

217th ECS Meeting Abstracts 2010

Meeting Abstracts 2010-01

**Vancouver, BC, Canada
25-30 April 2010**

Volume 1 of 3

ISBN: 978-1-61738-955-9

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2010) by The Electrochemical Society
All rights reserved.

Printed by Curran Associates, Inc. (2010)

For permission requests, please contact The Electrochemical Society
at the address below.

The Electrochemical Society
65 South Main Street
Pennington, New Jersey 08534-2839

Phone: (609) 737-1902
Fax: (609) 737-2743

www.electrochem.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com



Meeting Abstracts — MA 2010-01
217th ECS Meeting
April 25-30, 2010 — Vancouver, Canada

© 2010 The Electrochemical Society

Table of Contents

A1 - General Student Poster Session

All Divisions

- 1 Photocatalytic Water Splitting under Visible Light by Eosin-Y Dye Sensitized Co-Doped TiO₂ Catalyst
T. Le, S. Akhtar and O. Yang
- 2 Highly Ordered Nanoporous Alumina on Conducting Substrates: Universal Templates for Fabrication of Ultrahigh Density Arrays of Free Standing and Vertically Aligned Nanorods
J. Byun, J. Lee, S. Kwon, G. Jeon and J. Kim
- 3 Separation and Characterization of Mixed-Metal Endohedral Fullerenes
K. Chen, B. Mercado, C. Beavers, J. Rodriguez, J. Maslenikova, C. Rose, S. Stevenson, M. Olmstead and A. Balch
- 4 Reversible and Irreversible Capacity of Carbonized Electrospun Nanofibers as Anodes in Li-Ion Cells
A. Loebel, J. Thornton, J. Cuomo and P. Fedkiw
- 5 Modelling Mannitol Dehydrogenase for Development of a Thermostable Bioelectronic Interface
J. Beauchamp, R. Worden and C. Vieille
- 6 Grain Size Dependence Characteristic of ZnO-Channel Thin Films Transistors
S. Ebrahimi Takaloo and E. Asl Soleimani
- 7 CO Stripping from Ru Nanoparticles
P. Ochal, J. Gomez de la Fuente, M. Tsykin, F. Seland and S. Sunde
- 8 Studies in Developing Electrochemical Immunoassay Microarrays
C. Williams and I. Fritsch
- 9 Synthesis and Characterization of LiMPO₄/C (M = Fe, Mn and Co) Nanocomposite Cathodes of Lithium Batteries
T. Doan, M. Konarova and I. Taniguchi
- 10 Electromigration Activation Energy for Gold Interconnects
S. Kilgore and D. Schroder
- 11 Metal Oxide/Graphene Nano-Hybrid Materials for Electrochemical Capacitor Applications
S. Bak and K. Kim
- 12 High Performance Nonprecious Metal Catalyst for Oxygen Reduction Reaction in PEM Fuel Cells
J. Kim, J. Choi, R. Hsu and Z. Chen

- 13 The Effect of the Oxygen-Containing Functional Groups on the Electrochemical Reduction of Oxygen of Multi-Walled Carbon Nanotubes in Acid Media
K. Matsubara and K. Waki
- 14 Studies of Formic Acid Oxidation at Pd Electrodes Surface Modified with Pb or Sb
J. Sun and D. Harrington
- 15 Towards a Printable Battery Package: Robocast Deposition of Indium Materials for Battery Packaging
A. Cook, E. Branson, K. Fenton, C. Stewart, P. Clem and C. Apblett
- 16 DNA-Directed Assembly of Enzymes and Nanomaterials: Small Laccase - Carbon Nanotube Supramolecular Assemblies
S. Brocato, C. Lau, E. Chi, M. Werner-Washburne, P. Atanassov, G. Szilvay, C. Li and S. Banta
- 17 Charge Transfer and Conductivity Measurements of Lithium Titanate at Low Temperatures
S. Rickman, B. Deveney and K. Nechev
- 18 Dissolution Rate of Pt Catalyst by Using EQCM Flow Cell and ICP-MS Analysis
S. Kim and J. Meyers
- 19 Electroreduction of Carbon Dioxide on Modified p-Si(111)
C. Désilets, M. Morin, D. Bélanger and G. Brisard
- 20 Electrochemical Studies of Cs, CsO and CsI Layers Prepared in Ultra High Vacuum
J. Drnec and D. Harrington
- 21 Effect of Sulfur and Oxygen Inclusion on Magnetic Properties of Electrodeposited CoFe Nanowires
A. Kola and D. Davis
- 22 Study of Electrochemical Performance of Different Nanocomposite Electrolytes for Bioethanol Based Fuel Cell
S. Imran, R. Raza and B. Zhu
- 23 Surface Morphology Effects of Nitrogen Doped Carbon Nanotubes on Specific Capacitance for Electrochemical Capacitor Applications
R. Hsu, Z. Chen, D. Higgins, H. Tao and Z. Chen
- 24 Effect of Ball-Milling on Physical and Electrochemical Properties of Lead Dioxide: Effect of Addition of Sodium Chloride on the Specific Surface Area
C. Hamel, K. Armstrong, T. Brousse, D. Bélanger and D. Guay
- 25 Graphene/Manganese Oxide Composites for Supercapacitor
S. Sy, A. Yu and Z. Chen
- 26 Spectroelectrochemical Studies of Liposome Adsorption on Au(111)
A. Musgrove and D. Bizzotto
- 27 Complete Glycerol Oxidation: Development of a Hybrid Enzