOSFETs
T. Tsuchiya, Y. Morimura, and Y. Mori

1342 Electron States in MOS Systems
O. Engstrom

1343 Process Engineering and Trap Distribution for Dielectric/Si Interfacial Layer in High-k Gated MOS Devices
K. Chang-Liao, C. Fu, C. Lu, Y. Chang, Y. Hsu, T. Wang, and D. Heh

1344 Current Understanding of the Transport Behavior of Hydrogen Species in MOS Stacks and Their Relation to Reliability Degradation
Z. Liu, S. Fujieda, H. Ishigaki, M. Wilde, and K. Fukutani

1345 Impact of Silicon Nitride Gate Dielectric Composition on the Stability of Low Temperature Nanocrystalline Silicon Thin Film Transistors
A. Nathan

1346 Development of a Fast Technique for Characterizing Interface States
L. Lin, Z. Ji, J. Zhang, and W. Zhang

1366 Recent Findings in Electrical Behavior of CMOS High-K Dielectric/Metal Gate Stacks
G. Ghibaudo, J. Coignus, M. Charbonnier, J. Mitard, C. Leroux, X. Garros, R. Clerc, and G. Reimbold

1367 Flatband Voltage Tuning of HfSiON-based Gate Stacks: Impact of High Temperature Activation Annealing and LaOx Capping Layers
R. Boujamaa, E. Martinez, O. Renault, B. Detlefs, J. Zegenhagen, S. Baudot, V. Loup, F. Martin, M. Gros-Jean, F. Bertin, and C. Dubourdieu

1368 Physical and Electrical Effects of the Dep-Anneal-Dep-Anneal (DADA) Process for HfO_2 in High K/Metal Gate Stacks
R. Clark, S. Aoyama, S. Consiglio, G. Nakamura, and G. Leusink

1369 Atomic Layer Deposition of High-k and Nanolaminate Dielectrics for Transparent Thin Film Transistors and Metal/Insulator/Metal Tunnel Diodes
J. Conley

1370 Growth of Gallium Arsenide Nanostructures in Silica
M. Howlader

1371 Interface Structure and Charge Trapping Characteristics of Hf-Incorporated Y_2O_3 Gate Dielectrics on Germanium
C. Mahata, T. Das, S. Mallik, M. Hota, and C. Maiti

1372 Preparation of Hafnium Silicate Thin Film by Sol-Gel Method
C. Chen and C. Leu

1373 Schottky Barrier Height at Dielectric Barrier/Cu Interface in Low-K/Cu Interconnects
S. King, M. French, M. Jaehnig, M. Kuhn, and B. French

1374 Global and Local Stress Characterization of SiN/Si(100) Wafers Using Optical Surface Profilometer and Multiwavelength Raman Spectroscopy
W. Yoo, J. Kajiwara, T. Ueda, T. Ishigaki, and K. Kang

1375 Physical Mechanisms regarding Why It Is Difficult to Correlate the Leakage Current of Capacitor Structures Involving High-K Dielectric Materials and Defect States Detected Spectroscopically by the Thermally Stimulated Current Technique
W. Lau

1376 Degradation Mechanisms of MILC P-Channel Poly-Si TFTs under Dynamic Hot-Carrier Stress
C. Lin, W. Hong, T. Lin, H. Lin, and T. Huang

1377 Solution Processed High-k Lanthanide Oxides for Low Voltage Driven Transparent Oxide Semiconductor Thin Film Transistors
S. choi, B. Park, S. Jeong, B. Ryu, C. Hong, and H. Jung

1378 Reliability Properties and Current Conduction Mechanisms of HfO_2 MIS Capacitor with Dual Plasma Treatment
K. Chang, T. Chang, S. Chen, and I. Deng

1379 Remote Plasma Atomic Layer Deposition of Strontium Titanate Films Using $Sr(iPr_3Cp)_2$ and $Ti(OiPr)_4$
G. Dilliway, M. Oliver, K. Kwa, Z. Zhou, S. Mojarad, J. Goss, and A. O'Neill

1380 Monitoring of Dissolved Silicon in Si3N4 Etching Solution
E. Shalyt, J. Tyutina, and P. Bratin

1381 A MIM Diode with Ultra Abrupt Switching Process and High On/Off Current Ratio
L. Zhang and R. Huang

1399 Electrically Detected Magnetic Resonance in Dielectric Semiconductor Systems of Current Interest
P. Lenahan

1400 Synthesis, Pore Morphology, and Dielectric Property of Mesoporous Low-k Material PSMSQ Using a Reactive High-Temperature Porogen, TEPSS
S. Chiu, H. Hsu, M. Che, and J. Leu

1401 Electrical Characteristics Analysis at "Oxide Flat-band Voltage" for Al-SiO_2-Si Capacitor
H. Lu, T. Chen, and J. Hwu

1402 Novel Hardmask for Sub-20nm Copper/Low K Backend Dual Damascene Integration
L. Xia, Z. Cui, M. Balseanu, V. Nguyen, K. Zhou, J. Pender, and M. Naik

1403 Porous SiCOH Patterning for Advanced Interconnects: Challenges and Solutions
N. Posseme, T. David, T. Chevolleau, M. Darnon, F. Bailly, R. Bouyssou, J. Ducote, C. Verove, and O. Joubert

1404 Low-K and Ultralow-K Dielectrics for VLSI Interconnects: State of the Art
A. Grill, S. Gates, E. Ryan, and S. Nguyen

1405 Process Challenges for Integration of Copper Interconnects with Low-k Dielectrics
J. Gambino

1406 Patterning with Amorphous Carbon Thin Films
G. Antonelli, S. Reddy, P. Subramonium, J. Henri, J. Sims, J. O'loughlin, N. Shamma, D. Schloser, T. Mountsier, W. Guo, and H. Sawin

1407 Ultra Low Dielectric Constant Materials for 22 nm Technology Node and beyond
M. Baklanov

1408 Development of Porosimetry Techniques for the Characterization of Plasma-Treated Porous Ultra Low-K Materials
C. Licitra, T. Chevolleau, R. Bouyssou, M. El Kodadi, G. Haberfehlner, J. Hazart, L. Virot, M. Besacier, N. Posseme, M. Darnon, R. Hurand, P. Schiavone, and F. Bertin

1409 Defects in Low-κ Dielectrics and Etch Stop Layers for Use as Interlayer Dielectrics
B. Bittel, P. Lenahan, T. Pomorski, and S. King

1410 Development of Voltammetry Techniques for Characterization of Porous Low-k/Cu Interconnect Integration Reliability
C. Kim, L. Chen, N. Michael, W. Bang, Y. Park, S. King, and T. Ryan

E8 - Advanced Semiconductor-on-Insulator Technology and Related Physics 15

Electronics and Photonics

1411 Silicon Spintronics: Challenges and Perspectives
J. Fabian

1412 Trends and Challenges in Si and Hetero-Junction Tunnel Field Effect Transistors
C. Claeys, D. Leonelli, R. Rooyackers, A. Vandooren, A. Verhulst, M. Heyns, G. Groeseneken, and S. De Gendt

1413 SiGe and Ge on Insulator Wafers
N. Daval, C. Drazek, C. Figuet, C. Aulnette, D. Landru, K. Bourdelle, E. Guiot, F. Letertre, B. Nguyen, and C. Mazure

1414 Au-Catalyst Induced Low Temperature (~250 ºC) Layer Exchange Crystallization for SiGe On Insulator
J. Park, M. Kurosawa, N. Kawabata, M. Miyao, and T. Sadoh

1454 The Roles of the Electric Field and the Density of Carriers in the Improved Output Conductance of Junctionless Nanowire Transistors
R. Doria, M. Pavanello, R. Trevisoli, M. Souza, C. Lee, I. Ferain, N. Dehdashti Akhavan, R. Yan, P. Razavi, R. Yu, A. Kranti, and J. Colinge

1455 Stress Relaxation Empirical Model for Biaxially Strained Triple-Gate Devices
R. Trevisoli, J. Martino, E. Simoen, C. Claeys, and M. Pavanello

1456 Transport-Confined Multi-Barrier FETs: A New Paradigm for Low-Leakage High On-Current Transistors
A. Afzalian and D. Flandre

1457 Numerical Modeling of Noise and Transport in SOI Devices
B. Meinerzhagen, A. Pham, S. Hong, and C. Jungemann

1458 Functionalization of Silicon Nanowires for Specific Sensing
V. Passi, E. Dubois, C. Celle, S. Clavaguera, J. Simonato, and J. Raskin

1459 Ultra Low Power 3-D Flow Meter in Monolithic SOI Technology
N. Andre, B. Rue, G. Scheen, L. Francis, D. Flandre, and J. Raskin

1460 Performance of Ultra-Low-Power SOI CMOS Diodes Operating at Low Temperatures
M. de Souza, B. Rue, D. Flandre, and M. Pavanello

E9 - Wide Bandgap Semiconductor Materials and Devices 12

Electronics and Photonics / Sensor

1461 III-Nitride Nanowires: Emerging Materials for Lighting and Energy Applications
G. Wang, Q. Li, J. Huang, Y. Lin, J. Wierer, P. Upadhya, and R. Prasankumar

1462 Effect of Strain on the Structural and Electronic Properties of InGaN
M. César, H. Guo, and Z. Mi

1463 Ultra-Thin GaN Membranes Fabricated by Using Surface Charge Lithography
I. Tiginyanu, V. Popa, and M. Stevens-Kalceff

1464 Morphology, Acoustic Phonon Confinement and Optical Properties of Doped Nanostructured Wurtzite Zinc Oxide (w-ZnO) Films with Different Crystalline Orientations
V. Ligatchev and P. Wu

1465 Suppression of Free Exciton No-Phonon Emission in ZnO Tetrapod Nanostructures
S. Chen, S. Lee, H. Dong, Z. Chen, W. Chen, and I. Buyanova

1466 Electrical and Point Defect Properties of TiO_2 Nanotubes Fabricated by Electrochemical Anodization
I. Hanzu, T. Djenizian, and P. Knauth

1467 Nitride Surface States Elucidated via First-Principles Band Gap Corrections
K. Bevan, M. Coates, M. César, Z. Mi, and H. Guo

1468 High Thermal Dissipation Apparatus for UV LEDs Application
R. Horng, R. Lin, Y. Chiang, and D. Wuu

1469 Molecular Beam Epitaxial Growth, Fabrication, and Characterization of High Efficiency InGaN/GaN Dot-in-a-Wire White Light Emitting Diodes on Si(111)
H. Nguyen, S. Zhang, K. Cui, X. Han, and Z. Mi

1470 Growth and Characterization of p-InGaN/i-InGaN/n-GaN Double Heterojunction Solar Cell on Patterned Sapphire Substrates
M. Chu, W. Liao, M. Wu, R. Horng, T. Tsai, and S. Liu

1489 Effects of SiO_2 Passivation on Oxygen Annealed AlGaN/GaN HEMTs
O. Seok, Y. Kim, and M. Han

1490 Reduction of Parallel Conduction at the Regrowth Interface of GaN Template Using Nitridation
Y. Wong, E. Chang, W. Huang, H. Trinh, T. Yang, J. Chang, J. Ku, and C. Chen

1491 Vertically Configured Nanodiamond Vacuum Field Emission Transistor Arrays
S. Hsu, W. Kang, J. Davidson, and J. Huang

1492 Vertically Stacked Hybrid Complementary Memory Inverter Employing Ferroelectric Polymer
H. Lee, C. Park, and S. Im

1493 Stability of Amorphous InGaZnO Thin-Film Transistor: Photo Induced Bias Temperature Stress
Y. Chang, D. Kim, J. Park, J. Kim, and S. Im

1494 Photo-Induced Instability in Hf-In-Zn-O Thin Film Transistor under Dynamic Bias Stress
K. Son, H. Kim, W. Maeng, T. Kim, J. Park, E. Kim, K. Lee, K. Park, J. Seon, W. Choi, M. Ryu, and S. Lee

1495 The Effect of Different Carrier Gases and Channel Thicknesses on the Characteristics of ZnO TFTs Prepared by Atmospheric Pressure Plasma Jet
K. Chang, S. Huang, C. Chi, C. Chang, C. Wu, and J. Lin

E10 - Plasma Processing 18

Dielectric Science and Technology / Electronics and Photonics

1496 Isolation Trench Etch Process Using Pulsed RF Bias Power in HBr/CF4/O2 Plasma
I. Park, Y. Kang, S. Jeong, and S. Nam

1497 Bevel Edge Treatment for Reduction of Defect Density by Plasma Etch Processes Applied in Silicon Trench Technologies
G. Ehrentraut

1498 Investigation of TiO_2 Thin Films Etching by Using the Metal-Insulator-Metal Capacitor in a Adaptive Coupled Plasma
J. Woo and C. Kim

1499 Interfacial Characterization of Plasma Treated Cu Surfaces Related to Advanced Cu Interconnects
K. Yu, K. S.M. Pilllai, O. Chyan, and K. Singh

1500 The Improvement of the Optical Transmittance of the Etched IGZO Films with Plasma Treatment
S. Kim and C. Kim

1501 An Innovative Coating Technology for Conductive Structures under Atmospheric Pressure: The Plasmadust Process
E. Theophile, C. Curran, W. Robl, M. Frank, and T. Kunstmann

1502 Plasma Health Care - Aims, Constraints, and Progress
G. Morfill and J. Zimmerman

1503 Plasma Sources for Medical and Health Applications in the Developing World
D. Graves

1504 Fluorine-Free, Low-Temperature Tungsten Deposition by Using Metal-Chloride-Reduction Chemical Vapor Deposition
F. Hirose, T. Watanabe, A. Shibata, K. Kanomata, T. Suzuki, and H. Miya

1505 Characterization of Ultrathin RuCo Films for Diffusion Barrier and Copper Direct-Plate Applications
D. Greenslit and E. Eisenbraun

1506 Evaluation Model of Neutral Particles Behavior Influence upon Contact Profile in C_4F_8-Based Dry Etch
A. Chamov, A. Korovkin, A. Krasnikov, and S. Yanovich

1507 General Feature Profile Simulator FPS-3D
P. Moroz

1508 Hydrophobic Properties of PTFE Films Prepared by PVD and CVD Process for Anti-Pollution Coating in Optoelectronics
D. Kim, K. Bae, S. Seo, S. Sohn, H. Kim, and J. Hong

F1 - Electrodeposition for Energy Applications 2

Electrodeposition / Energy Technology

1509 Status and Future of Electrodeposition Technologies in the Field of Photovoltaic Conversion of Solar Energy
D. Lincot, E. Chassaing, N. Naghavi, and J. Rousset

1510 Doped TiO_2 Nanotubes for Direct Water Splitting
P. Schmuki, M. Yang, C. Das, K. Lee, and P. Schmuki

1511 The Supercapacitive Properties of Iridium Oxide in Aqueous Electrolytes
Y. Chen and D. Scherson

1512 Electrodeposition of PV Materials Using Atomic Layer Deposition
J. Stickney, B. Perdue, and D. Banga

1513 Zinc Surface Morphological Variations and Ionic Mass Transfer Rates in Alkaline Solution
I. Arise, S. Kawai, T. Matsuoka, T. Homma, F. McLarnon, and Y. Fukunaka

1514 Electrodeposition of Functional, Thermoelectric Nanowires Composed of PbTe. Bi_2Te_3, and PEDOT
R. Penner, D. Taggart, and Y. Yang

1515 Microstructure and Synthesis of Bi_2Te_3/Sb_2Te_3 Superlattice Electrodeposits
D. Banga, J. Lensch-Falk, D. Robinson, and P. Sharma

1516 Bismuth Electrodeposition on Ultrathin Gold Substrates for Sensor Applications
M. Saini, S. Zheng, W. Wang, C. Chien, and S. Morin

1517 Chemical Synthesis of Bismuth Telluride Nanoparticles from Water Soluble Precursors
V. Stavila, D. Robinson, M. Hekmaty, D. Banga, J. Lensch-Falk, D. Medlin, and P. Sharma

1518 Electrochemical Synthesis under Hydrothermal Conditions: A Promising One-Step Synthesis Route for $LiCoO_2$ Thin Films for Microbatteries Applications
H. Porthault, F. Le Cras, R. Baddour-Hadjean, and S. Franger

1519 Aluminum as Anode Material Electrodeposited from Ionic Liquids for Secondary Rechargeable Batteries
N. Ingale, J. Gallaway, D. Steingart, S. Khatun, P. Sideris, S. Greenbaum, S. Banerjee, and A. Couzis

1520 Effect of Surface Modification of n-TiO_2 and CM-n-TiO_2 by Electrocatalytic Metal Islets on Photosplitting of Water
M. Frites and S. Khan

1521 Cu_2O and Fe_2O_3 Modified TiO_2 Nanotubes for Photoelectrochemical Solar Cell Applications
L. Tsui, L. Wu, N. Swami, and G. Zangari

1522 Photo-Assisted Heteroepitaxial Electrodeposition of (0001)-ZnO/(111)-Cu_2O Heterojunction
F. Mohamad, J. Sasano, T. Shinagawa, S. Watase, and M. Izaki

1523 Deposition of Metal, Alloy and Semiconductor Thin Films Using Bipolar Electrochemistry
C. Shannon, S. Ramakrishnan, R. Ramaswamy, and S. Ndzesse

1524 'Borrowed' SERS Effect for Monitoring Ge Electrodeposition and Surface Chemistry in Real Time
A. Carim, J. Gu, and S. Maldonado

1525 Electrodeposition of Novel Precursor Structures for Efficient Copper Indium Gallium Selenide (CIGS) Films
S. Aksu, S. Lastella, M. Kunduraci, J. Duimstra, and M. Pinarbasi

1526 Preparation of DSSC Photoanode Nanotitania Thin Films by Electrophoretic Deposition in an Aqueous Suspension
N. Parsi Benehkohal and G. P. Demopoulos

1527 Uniform Arrays of SiO_2@Au Core-Shell Particles for In-Situ Surface-Enhanced Raman Spectroscopy: Extension to Pt Group Metals
J. Zeng, D. Jean, and S. Zou

1528 Electrodeposition of $CuGaSe_2$ from Thiocyanate-Containing Electrolytes
J. Jebaraj, D. Rasmussen, and I. Suni

1529 ZnO 2D Layers and Nanowires Deposition for Photovoltaic Applications
R. Salazar, S. Sanchez, C. Lévy-Clément, and V. Ivanova

1530 Electrodeposition of Iridium onto Glassy Carbon, Gold and Platinum
S. Le Vot, L. Roue, and D. Bélanger

1531 Electrodeposition of Molybdenum from Choline Chloride Based Binary Mixture
Q. Abbas and L. Binder

1532 Electrodeposition of Catalyst Nanowires on Microporous Substrate for PEMFC
G. Sibiude, N. Guillet, F. Nores Pondal, G. Bidan, and M. Alhoshan

1533 Modification of Model Catalysts by Deposition of Ultrathin Layers of Foreign Metals: Ensemble Effects
J. Xu, A. Abd el Latif, N. Bogolowski, and H. Baltruschat

1534 Electrochemical Synthesis and Characterization of Porous Three Dimensionally Ordered Metal Oxides for Energy Related Materials
T. Gabriel, M. Armstrong, and J. Holmes

1535 Multistage Electrodeposition of Supported Platinum-Based Nanostructured Systems for Electrocatalytic Applications
T. Mkwizu, M. Modibedi, and M. Mathe

1536 Non-Line-of-Sight Electrodeposition of Ultrathin, Conformal Polymeric Separators within Ultraporous Carbon Nanofoam Papers
J. Long, M. Sassin, J. Wallace, and D. Rolison

1537 Adsorption and Reduction of Metal Complexes on and within Molecular Layers Formed on Metal and Semiconductor Surfaces
K. Uosaki, T. Masuda, H. Fukumitsu, and D. Qu

1538 Electrodeposition and Characterization of Ni-Co-Sm_2O_3 Composite Coating as Cathode for Hydrogen Evolution Reaction
X. Yi, P. He, Y. Chen, W. Wang, L. Du, and T. Zhang

1560 Pt Nano-Structures Formed through Surface Limited Redox Replacement Reaction with Cu Adlayer on Au(111) Surfaces
D. Qu, I. Choi, and C. Lee

1561 Kinetics of Metal Deposition via Surface Limited Replacement Reaction
D. Gokcen and S. Brankovic

1562 Cu and Pd Deposition onto PtxRu1 x(111) Electrodes
L. Kibler

1563 Oxygen Reduction Kinetics on Electrodeposited Pt-Ni and Pt-Cu Thin Alloy Film
Y. Liu and T. Moffat

F2 - Surfactant and Additive Effects on Thin Film Deposition and Particle Growth 2

Electrodeposition / Physical and Analytical Electrochemistry

1564 Imaging Morphological Evolution of Electrodeposited Islands
T. Olson, J. Gray, and C. Orme

1565 Controlling Metal Deposition on the Nanoscale by Ordered Molecular Assemblies
I. Cebula and M. Buck

1566 Growth of Metal Multilayer Structures by Surface Limited Redox Replacement and Surfactant Mediation
N. Dimitrov, C. Mitchell, L. Viyannalage, and S. Bliznakov

1567 Function through Structure: An Atomistic View on Additive Ensemble Effects Relevant for the Damascene Process
N. Hai, A. Flügel, M. Arnold, A. Wagner, D. Mayer, W. Reckien, T. Bredow, H. Keller, and P. Broekmann

1568 STM Studies of Self-Assembled 3,3'-Thiobis(1-Propanesulfonic Acid, Sodium Salt) Monolayers on Au(111) and the Effect on Cu Electrodeposition
K. Krug, P. Lin, Y. Liu, and Y. Lee

1569 Accelerator Surface Phase Associated with Superconformal Cu Electrodeposition
T. Moffat, L. Ou Yang, and C. Lee

1570 Surfactant Mediated Growth of Cu and Ag Thin Films
N. Vasiljevic and J. Nutariya

1571 In situ STM Imaging of 3-Mercaptopropanesulfonate Adsorbed on Pt(111) Electrode and Its Effect on the Electrodeposition of Copper
S. Yau, H. Tu, P. Yen, and W. Dow

1572 Surfactant Effects in Cu-Sn Alloy Deposition
A. Survila

1573 Structural Instability of Suppressor Films during Electroplating
A. Flügel, M. Arnold, C. Emnet, A. Wagner, P. Broekmann, and D. Mayer

1574 Copper Deep via Superfilling by Accelerator Distribution Control
M. Hayase

1575 Wet Processes for Filling through Silicon Vias and Butterfly Technology for Filling through Silicon Holes
S. Shen, W. Dow, C. Lu, Y. Chang, C. Chou, M. Kubo, T. Kamitamari, E. Cheng, J. Lin, and F. Hsu

1576 Suppression Characteristics of Surfactants
E. Shalyt, M. Pavlov, and P. Bratin

G1 - Industrial Electrochemistry and Electrochemical Engineering General Session

Industrial Electrochemistry and Electrochemical Engineering

1596 (IEEE New Electrochemical Technology (NET) Award) Electroosmotic Pulse Technology to Control Water in Varied Construction Media
V. Hock, O. Marshall, M. McInerney, S. Morefield, C. Weiss, P. Malone, and P. Noyce

1597 Study of Mechanically Alloyed Cu-Ni-Fe Based Inert Anodes for Aluminum Production
S. Helle, B. Davis, D. Guay, and L. Roue

1598 Electrodeposition of Rhodium on Nickel Electrodes Used as Urea Oxidation Electrocatalysts
A. Miller, M. Muthuvel, and G. Botte

1599 Anode Processes on Carbon in Chloride-Oxide Melts
R. Tunold, G. Haarberg, K. Osen, A. Martinez, and E. Sandnes

1600 Comments on the Parasitic Copper Deposition during Cathodic Reduction in Copper Chloride Thermo-Chemical Cycle
M. Reda

1601 The Damköhler Number and the Koutecky-Levich Plots as Indicators for the Efficiency of an Electrochemical Process Applied to Copper Chloride (C_uC_l) Thermo-Chemical Cycle for Hydrogen Reduction
M. Reda

1602 Effect of Sonication on via Filling Behavior for Copper Metallization in Electronics Packaging
R. Manu, S. Sobha Jayakrishnan, and S. Boopathi

1603 Optimal Design of Electrode Properties for Li-Ion Batteries Using Physics-Based Efficient Reformulated Models
V. Ramadesigan, R. Braatz, G. Sikha, and V. Subramanian

1604 Dissolution Study of Orpiment (As_2S_3)in Alkaline Solution
A. Khodadadi Darban, M. Aazami, A. Meléndez, M. Abdollahy, and I. Gonzalez

1605 Nitrate Removal by a Paired Electrolysis Process
D. Reyter, D. Bélanger, and L. Roue

1606 Electrochemical-pH-Switchable Polymer Film for Treatment of Metallic Ion Aqueous Waste: From Fundamental Study to Semi-Pilot Industrial Applications
X. Le, P. Viel, and S. Palacin

1607 Novel Near-Infrared Electrochromic Aramids Based on Electroactive Para-Phenylenediamine-Substituted Triphenylamine and Diphenylamine Derivatives
L. Huang, H. Yen, and G. Liou

1608 Crystallization Paths in $CaO-Al_2O_3-SiO_2$ System
V. Lutsyk and A. Zelenaya

1609 Adsorption and Desorption Behavior of Organic Molecules on Silicon Wafer Surface
S. Tlili, S. Gligorovski, B. Temime-Roussel, and H. Wortham

1610 Catalytic Activity of Transition Metal Compounds for Oxygen Evolution Reaction in Sulfuric Acid
K. Matsuzawa, K. Yamauchi, K. Nozawa, R. Koike, M. Aihara, S. Mitsushima, and K. Ota

1611 Evaluation and Modeling of a Photo-Electrochemical Reactor for Hydrogen Production Operating under High Photon Flux
C. Ong, S. Dennison, G. Kelsall, and K. Hellgardt

1612 Evaluation of Catalyst Support Materials for Ammonia Electrolysis
M. Muthuvel and G. Botte

1613 Modification and Formation Control of Anodic Aluminum Oxide (AAO) Nano-Templates Synthesized in Oxalic Acid Solution
M. Soltani, M. Paydar, M. Moradi, F. Behzadi, F. Homayoon-nia, and M. Noormohammadi

1614 Fabrication of Doped Tin Oxide Electrode for Electrochemical Generation of Ozone
B. Wang and K. Chan

1615 Increase in Efficiency of Electrolytic Process of Zirconium Production
V. Bezumov, A. Kabanov, N. Matyushkin, and A. Dunaev

1616 Behavior of Soluble and Insoluble Anodes in Cu Electroplating
Y. Lee, H. Ju, S. Rha, S. Lee, B. Kang, and Y. Lee

1617 Pretreatments for Clean Cu Seed Layer in Electroplating
H. Ju, Y. Lee, Y. Lee, S. Lee, B. Kang, and S. Rha

1618 A Spectroscopic Study of 4-Phenyl-3-Buten-2-One Dissolved in an Electroplating Zinc Bath
S. Gama, C. Fraustro-Reyes, G. Trejo-Cordova, Y. Meas, and G. Orozco

1619 A Combined Experimental and Numerical Study on Flow Field Performance
J. Scarfo, N. Yacovone, J. Powers, I. Alexander, C. Grice, P. Kleszyk, B. Gurau, M. Taslim, and E. Smotkin

1620 A Variational Multiscale Model for the Numerical Simulation of Electrochemical Systems
G. Bauer, V. Gravemeier, and W. Wall

1621 A Three-Dimensional Lithium-Ion Battery Model that Includes Thermal, Electrical and Electrochemical Behavior: I. Model Description and Validation
J. Christensen, P. Albertus, and D. Cook

1622 A Three-Dimensional Lithium-Ion Battery Model that Includes Thermal, Electrical and Electrochemical Behavior: II. The Effects of Electric Potential and Thermal Variations on Cell Aging
J. Christensen, P. Albertus, and D. Cook

1623 Global Sensitivity Assessment and Optimization of $LiMn_2O_4$ Electrode Properties in a Surrogate-Based Framework
W. Du, A. Gupta, X. Zhang, A. Sastry, and W. Shyy

1624 Dynamic Optimization for Maximization of Energy Storage and Minimization of Capacity Fade
V. Ramadesigan, R. Methekar, R. Braatz, and V. Subramanian

1625 Hybrid Atomistic Modeling of the Interface between Pt catalysts and Nafion Electrolyte
X. Zhou, X. Zhou, and H. Liu

1626 Electric Field Influence on Li^+ Ion Transport through Phase-Change $LiFePO_4/FePO_4$ Particles
E. Kalu, S. Pannala, P. Mukherjee, J. Nanda, S. Martha, N. Dudney, S. Allu, and J. Turner

1627 A Multiscale Mechanistic Model for the Transient Analysis of PEM Water Electrolyzers
A. Franco, L. Lopes Oliveira, C. Jallut, E. Mayousse, and N. Guillet

G2 - Characterization of Porous Materials 3

Energy Technology / Physical and Analytical Electrochemistry / Industrial Electrochemistry and Electrochemical Engineering

1628 Heterogeneous through Plane Porosity Distributions of MPL Treated GDLs
Z. Fishman and A. Bazylak

1629 Lattice Boltzmann Modeling of the Effective Thermal Conductivity of an Anisotropic Gas Diffusion Layer in a Polymer Electrolyte Membrane Fuel Cell
J. Yablecki and A. Bazylak

1630 3D Visualization of PEMFC Electrode Structures Using FIB Nanotomography
S. Zils, M. Timpel, T. Arlt, A. Wolz, I. Manke, and C. Roth

1631 Investigation of PEM Fuel Cell Transport Material Flooding and Microstructure with Synchrotron Radiography
J. Hinebaugh and A. Bazylak

1632 Conductometric Analysis for the Formation of Poly(Vinylidene Fluoride)-Based Ion Track Membranes
T. Yamaki, N. Nuryanthi, H. Koshikawa, M. Asano, S. Sawada, S. Hasegawa, Y. Maekawa, K. Voss, C. Trautmann, and R. Neumann

1633 Testing the Puncture Resistance of Li-Ion Battery Separators through Nanoindentation
I. Halalay, M. Lukitsch, M. Balogh, and C. Curtis A. Wong

1634 A Comparative Study of the Performance of Ultra-Porous Membranes as Separators in Supercapacitor Devices
A. Laforgue and L. Robitaille

1635 In situ Measurements of Potential, Current, and Charging Rate across an Ultracapacitor Electrode
K. Hess, J. Whitacre, and S. Litster

1636 Charging Performance of Carbon Aerogel Electrodes with Hierarchical Porosity for Water Desalination and Energy Storage Applications
M. Suss, J. Santiago, T. Jaramillo, T. Baumann, M. Stadermann, and K. Rose

1637 In situ 3D Imaging and Characterization of Nano-Structures with X-ray Nano-CT Technique
Y. Wang, Y. Chen, and W. Chiu

1638 Lattice Boltzmann Simulation of Supercritical Carbon Dioxide in Brine-Saturated Underground Porous Media
A. Ebrahimi Khabbazi, J. Ellis, and A. Bazylak

1639 Characterization of Supercritical Carbon Dioxide Transport within a Brine-Filled Porous Media Using a Two-Phase Pore Network Model
J. Ellis, A. Ebrahimi Khabbazi, and A. Bazylak

1640 Desalination Shocks and Overlimiting Current in Microstructures
A. Mani, E. Dydek, D. Deng, B. Zaltzman, I. Rubinstein, and M. Bazant

1641 Defects Origin on Epitaxial Silicon Layer on a Double-Porous Silicon Layer
E. Arbaoui, J. Hartmann, F. Gonzatti, L. Clement, and A. Halimaoui

G3 - Electrosynthesis and Electrochemical Processes, in Honor of W. Ves Childs

Industrial Electrochemistry and Electrochemical Engineering / Physical and Analytical Electrochemistry

1642 Determination of Kinetic and Thermodynamical Parameters of Cd^{+2} with $OC(NH_2)_2$, $OS(CH_3)_2$ and $C_6H_5NH_2$ Ligands in Quasi-Reversible Systems
L. Zare Haghighi, S. Seyed Sadjadi, and S. Milani

1643 Role of Deposition Potential on the Optical Properties of SnSSe Thin Films
T. Mahalingam, V. Dhanasekaran, G. Ravi, R. Chandramohan, A. Kathalingam, and J. Rhee

1644 Isothermal Microcalorimetry Applied to Li Battery Electrolyte Stability
L. Krause and L. Jensen

1645 Technological Implications of Active Dissolution Passivation and Electrocatalytic Behavior of Nickel in Fluoride Media
N. Michael

1646 Reversible NAD/NADH Electrocatalysts
R. Arechederra, P. Addo, and S. Minteer

1647 Magnetic Effects on Electron Transfer Kinetics
H. Lee, S. Minteer, and J. Leddy

1648 Electrochemistry within Lyotropic Liquid Crystal Nanostructures
J. Halls and J. Wadhawan

1649 Electron Transfer Relays and Electro-Induced Bond Rupture within Modified Electrodes
J. Halls and J. Wadhawan

1650 The Electrochemical Oxidation of Hydroxylamine on the Low Index Faces of Gold Single Crystals in Aqueous Electrolytes
A. Jacob Jebaraj and D. Scherson

1651 Microbial Electrosynthesis: Converting Carbon Dioxide Directly to Butanol and Other Organic Compounds
P. Tremblay, K. Nevin, C. Leang, S. Hensley, M. Aklujkar, and D. Lovley

1652 Electrochemical Synthesis of Green Rust and Its Modified Form Developed for Wastewater Treatment in Remote Areas
J. Gomes, M. Haider, G. Irwin, P. Bernazzani, and D. Cocke

1653 Electro-Assisted Assembly of Aliphatic Thiol, Dithiol and Dithiocarboxylic Acid Monolayers on Polycrystalline Copper Substrates
A. Maho, J. Denayer, J. Delhalle, and Z. Mekhalif

1654 Ir-Ru Supported Electrocatalysts for Oxygen Evolution Reaction in a PEM Water Electrolyzer
R. Fuentes, S. Rau, T. Smolinka, and J. Weidner

1655 Liquid Fuels Extracted from Coal after the Electrolysis to Produce Hydrogen
A. Valenzuela-Muñiz and G. Botte

1656 Gas-Phase Hybrid Sulfur Electrolyzer Stack
J. Staser, C. McPheeters, and S. Stone

1657 Hydrogen-Bromine Flow Battery for Renewable Energy Storage
T. Nguyen

1658 Development of Gas-phase H_2-Br_2 Flow Battery
R. Zhang and J. Weidner

1659 Toward On-Chip Processes Using Redox-Magnetohydrodynamic Microfluidics without Channels
V. Sahore, C. Nash, M. Weston, M. Gerner, and I. Fritsch

H1 - Electron Transfer and Applications of Fullerenes and Nanostructured Materials

Fullerenes, Nanotubes, and Carbon Nanostructures

1660 Towards Tunable Graphene / Phthalocyanine-PPV Hybrid Systems
D. Guldi

1661 Synthesis and Photoinduced Electron Transfer Dynamics in Mechanically Linked Porphyrin-[60]Fullerene Systems with Interlocked Topologies
D. Schuster, J. Megiatto, D. Guldi, S. Wolfrum, and G. de Miguel

1662 Electron Tunneling and Hopping in Fullerene-Based Donor-Acceptor Compounds in Solutions and Solid Films
N. Tkachenko, K. Stranius, H. Saarenpää, A. Efimov, and H. Lemmetyinen

1663 Single- and Multi-Walled Carbon Nanotubes Covalently Linked to Perylenebisimides
A. Sastre-Santos, R. Martin, F. Céspedes-Guirao, M. de Miguel, F. Fernandez-Lázaro, and H. García

1664 Long Distance Photoinduced Electron Transfer in Oligomeric Porphyrin-[60]Fullerene Dyads with Triazole-Based Conjugated Linkers
E. McCord and D. Schuster

1665 Photoinduced Processes of the Supramolecularly Functionalized Semi-Conductive SWNTs with Porphyrins
F. D'Souza, S. Das, N. Subbaiyan, A. Sandanayaka, T. Hasobe, and O. Ito

1666 Photo-Physical Properties of Simple and Double Strand Multi-Porphyrinic Polypeptides
N. Solladie

1667 Endohedral Electrochemistry: New Directions in Metal Nitride Cluster Fullerenes
L. Dunsch, S. Yang, L. Zhang, A. Svitova, and A. Popov

1668 Electrochemical Transfer Doping of Carbon Nanotubes, Graphene and Other Semiconductors
V. Chakrapani, J. Angus, A. Anderson, and G. Sumanasekera

1669 Controlling Inter-Fullerene Electronic Interactions in the Solid and Using Them to Store Information
D. Bassani

1670 Fine-Tuning Redox Properties of Perfluoroalkylated Fullerenes: Playing with Perfluoroalkyl Groups and Addition Motifs
A. Popov, N. Shustova, I. Kuvychko, J. Whitaker, B. Larson, O. Boltalina, S. Strauss, and L. Dunsch

1671 Metallofullerenes M_nC_{60} (M = Pt, Pd) as Catalysts for PEM fuel-Cell Electrodes
G. Krosnicki, N. Guillet, O. Lemaire, L. Guetaz, A. Al-Mayouf, and D. Felder-Flesch

1672 Donor-π-Acceptor Double-Cable Polythiophenes Bearing Fullerene Pendant with Tunable Donor/Acceptor Ratio: A Facile Postpolymerization
M. Li, P. Xu, J. Yang, and S. Yang

1673 Effect of Purification of Carbon Nanotubes on Their Electrocatalytic Properties for ORR in Acid Solution
I. Kruusenberg, N. Alexeyeva, J. Kozlova, V. Sammelselg, and K. Tammeveski

1674 Effect of Thermally Evaporated Bis (2-methyl-8-quninolinato)-4-Phenylphenolate Cathode Buffer Layer on Performance of Polymer Photovoltaic Cells
D. Kim, Z. Wang, J. Kim, K. Ku, G. Lee, and J. Park

H2 - Molecular and Supramolecular Chemistry of Fullerenes and Carbon Nanotubes

Fullerenes, Nanotubes, and Carbon Nanostructures

1675 Photoactive Carbon Nanotube-Based Composites
H. Imahori

1676 Fullerenes, Carbon Nanotubes and Graphene: What Was New and What Have We Learned
R. Haddon

1677 Hierarchical Selectivity in Fullerenes: Site, Regio, Diastereo and Enantio Control in the 1,3-Dipolar Cycloaddition to [70]Fullerene
E. Maroto, S. Filippone, A. Martín-Domenech, M. Suarez, and N. Martin

1678 New Concepts in Receptors for Fullerenes
N. Martin

1679 Customization of Acceptor Materials to Match the Electronic and Physical Properties of Donor Polymers in Organic Photovoltaic Systems
C. Cardona, B. Swain, J. Wall, and S. Joslin

1680 Regioselectivity in High-Temperature Additions to Fullerenes
O. Boltalina, I. Kuvychko, J. Whitaker, B. Larson, T. Folsom, and S. Strauss

1681 Selective Derivatization of Perfluoroalkylfullerenes
S. Strauss, J. Whitaker, B. Larson, I. Kuvychko, and O. Boltalina

1682 Nanocarbon Assemblies for Photovoltaics
Y. Shen and T. Nakanishi

1683 Click Chemistry with Fullerene Hexa-adducts
J. Nierengarten

1684 Clicked Fullerene-Porphyrin Conjugates
M. Vartanian and J. Nierengarten

1685 Synthesis of [60]Fullerene-Fused Lactones
F. Li, B. Zhu, and G. Wang

1686 Supramolecular Cross-Linking of C_{60}-Grafted Polyphenylacetylene Driven by Molecular Recognition
T. Haino

1687 A New CNH-C_{60} Hybrid: Synthesis and Properties
M. Vizuete, M. Gómez-Escalonilla, J. Garcia Fierro, J. Nierengarten, M. Yudasaka, S. Iijima, and F. Langa

1688 Functionalized Peapods
N. Tagmatarchis

1689 Mild Methods in the Selective Functionalization of Fullerenes
M. Izquierdo, S. Filippone, and N. Martin

1690 Mass Spectrometry Study of Retro-Cycloaddition Reactions in Fullerene Cycloadducts
R. Martinez, S. Filippone, A. Martín-Domenech, E. Maroto, J. Delgado, and N. Martin

1691 Encapsulation of Fullerenes into Non-Covalent Subphthalocyanine Supramolecular Assemblies
C. Claessens, I. Sánchez-Molina, A. Medina, G. Zango, M. Ince , M. Martínez-Díaz, J. Fernandez Ariza, J. Guilleme, D. Guldi, and T. Torres

1692 Supramolecular (2,5,7-Trinitrofluorene)-C60/Tetrathiafulvalene-Calix[4]Pyrrole Systems
L. Martin-Gomis, K. Nielsen, F. Fernandez-Lázaro, J. Jeppesen, and A. Sastre-Santos

H3 - Carbon Nanotubes and Nanostructures: Fundamental Properties and Processes

Fullerenes, Nanotubes, and Carbon Nanostructures

1693 (Invited) Compositionally-Tuned Bimetallic Nanocatalysts and Their Influence on the Chirality of As-Grown SWCNTs
R. Sankaran

1694 (Invited) Towards Chiral-Control Growth of Single Walled Carbon Nanotubes: Correlation between Catalyst Structure and Chirality of the Tubes
G. Chen, T. Paronyan, E. Pigos, E. Stach, and A. Harutyunyan

1695 (Invited) Design, Synthesis and Properties of Nanostructured Carbon
C. Nuckolls

1696 (Invited) Purification of Single-Chirality Metallic Carbon Nanotubes by DNA
X. Tu, A. Hight Walker, and M. Zheng

1697 Fundamentals and Applications of Monodisperse Carbon Nanomaterials
M. Hersam

1698 (Invited) Advances in Graphene Chemistry
R. Haddon

1699 (Invited) Diameter-Based Separation of Single-Walled Carbon Nanotubes with Dipyrene Nanotweezers
N. Komatsu

1700 (Invited) Understanding the Selective Retention of Semiconducting SWCNTs onto Agarose
C. Silvera Batista, S. McLeod, D. Scott, and K. Ziegler

1701 (Invited) Semiconducting Zig-Zag Bundles: Preparation and Properties
M. Kappes

1702 (Invited) Performance of Type-Separated Single-Walled Carbon Nanotubes in Photovoltaic Blends
J. Blackburn, J. Holt, A. Ferguson, N. Kopidakis, and G. Rumbles

1703 Diameter and Chiral Selective Purification of SWNT and DWNT Using CO_2
P. Gagnon, M. Biron, E. Flahaut, P. Desjardins, and R. Martel

1704 (Invited) Characterization of the Chirality Distribution of a Dispersed SWCNT Sample
J. Fagan

1705 (Invited) Measuring SWCNT Length Distributions from Imaged Brownian Motion
R. Weisman, J. Streit, D. Tsyboulski, and S. Bachilo

1706 (Invited) Spectroscopy of Metallic Single-Walled Carbon Nanotubes
E. Haroz, T. Searles, L. Ren, and J. Kono

1707 (Invited) Highly Luminescent Nanotube/Silica Gel Composites: Interfacial Behavior and Optical Properties
S. Doorn, J. Duque, G. Gupta, A. Dattelbaum, C. Hamilton, and K. Obrey

1708 (Invited) Nonlinear Optical Properties of Graphene
B. Zhao and W. Zhao

1709 (Invited) Oxygen Doping Modifies near Infrared Band Gaps in Fluorescent Single-Walled Carbon Nanotubes
S. Ghosh, S. Bachilo, R. Simonette, K. Beckingham, and R. Weisman

1710 A New Look on SWCNT Electronic Levels and Their Modifications
S. Bachilo, S. Ghosh, and R. Weisman

1711 (Invited) Multiple Exciton Generation and Fluorescence Brightening in Single-Walled Carbon Nanotubes
X. Wang, A. Lee, L. Carlson, J. Smyder, and T. Krauss

1712 (Invited) Why Are Fluorescence Quantum Yields of Single-Wall Carbon Nanotubes So Low
T. Hertel, S. Himmelein, T. Ackermann, D. Stich, and J. Crochet

1713 (Invited) Fluorescence from Molecules Encapsulated inside Carbon Nanotubes
T. Okazaki

1714 (Invited) Energy Structures of Excitons and Trions in Single-Walled Carbon Nanotubes
R. Matsunaga and Y. Kanemitsu

1715 (Invited) Optical Imaging and Spectroscopy of Carbon Nanotubes Grown by Chemical Vapor Deposition
P. Finnie, A. Li-Pook-Than, P. Vinten, P. Marshall, and J. Lefebvre

1716 (Invited) Probing Localized Excitons and Band Gap States in Single-Walled Carbon Nanotubes
J. Lee

1717 (Invited) Metal-Nanowires in Carbon Nanotubes
H. Shinohara

1718 Electroreduction of Oxygen on Nitrogen-Doped Carbon Nanotube Modified Electrodes
N. Alexeyeva, E. Shulga, V. Kisand, I. Kink, and K. Tammeveski

1719 Synthesis and Characterization of Carbon Nanotube Electrodes Grown by Thermal CVD
C. Smart, M. Pearce, S. Oh, R. Hudson, A. Alles, and S. Belli

1720 High-Throughput Fabrication of Functionalized Carbon Nanostructures for DNA Detection
V. Penmatsa, H. Kawarada, and C. Wang

1721 Multiwall CVD Carbon Nanotubes as Insulated Nanowires
S. Belli, S. Oh, S. Kaur, M. Pearce, and C. Smart

1722 Polyoxometalates Modified Carbon Nanotubes for Electrochemical Capacitors
T. Akter, K. Hu, and K. Lian

1723 Structural and Electronic Properties of Graphene Supported on Amorphous SiO_2: A First Principles Study
K. Kweon and G. Hwang

1724 Copper Sulfide Nanowires Electrodeposition; Method and Mechanism
A. Ghahremaninezhad, E. Asselin, and D. Dixon

1725 Anchoring Gold Nanoparticles to Gold Surfaces through Nitroxyl Radicals
R. Bilewicz, O. Swiech, N. Hrynkiewicz-Sudnik, B. Palys, and A. Kaim

1726 Rippling in Vertically Aligned Carbon Nanotube Forests Grown by Chemical Vapor Deposition
P. Vinten, J. Bond, P. Marshall, J. Lefebvre, and P. Finnie

H4 - Carbon Nanotubes and Nanostructures: Applications and Devices

Fullerenes, Nanotubes, and Carbon Nanostructures / Sensor

1727 (Invited) Microfluidic Control over Single-Wall Carbon Nanotube Environments
T. Hertel, F. Bergler, and F. Schöppler

1728 (Invited) Tracking and Imaging of High Brightness Colloidal Carbon Nanotubes for Hydrodynamic Investigations
J. Crochet, J. Duque, J. Werner, and S. Doorn

1729 (Invited) Resonance Raman Spectroscopy of Separated SWCNTs
J. Simpson, J. Fagan, X. Tu, M. Zheng, and A. Hight Walker

1730 (Invited) Imaging and Spectroscopy of Carbon Nanotubes and Polycrystalline Graphene
J. Park

1731 (Invited) Sensing with Excitons in Single Walled Carbon Nanotubes
J. Lefebvre and P. Finnie

1732 Evaluation Model of Emitter Roughness Impact Responsible for Diamond Based Cold Emitter IV Characteristics Aberration
D. Kartashov, A. Krasnikov, I. Matyushkin, S. Orlov, S. Yanovich, and N. Zaytsev

1751 Transparent Conducting Electrodes Made from Networks of Single-Walled Carbon Nanotubes for Organic Photovoltaics
J. Blackburn, B. Larsen, J. Bergeson, K. Mistry, M. Reese, J. Holt, and T. Barnes

1752 High-Performance Dye-Sensitized Solar Cells with Gel-Coated Binder-Free Single-Walled Carbon Nanotube Films as Counter Electrode
X. Mei, S. Cho, and J. Ouyang

1753 Light Emission in Electrically Excited Carbon Canotubes
E. Adam, B. Cardin St-Antoine, P. Levesque, M. Paillet, D. Ménard, and R. Martel

1754 Single Wall Carbon Nanotubes as Transparent Cathode Electrodes for OLED Applications
Y. Chien, F. Lefevre, I. Shih, and R. Izquierdo

1755 (Invited) Periodic Buckling as Predominant Deformation Mechanism in Carbon Nanotube Foams as Revealed by In situ Uniaxial Compression Experiments and Modeling
S. Hutchens, A. Needleman, and J. Greer

1756 (Invited) Carbon Nanotube Photon Filter for Energetic Particle Detectors
S. Papadakis, D. Deglau, A. Monica, B. Andrews, and D. Mitchell

1757 Single Carbon Nanotube Based Devices for Atto-Liter Studies
R. Singhal, J. Niu, Z. Orynbayeva, M. Schrlau, G. Friedman, and Y. Gogotsi

1758 Directly Grown Vertically Aligned Single-Walled CNTs on Conducting Substrate as Electrode Material for Electrochemical Capacitor
M. Asyadi Azam, A. Fujiwara, and T. Shimoda

1759 Pt Based Nanocomposites for Direct Glucose Determination
B. Singh, T. McCormac, and E. Dempsey

1760 Development of Hybrid Organic-Inorganic Materials for Efficient Charging/Discharging in Electrochemical and Photoelectrochemical Capacitors
M. Skunik and P. Kulesza

1761 Field Ionization Based Gas Sensor Applying a Novel Three Dimensional Carbon Nanostructures
S. Darbari, Y. Abdi, and S. Mohajerzadeh

H5 - Endofullerenes and Carbon Nanocapsules

Fullerenes, Nanotubes, and Carbon Nanostructures

1762 Thermal and Redox Stabilities of Endohedral Metallofullerene Derivatives
L. Echegoyen, N. Chen, F. Li, A. Balch, M. Olmstead, and B. Mercado

1763 New Insights from Quantum Chemical Molecular Dynamics Simulations on the Formation Mechanism of Metallofullerenes
Y. Nishimoto, B. Finck, Z. Wang, K. Morokuma, and S. Irle

1764 Recent Crystallographic Studies of Endohedral Fullerenes
A. Balch, M. Olmstead, B. Mercado, C. Beavers, and F. Bowles

1765 The Role that Internal Metals Play in Endohedral Metallofullerenes
X. Lu, H. Nikawa, N. Mizorogi, Z. Slanina, T. Akasaka, and S. Nagase

1766 A Family of Metallic Oxide Clusters Encapsulated in Fullerene Cages
S. Stevenson

1767 Large Ions in Mixed Metal Nitride Clusters: Gadolinium, Thulium, and Holmium
A. Svitova, A. Popov, S. Yang, L. Zhang, and L. Dunsch

1768 Thermal Properties of Non-IPR Fullerene Solids and their Reactivity with C2
M. Kappes

1769 Magnetism of Co_{13} Cluster Embedded into Fullerenes of Different Size and Form
P. Tereshchuk and A. Kuznetsov

1770 Electronic Properties of Endohedral Fullerenes $M_2(C_2)@C_{82}$:
Comparison between DFT and DFTB
Y. Nishimoto and S. Irle

1771 Further Exploration in Oxometallic Fullerenes and Metallic Nitride Fullerenes
M. Mackey and S. Stevenson

1772 Taming the Chemistry of Endohedral Fullerenes for Nanoelectronics
K. Porfyrakis

1773 Metal Exchange of a Trimetallic Nitride Templated Endohedral Metallofullerene:
A Computational Study of a Metathesis Reaction
T. Fuhrer and H. Dorn

1774 STM/STS Studies on the Local Electronic Structure of Metallofullerene-Peapods
H. Shinohara

1775 One-Dimensional Molecular Crystals Produced in Carbon Nanotubes
T. Okazaki

1776 Cluster Dynamics inside Icosahedral C_{80} Cages
H. Dorn

1777 Guanidinium Salt as a Selective Organic Solid for the Facile Synthesis of Metal Nitride Clusterfullerenes
S. Yang, L. Zhang, W. Zhang, and L. Dunsch

H7 - Carbon Nanotubes and Nanostructures: Medicine and Biology

Fullerenes, Nanotubes, and Carbon Nanostructures / Sensor

1779 Optically Pure Fullerodendron Formed by Diastereoselective Diels-Alder Reaction
Y. Takaguchi, N. Takahashi, N. Tsugawa, and T. Tajima

1780 Molecular Interactions of an Anti-Inflammatory Fullerene Derivative in Serum and Immune Effector Cells
A. Dellinger, Z. Zhou, D. MacFarland, and C. Kepley

1781 Structure and Properties of IPR and Non-IPR Endohedral Metallofullerenes
A. Rodríguez-Fortea, N. Alegret, X. Aparicio-Anglès, M. Mulet, and J. Poblet

1782 Erbium Photoluminescence in $Er_2C_2@C_{82}$ and $Er_2@C_{82}$ Elucidated by Density Functional Theory
J. Wang and S. Irle

1783 Relative Populations for the Lanthanoid L@C74 Endohedrals
Z. Slanina, T. Akasaka, and S. Nagase

1784 Molecular and Spin Dynamics of Pristine and Charged Endohedral Metallofullerenes and the Impact of Dynamics on the Spectroscopic Properties
A. Popov and L. Dunsch

1785 (Invited) Toxicity Studies on Carbon Nanotubes: State of the Art
J. Kolosnjaj and F. Moussa

1786 (Invited) Biomedical Applications of Covalently Functionalized and Dispersed Single Wall Carbon Nanotubes
D. Scheinberg, M. McDevitt, C. Villa, R. Bowman, and J. Mulvey

1787 (Invited) A Novel Single Wall Carbon Nanotube-Enhanced Biophysical Strategy for Integrated Imaging and Therapy in Bone Tissue Engineering
B. Sitharaman

1788 (Invited) Ultra-Short Single-Walled Carbon Nanotubes (US-Tubes) as "Smart" Delivery Nanocapsules for Chemotherapeutics
A. Guven, I. Rusakova, and L. Wilson

1789 (Invited) Noninvasive Radiofrequency (RF) Field Heating of Metallic and Semiconducting Nanoparticles
S. Curley

1790 Preparation of Fluorescent Diamond Nanoparticles Stably Dispersed under Physiological Environment through Multi-Step Organic Transformations
N. Komatsu and T. Takimoto

1791 (Invited) $C_{60}O$: A Vital Component of Aqueous Fullerene Colloids
S. Kuriyavar, J. Damron, R. Maples, M. Hilburn, B. Murdianti, and K. Ausman

1792 (Invited) Fulleropyrrolidines as Drug Vectors
C. Fabbro, A. Montellano Lopez, M. Carini, M. Prato, and T. Da Ros

1793 (Invited) Polysaccharides and Glycoproteins Complexes with Nanomaterials
B. Belgorodsky, E. Drug, L. Fadeev, N. Hendler, E. Mentovich, S. Richter, and M. Gozin

H8 - Porphyrins and Supramolecular Assemblies

Fullerenes, Nanotubes, and Carbon Nanostructures

1794 Bis-Porphyrinic Tweezers for the Molecular Recognition of Bidentate Bases of Various Sizes: Towards the Purification of Polluted Effluents
R. Rein and N. Solladie

1795 (Invited) Phthalocyanine-Based Systems for Molecular Photovoltaics
T. Torres, F. Setaro, J. Suanzes, E. Anaya-Plaza, A. Hassanpour, M. Medel, M. Sanchez-Carballo, C. Ruiz-Ganivet, F. Cardinali, M. Urbani, M. Ragoussi, S. Osati, L. Sánchez-Contreras, O. Trukhina, and D. Guldi

1796 (Invited) Porphyrins and Phthalocyanines for Dye-Sensitized Solar Cells
H. Imahori

1797 (Invited) Electroreduction and Protonation or Deprotonation of Dipyrrolylquinoxalines
K. Kadish, Z. Fu, J. Sessler, E. Karnas, S. Fukuzumi, and K. Ohkubo

1798 (Invited) Supramolecular Photoinduced Electron Transfer via Formation of π-Complexes
S. Fukuzumi

1799 (Invited) Azadipyrromethene - Porphyrin - Fullerene Triad: Synthesis and Photoinduced Processes
F. D'Souza, A. Amin, M. Zandler, M. El-Khouly, and S. Fukuzumi

1800 (Invited) Activating Multistep Charge-Transfer Processes in Fullerene-Subphthalocyanine-Ferrocene Molecular Hybrids as a Function of π-π Orbital Overlap
D. Guldi

1801 (Invited) A 2-D Interactive Affair between Excited Porphyrin and Graphene Oxide
P. Kamat and A. Wojcik

1802 (Invited) Non-Planar Porphyrin-Dendrimer: Observation of Porphyrin Monocation
S. Vinogradov, S. Thyagarajan, T. Leiding, S. Peterson-Årsköld, and A. Cheprakov

1803 Multicomponent Alkylthiol Self-Assembled Monolayers Formed by Electrochemical Co-Adsorption
L. Lee, B. Pietrobon, and R. Lennox

1804 Metalloporphyrin-Conducting Polymer Oxygen Reduction Electrocatalysts with Full π-Electron Delocalization
T. Boinski, W. Tokarz, and P. Piela

1805 Cyanide-Treated Fe(III) Porphyrins as an Electrocatalytic Material for Selective H_2S Oxidation
J. Bennett, M. Neiswonger, J. Pander III, and S. McKinney

1806 (Invited) Carbon Nanotubes as Transducers for Metalloporphyrins Based Chemical Sensors
C. Di Natale, M. Penza, and R. Paolesse

1807 (Invited) Application of Chiral Supramolecular Systems and Chiral Materials
V. Borovkov, T. Kizawa, T. Osawa, S. Ikeda, T. Kitamura, and Y. Inoue

1808 (Invited) Binary Ionic Porphyrin Nanomaterials: A New Approach to Artificial Photosynthesis
J. Shelnutt

1809 (Invited) Construction of Multi-Porphyrin Arrays via Pd-Catalyzed Coupling Reactions
N. Aratani, J. Song, H. Shinokubo, and A. Osuka

1810 (Invited) Synthesis of Unsymmetrically Meso-Substituted Porphyrins
M. Senge

1811 (Invited) Polypeptides with Functionalized Pendant Porphyrins for Self-Assembling Processes and the Elaboration of Novel Type of Glues
N. Solladie

1812 (Invited) Redox Active Metallocorroles for Catalytic Decomposition of Cytotoxic Oxygen and Nitrogen Species
A. Mahammed, I. Saltsman, A. Haber, Z. Okun, and Z. Gross

1813 (Invited) Synthesis and Spectroscopy of π-Expanded Porphyrins
D. Gryko, A. Nowak-Król, and J. Lewtak

1814 (Invited) Chiral Binaphthyl Porphyrins: Synthesis, Catalysis and NMR Conformational Studies
E. Rose, E. Gallo, F. Rose-Munch, and O. Lequin

1815 (Invited) Supramolecular Assemblies of Functionalized Corroles
D. Monti, S. Nardis, G. Pomarico, F. Mandoj, M. Stefanelli, C. Di Natale, and R. Paolesse

H9 - Nanostructures for Energy Conversion

Fullerenes, Nanotubes, and Carbon Nanostructures / Energy Technology

1816 Photocatalytic Reduction of CO_2: Probing Structure of Photocatalysts and Mechanism of CO_2 Transformation
N. Dimitrijevic, T. Rajh, B. Vijajan, and K. Gray

1817 Dye Sensitized Solar Cells with Enhanced Performance Using TiO_2 Nanotubes via Rational Surface Engineering
Z. Lin, J. Wang, X. Xin, M. Ye, and C. Lin

1818 Hybrid Materials Based on TiO_2 and Polyheptazines for Photochemical Solar Energy Conversion
L. Wang, A. Ramakrishnan, M. Bledowski, and R. Beranek

1838 Titanium Oxides-Based Multifunctional Nanostructures for Solar Energy Utilization
V. Subramanian

1839 Inorganic Nanowires: A Perspective about Their Role in Energy Conversion and Storage Applications
M. Sunkara, C. Pendyala, D. Cummins, P. Meduri, J. Jasinski, V. Kumar, H. Russell, E. Clark, and J. Kim

1840 Photovoltaic Energy Conversion at the Heterojunctions of C_{60} and Electrochemical Gradient Copolymers
B. Pate, B. Williams, J. Lloyd, D. Barofsky, M. Laframboise, and M. Hudspeth

1841 Fabrication of Nano Ag Particle with Spin Coating Method for Solar Cell Efficiency Enhancing through Plasmon Effect
S. Wu, W. Huang, Y. Chen, and J. Shieh

1842 Improved Solar Conversion Efficiency under Hole Size of TiO_2 Photoelectrode Surface
E. Jin, J. Wang, X. Zhao, A. Park, and H. Gu

1843 Efficient Dye Adsorption by Using ZrO_2 Nanofiber in Sensitized Nanocrystalline TiO_2 Photoelectrode
J. Wang, X. Zhao, E. Jin, and H. Gu

1844 Photoelectrochemical Properties of ZnO Nanorod Electrodes Sensitized with ZnS-$AgInS_2$ Solid Solution Nanoparticles
T. Sasamura, K. Okazaki, A. Kudo, S. Kuwabata, and T. Torimoto

1845 Efficiency Enhancement of Dye-Sensitized Solar Cell by Included Glass Powders
X. Zhao, A. Park, J. Wang, E. Jin, and H. Gu

1846 Synthesis of Sb Doped SnO_2 Nanowires for Application to Dye-Sensitized Solar Cells (DSSCs)
S. Park, D. Kim, C. Lee, S. Lee, H. Jung, and K. Hong

1847 Influence of NiO Layer as Hole Collector in Reducing Recombination in Dye-sensitized Solar Cells
A. Park, J. Wang, X. Zhao, E. Jin, and H. Gu

1848 Efficiency Enhancing of Dye-Sensitized Solar Cell Influenced by Phosphor Additives
X. Zhao, J. Wang, A. Park, E. Jin, and H. Gu

1849 Preparation and Electrochemical Properties of Several Types of Counter Electrodes for Dye-Sensitized Solar Cells
M. Le, P. Thi, and T. Pham

1850 Synthesis and Electrochemical Properties of Graphene-Based Nanocarbons for Energy Storage Applications
S. Park, H. Youn, and K. Kim

1851 Post-Annealing Effects of $CuInSe_2$ (CIS) Absorber Layer at Thin Film Solar Cells with Compound Semiconductor Prepared by Co-Sputtering Method
S. Seo, H. Kim, K. Bae, D. Kim, S. Sohn, H. Kim, and J. Hong

H10 - Chemistry and Physics of Graphene and 2D Nanostructures

Fullerenes, Nanotubes, and Carbon Nanostructures / Energy Technology

1852 Graphene and Metals: Interactions and Magnetism
J. Coraux

1870 Preparation and Characterization of a New $CuInS_2$/Graphene Composite Electrode, for Application in Electrochemical Solar Cells
H. Hayet Cherfouh, T. Chari, A. Guermoune, M. Siaj, and B. Marsan

I1 - Bioelectrocatalysis

Physical and Analytical Electrochemistry / Energy Technology

1871 A Glucose Biofuel Cell to Generate Electricity
B. Mecheri, A. Geracitano, A. D'Epifanio, C. de Bonis, and S. Licoccia

1872 Process Optimization for the Electroenzymatic Hydroxylation of 3-Phenoxytoluene Catalyzed by P450 BM-3 Mutant
G. Guven

1873 Alcohol Dehydrogenase Modification in L-Cysteine Monolayer on Palladium Surface Using Polymer
I. Feliciano and C. Cabrera

1874 Bioelectrocatalytic Generation of Code
G. Strack, H. Luckarift, E. Katz, and G. Johnson

1875 High Current Density Bioanodes Based on Linear Poly(ethylenimine) and Polymethylated Ferrocenes for Use in Biofuel Cells
D. Hickey, M. Meredith, D. Kao, D. Schmidtke, and D. Glatzhofer

1876 Bioelectrocatalysis in Redox Films for Biofuel Cells
D. Leech

1877 Direct Bio-Electrocatalysis of Oxygen Reduction Reaction
P. Atanassov, D. Ivnitski, C. Lau, H. Luckarift, R. Ramasamy, and G. Johnson

1878 Electrochemical Studies on Coupled Dicopper Enzymes for Bioelectrocatalysis
N. Parimi and R. Ramasamy

1879 DET and Bioelectrocatalytic Oxygen Reduction at Electrochemically Functionalized Carbon Nanotubes-Lc and BOx Composites
M. Moumene, D. Rochefort, and M. Mohamedi

1880 Development of Bioelectrocatalytic Multi-Component Films for Reduction of Oxygen and Hydrogen Peroxide
P. Kulesza, A. Dobrzeniecka, B. Kowalewska, M. Gierwatowska, and K. Miecznikowski

1881 Electrocatalytic Cycling of Hydrogen and Biological Cofactors NAD^+/NADH by Immobilized Enzyme Moieties
Z. Idris, J. Liu, L. Lauterbach, O. Lenz, and K. Vincent

1882 Toluidine Blue O Electrodeposited on Carbon Nanotube Modified Interface for High-Rate Electrocatalysis of NADH Oxidation
H. Li, H. Wen, and S. Calabrese Barton

1883 Carbon Nanotube Modified Microfiber Electrode as Support for Glucose Oxidation Bioanodes
H. Wen, V. Nallathambi, D. Chakraborty, and S. Calabrese Barton

1884 Developing a Complete Oxidation Direct Electron Transfer Enzymatic Glucose Biofuel Cell
S. Xu and S. Minteer

1885 Scanning Electrochemical Microscopy for Investigation of Multicomponent Bioelectrocatalytic Films
A. Dobrzeniecka, A. Zeradjanin, J. Masa, J. Stroka, W. Schuhmann, and P. Kulesza

1886 Development of Non-Platinum Conductive Mesoporous Catalyst as Renewable Materials for Alternative Fuel Cells
K. Sjoholm, M. Cooney, and S. Minteer

1887 Fabrication of Pt Nanoparticle Modified 3-D Cu Nanotube Array Electrode and Its Electro-Catalytical Activity towards H_2O_2
M. Jamal, M. Hasan, A. Mathewson, and K. Razeeb

1888 Enzyme Immobilized PPS-SWCNTs Composite Electrodes for Electrochemical Sensing and Biofuel Cell Applications
F. S. Saleh, T. Okajima, L. Mao, and T. Ohsaka

I3 - Computational Electrochemistry

Physical and Analytical Electrochemistry

1889 Multiscale Simulation of Proton Exchange Membranes
G. Voth

1890 A DFT Based Coupled Transport-Reaction Model for H_2 Fueled SOFC Model Anodes
D. Monder, K. Karan, M. Shishkin, and T. Ziegler

1891 Modeling Techniques for Optimization of 3D-Microbattery Architectures
V. Zadin, H. Kasemägi, A. Aabloo, and D. Brandell

1892 Towards an Understanding of Diffusion-Induced-Stresses and Fracture in Lithium Ion Battery Electrodes
Y. Cheng, M. Verbrugge, and R. Deshpande

1893 On the Effect of Functional Groups in Polymer Electrolyte Membranes for Fuel Cell Performance: Insights from Molecular Simulations
Y. CHOE, E. Tsuchida, T. Ohkubo, Y. Kim, and N. Henson

1894 Theoretical Study of Electrochemical Processes on Novel Platinum Group Metal Catalysts
I. Matanovic, F. Garzon, and N. Henson

1895 H_2S Interactions on CeO_2 (111) Surface from First-Principles
D. Marrocchelli and B. Yildiz

1896 Ab Initio Calculation of Redox Potentials in Transition Metal Complexes
S. Konezny, M. Doherty, G. Soloveichik, and V. Batista

1897 Modelling Solid Oxide Fuel Cell Electrochemistry in Three Dimensions
N. Brandon, C. Adjiman, Q. Cai, R. Clague, A. Marquis, K. Rhazaoui, and P. Shearing

1898 Theoretical Approach for Designing Polymer Electrolyte Fuel Cell Materials
M. Koyama, T. Ogura, and T. Ishimoto

1899 Towards a Thermodynamic Theory of Electrochemical Reactions in Aqueous Media: A DFT Study of the Intermediates of Oxygen Reduction
P. Biedermann and K. Flechtner

1900 Microsolvation and Proton Transfer in Highly Sulfonated Poly(phenylene sulfone) Ionomers
C. Wang and S. Paddison

1901 Atomistic Simulation of the Cathode-Electrolyte Interface in a Proton Exchange Membrane Fuel Cell
K. Yeh, M. Glasspool, M. Janik, and J. Maranas

1902 Continuum Models of Nafion Morphology
K. Promislow, N. Gavish, and A. Christlieb

I4 - Electrocatalysis 5

Physical and Analytical Electrochemistry

1921 Structure-Activity Relations in the Electrocatalytic Oxygen Evolution Reaction on Metals and Oxides
T. Reier, C. Ranjam, S. Wasle, M. Eiswirth, M. Behrens, R. Schloegl, and P. Strasser

1922 Surface Science and Electrocatalysis - Common Principles and Specific Aspects
R. Behm

1923 Enhancement of Electrocatalytic Reactivity of Noble Metal Nanoparticles by Assembling Them within Composite Nanostructured Gold - Metal Oxide Matrices
P. Kulesza, S. Zoladek, K. Skorupska, and I. Rutkowska

1924 Electrocatalysis on Well-Defined Solid-Liquid Interfaces
C. Wang, D. Strmcnik, D. Tripkovic, D. van der Vliet, N. Markovic, and V. Stamenkovic

1925 Elucidating the Ionomer-Metal Interface
I. Kendrick, D. Kumari, A. Yakaboski, N. Dimakis, and E. Smotkin

1926 Broadband Sum-Frequency Generation at Platinum−Electrolyte Interfaces: From Anion Adsorption to Electrocatalysis
B. Braunschweig, R. Kutz, P. Mukherjee, D. Dlott, and A. Wieckowski

1927 Electrocatalysis of Pd-Based Nanostructured Materials
S. Chen, B. Adams, and A. Chen

1928 On the Changes of the Electronic Structure of Platinum-Cobalt Nanoparticles by Surface Segregation and Their Correlation to the Oxygen Reduction Reaction
E. Ciapina and E. Ticianelli

1929 Multiscale Computational Study on the Electrocatalytic Activity of Pt(100) Surfaces and Its Implications for Nanoparticles
B. Han, V. Viswanathan, and H. Pitsch

1930 Development of Copper-1,2,4-Triazole Complexes as Highly Efficient Electrocatalysts for the Oxygen Reduction Reaction
R. Elgammal, G. Goenaga, A. Belapure, A. Papendrew, S. Foister, and T. Zawodzinski

1931 Electrocatalysis on Platinum Nanoparticles: Particle Size Effect on Oxygen Reduction Reaction Activity
M. Shao and A. Peles

1932 Microemulsion Templated Non-Platinum Electrocatalysts for Oxygen Reduction in Alkaline Media
W. Patterson, M. Robson, K. Artyushkova, P. Atanassov, K. Asazawa, and H. Tanaka

1933 New Multimetal Carbon Nitride-Based Nanostructured Electrocatalysts for the Oxygen Reduction Reaction from Polyketone-based Nanofiber Precursors
V. Di Noto, E. Negro, S. Lavina, K. Vezzù, and G. Cavinato

1934 Hydrogen Peroxide Synthesis by Oxygen Reduction on Metal Nanoparticles
M. Bayati, M. Halasa, and D. Schiffrin

1935 Oxygen Reduction on Nafion-Coated Thin-Film Palladium Electrodes in Acid and Alkaline Media
H. Erikson, A. Kasikov, C. Johans, K. Kontturi, K. Tammeveski, and A. Sarapuu

1936 ORR Activity and Methanol Tolerance of Carbon-Supported Pd Alloys - A Comparison with Pt Catalyst
M. Neergat and R. Rahul

1937 Development of Low-Temperature Non-Precious Metal Catalysts for Oxygen Reduction
L. Elbaz and P. Zelenay

1938 Effects of Catalyst Composition on Properties of Co-PPy-TsOH/C toward Oxygen Reduction
H. Kong, X. Yuan, X. Ding, and Z. Ma

1939 Catalytic Activity of Platinum Monolayer on Iridium and Rhenium Alloy Nanoparticles for Oxygen Reduction Reaction
H. Karan, K. Sasaki, and R. Adzic

1940 A Kinetic Study of Oxygen Reduction Reaction on a Carbon Alloy Catalyst
P. Wang, Y. Nabae, T. Okajima, M. Kakimoto, S. Miyata, and T. Ohsaka

1941 Tetrahedral Palladium Nanocrystals - A New Support of Platinum Monolayer Electrocatalysts Having Improving Activity and Stability in Oxygen Reduction Reaction
K. Gong, K. Sasaki, M. Vukmirovic, and R. Adzic

1942 Synthesis of Ligand-Modified Carbon Blacks for the Oxygen Reduction Reaction with Non-Precious Metals
S. Foister, R. Elgammal, A. Belapure, A. Prince, G. Goenaga, A. Papandrew, and T. Zawodzinski

1943 A Multiscale Kinetic Modeling Investigation of the ORR in a Pt(111) and $Pt_3Ni(111)$-Based PEMFC Cathode
R. Ferreira de Morais, D. Loffreda, P. Sautet, and A. Franco

1944 Electrochemical Characterization of Cu Triazole Complexes as Oxygen Reduction Reaction Catalysts for Proton Exchange Fuel Cells Applications
G. Goenaga, R. Elgammal, A. Papandrew, A. Belapure, S. Foister, and T. Zawodzinski

1945 Platinum Nanowire-Based Highly Active and Durable Electrocatalyst for PEM Fuel Cells
S. Sun, G. Zhang, R. Li, A. Sun, and M. Cai

1946 Bimetallic Electrocatalyst and Magnetically Improved Oxygen Reduction Reaction in PEFC
F. Nores Pondal, N. Guillet, and A. Franco

1947 Effects of Heat-Treatment on Properties of Co-PPy-TsOH/C as Catalyst for Oxygen Reduction Reaction (ORR) in Low Temperature Fuel Cells
X. Ding, X. Yuan, H. Kong, and Z. Ma

1948 Redox Catalysis for Dehydrogenation of Liquid Hydrogen Carrier Fuels for Energy Storage
P. Driscoll, S. Rozenel, K. Zarnoch, M. Rainka, A. Usyatinsky, A. Hosseini, O. Luca, C. Chidsey, R. Crabtree, G. Zappi, G. Soloveichik, and J. Kerr

1949 Oscillations in Oxidation of Methane and Ethylene on Pt-ceria Anodes for Solid Oxide Fuel Cells: Reforming, Catalysis, and Electrocatalysis
V. Medvedev and E. Stuve

1950 Replacement of Au and Ag with the Ni-P and Ni-B Alloys in Electronics
T. Khoperia

1951 Electrochemical Oxidation of Ammonia on Pt-Ir Thin Films Prepared by Pulsed Laser Deposition
R. Imbeault, D. Reyter, L. Roue, and D. Guay

1952 Study of Palladium Catalysts for Oxygen Reduction Reaction Using Rotating Disk Electrode
L. Arroyo-Ramirez and C. Cabrera

1953 Thermogalvanic Energy Conversion with Nitrogen and Boron Doped Carbon Nanotube Array Electrodes
P. Salazar Zarzosa, B. Cola, and S. Kumar

1954 Sonochemically-Synthesized PtNi and PtCu Bimetallic Nano-Electrocatalysts for Oxygen Reduction Reactions in Proton Exchange Membrane Fuel Cells
C. Gumeci, D. Ua Cearnaigh, C. Korzeniewski, and D. Casadonte

1955 Effect of Microwave Irradiation Time on Preparing of Pt/C Catalyst by a Pulse-Microwave Assists Chemical Reduction
J. Zheng, X. Wang, R. Fu, P. Deng, and J. Ma

1956 Pt-CeO_x Catalysts Synthesized by Polymeric Precursor Method for the Electro-Oxidation of Methanol, Ethanol and Formic Acid
R. Freitas, P. Turgeon, Z. Zhang, A. Tavares, and E. Pereira

1957 Correlation between Basic Parameters of the Materials and the Electrocatalytic Properties of the ORR on Pd-Alloy Cathodes
O. Savadogo and K. Oishi

1958 Effects of Cobalt Loading on Properties of Co-PPy-TsOH/C as Catalyst for Oxygen Reduction
X. Hu, X. Yuan, X. Ding, H. Kong, Z. Ma, and X. Wang

1959 Titanium Oxy Nitride (TiON) Catalysts as Oxygen Electrode for Low and Medium Temperature Electrochemical Processes
W. Wang, O. Savadogo, and Z. Ma

1960 Nanostructured TiO_2 Doped with Nb as a Novel Support for PEM Fuel Cells
E. Valenzuela and O. Savadogo

1961 Dioxygen Reduction by Cobalt(II) Octaethylporphyrin at Liquid|Liquid Interfaces
R. Partovi Nia, B. Su, M. Mendez, and H. Girault

1962 Hydrogen Evolution Electrocatalysis on Bimetallic Alloy Surfaces
Y. Pluntke, L. Kibler, and D. Kolb

1963 Electrocatalytic Oxidation Reactions at (100) Facetted Platinum Films
S. Garbarino, E. Bertin, M. Martin, A. Ponrouch, and D. Guay

1964 Mechanistic Pathways in the Electrooxidation of Hydrazine on Bimetallic Catalysts
J. Sanabria-Chinchilla, K. Asazawa, H. Tanaka, and P. Strasser

1965 Electro-Oxidation of Ammonia at Carbon Supported Pt_xIr_{1-x} Nanoparticles with Varying Size
E. Baranova and T. Lomocso

1966 Formation and Oxidation Kinetics of Adsorbed CO in Electrocatalytic Reactions on Pt
D. Harrington, F. Seland, P. Dahlstrøm, and R. Tunold

1967 Hydrogen Generation by Electrocatalytic Reforming of Carbohydrates
K. Spies and E. Stuve

1968 Enhanced Hydrogen Evolution at Non-Flooded Membrane Electrode Assembles
E. Smotkin and S. Evarts

1969 Highly Facile Electrochemical Oxidation of Methanol in Aqueous Bicarbonate at Elevated Temperature
J. Jiang and T. Aulich

1970 Preferential Oxidation of CO Based on Electro-Thermally Assisted Catalytic Ni/Cu Nanostructures on Si Micro-Grass
A. Ebrahimi, S. Mohajerzadeh, A. Alihosseinzadeh, A. Khodadadi, and Y. Mortazavi

1971 Development of New Method for the Preparation of Pt/C and Pt-Co/C Catalysts
M. Saha and K. Karan

1972 Microstructure Stabilization in Non-Platinum Electrocatalyst through Co-Nitrogen Motifs
B. Kiefer, K. Artyushkova, P. Atanassov, S. Pylypenko, and R. O'Hayre

I5 - Grahame Award Symposium and Physical and Analytical Electrochemistry General Session

Physical and Analytical Electrochemistry

1989 (David C. Grahame Award of the Physical and Analytical Electrochemistry Division) Electrocatalytic Oxidation of Methanol, Formaldehyde, and Formic Acid on Pt as Revealed by Surface-Enhanced Infrared Absorption Spectroscopy (SEIRAS)
M. Osawa, G. Samjeské, K. Komatsu, T. Uchida, T. Ikeshoji, A. Cuesta, and C. Gutiérrez

1990 Structure of Water and other Molecules at the Electrified Solid Liquid Interface Using SFG and Raman Spectrosocopy
A. Gewirth and D. Butcher

1991 Use and Abuse of Equivalent Circuits in EIS
D. Harrington

1992 Kinetics and Sensitivity at Nanostructured Electrodes from Different Carbon Fiber Precursor Materials
A. Brajter-Toth, A. Boateng, and R. Cohen-Shohet

1993 Electrical Double Layer Structure at the Room-Temperature Ionic Liquid | Electrode Interface
E. Lust, L. Siinor, H. Kurig, K. Lust, A. Jänes, and P. Miidla

1994 Phase Behavior and Solvation of Lithium Triflate in Ethylene Carbonate and γ-Butyrlactone
M. Foley, T. Afroz, D. Seo, W. Henderson, H. De Long, and P. Trulove

1995 Spectroelectrochemical Studies of Novel Biodegradable Ionic Liquids
S. Harroun, T. Abraham, P. Scammells, R. Singer, and C. Brosseau

1996 X-ray Reflectivity Studies on Electrified Liquid/Liquid Interface
N. Laanait, J. Yoon, B. Hou, P. Vanysek, C. Zheng, M. Meron, B. Lin, G. Luo, I. Benjamin, and M. Schlossman

1997 Application of Common Analytical Voltammetry Waveforms to Biamperometric Electrochemical Cells
M. Rahimi and S. Mikkelsen

1998 On the Impact of Water Management on the Reversible vs. Irreversible Performance Degradation in PEM Fuel Cells: Mitigation of Materials Aging by Sacrificial Materials Aging Mechanisms
A. Franco

1999 Investigation of Carbon Surface Functionalities as a Mechanism of Self-Discharge in Carbon-Based, Aqueous Electrolyte Electrochemical Capacitors
A. Oickle and H. Andreas

2000 Evaluation of Thermodynamic and Kinetic Parameters for Hydrogen Permeation through Palladium-Copper Alloys
M. Martin, M. Allemand, J. Galipaud, D. Reyter, L. Roue, and D. Guay

2001 Mechanism of Copper and Tert-Butyl Alcohol Adsorption on Carbon Materials at Various Open-Circuit Potentials
M. Goldin, B. Grafov, A. Davydov, M. Goldin, and V. Kolesnikov

2002 Modification of Carbon Materials by Indirect Pyrrole Polymerization
M. Khubutiya, G. Garaeva, A. Stepanov, M. Goldin, and A. Davydov

2003 Study of Hydroxyl Free Radical Generation on Doped Tin Oxide Anodes
B. Wang and K. Chan

2004 Voltammetry of Aniline in 9:1 Acetonitrile/Water
I. Haque and K. Asghar

2005 Voltammeric Study of the Interaction of Co(II) Ions with Oxacillin in the Absence and Presence of Lysine
E. Coşkun and E. Biçer

2006 Collagen-Cysteine Interaction - An Electrochemical Study
S. Cakir

2007 Coupled Electron/Proton Transfer Studies of Aminobenzoquinone Modified Monolayers
W. Zhang and I. Burgess

2008 Influence of Antioxidants on DNA Damage Induced by Catechol
J. Peachey, A. Prance, M. Stobiecka, J. Trybula, and M. Hepel

2009 Electrochemical Characteristics of Bi(111) Electrode in Ionic Liquids
L. Siinor, C. Siimenson, K. Lust, and E. Lust

2010 Iron Uptake and Release from Ferritin-Modified Gold Electrodes
M. Stobiecka and M. Hepel

2011 Influence of the Chemical Composition on the Electrochemical Behavior of Binary Mixtures of Carboxilate-Based Ionic Liquids
R. Ortega-Borges, S. Lopez-Leon, G. Trejo-Cordova, Y. Meas-Vong, and G. Brisard

2012 Study of the EC' Mechanism by Scanning Electrochemical Microscopy (SECM)
R. Calhoun and A. Bard

2013 Designed DNA Duplex/Quadruplex Nano-Switches: Biochemical and Electrochemical Studies
H. Yu

2014 Advances in Photosystem I Photoelectrochemistry Using Scanning Electrochemical Microscopy
D. Cliffel, G. Chen, and G. LeBlanc

I6 - Nanostructured and Functionalized Electroactive Polymer Films and Related Materials 2

Physical and Analytical Electrochemistry / Sensor / Corrosion

2015 Electrocatalytic Sol-Gel Films with Organized Pore Structures and Silanized Surfaces
J. Cox, K. Wiaderek, B. Mehdi, and B. Gudorf

2016 Electrochemical Modification of Surfaces with Organic Layers
D. Bélanger

2017 Interfacial Processes at the Semiconductor - Biomolecule Phase Boundary
K. Skorupska, P. Ugarte Berzal, I. Rutkowska, H. Lewerenz, J. Golbeck, and P. Kulesza

2018 Hybrid Nanocomposite Structures Formed by Conducting Polymers and Metals or Metal Oxides
P. Gomez-Romero

2019 Towards the Understanding of the Optical Properties of Electronic Conducting Polymers. The Ellipsometry Approach
J. Correia

2020 Electrochemical Investigations of Carbon Nitride Films Deposited on a Conjugated Polymer Substrate
J. Byers, C. Deslouis, A. Pailleret, and O. Semenikhin

2021 Polymer Based Ionic Systems – From Polymeric Electrolytes to Hybrid Networks
M. Siekierski and W. Wieczorek

2022 Electrochemical and Covalent Attachment of Functional Monolayers on Carbon Surfaces
Y. Leroux, F. Hui, J. Noel, C. Roux, and P. Hapiot

2023 On the Redox Capacity and Stability of Polypyrrole and Ways of Increasing Them
T. Tamm, R. Temmer, M. Marandi, and T. Raudsepp

2024 Correlation between Swelling/Shrinking and Ion Exchange Processes in Electronically Conducting Polymers upon Electrochemical Doping/Undoping. EC-AFM and Ac-Electrogravimetry Investigations
L. Kim, C. Gabrielli, A. Pailleret, and H. Perrot

2025 Photoelectrocatalytic Reduction and Sensing of O_2 and H_2O_2 on Conjugated Polymer Based Magnetic Electrodes
C. Janáky, B. Endrodi, and C. Visy

2026 Metal Functionality in Conducting Polymer Films - Preparation and Electrocatalytic Activity of Polypyrrole Incorporating Gold Nanoparticles
L. Abrantes, V. Ferreira, and A. Mourato

2027 Electrochemical Formation of the Redox-Active Metal-Containing Polymers for Catalytic and Electrocatalytic Applications
T. Magdesieva, O. Nikitin, A. Yakimansky, M. Goikhman, and I. Podeshvo

2028 Functionalized Hybrid Films of Nobel Metal Nanoparticles and Carbon Nanotubes: Applications in Electrocatalysis, Effective Charge Storage and Propagation
P. Kulesza, S. Zoladek, M. Skunik, I. Rutkowska, B. Dembinska, and K. Miecznikowski

2029 Redox Switching of Electroactive Thin Films Investigated by AC Electrogravimetry
C. Gabrielli, H. Perrot, L. To Thi Kim, J. Garcia-Jareno, and F. Vicente

2030 Electrosynthesis and Simultaneously Performed In situ Impedance and UV-Vis-NIR Studies on Poly(3-Thiophene-Butyric-Acid)
P. Tóth, C. Janáky, E. Peintler-Kriván, and C. Visy

2031 Modification of Carbon Electrode with Pyridine
J. Agullo, M. Morin, and D. Bélanger

2032 Morphology Changes of Porous PPy/TFSI Surface during Activation
J. Wang, H. Naguib, and A. Bazylak

2033 Electron Transport in Carbon/Molecule/Metal Molecular Electronic Junctions
R. McCreery, A. Bergren, and A. Bonifas

2034 Conducting Polymers/Nanoparticles Thin Films
T. Danieli, E. Malel, G. Tanami, M. Sheffer, and D. Mandler

2035 Structure, Morphology and Reactivity of Conducting Polymer-Linked Polyoxometallate-Modified Gold Nanoparticles
S. Zoladek, K. Skorupska, I. Rutkowska, B. Palys, and P. Kulesza

2036 Electrochemical Fabrication and Properties of Composite of Polyaniline and Tungsten Oxide
B. Zou and X. Liu

2037 Intensity Modulated Photocurrent Spectroscopy of Organic Solar Cells
O. Semenikhin

2038 Consideration on Electrodeposition of Electroactive o-Alkoxyanilines on Planar and Membrane Electrodes- Determination of Diffusion Coefficients, Oxidation Charge and Film Thickness
M. Strawski, K. Bienkowski, and M. Szklarczyk

2039 Nanostructural Change of Ionic Clusters in Annealed Nafion Membranes Containing Ionic Liquids
J. Park, M. Shin, Y. Choi, T. Yang, and C. Kim

J1 - Sensors, Actuators, and Microsystems General Session

Sensor

2092 Effect of the Mixed N_2/O_2 Oxidation Process on Improvement of the Sensitivity of the SiGe Nano-Wire
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Sensor / Organic and Biological Electrochemistry

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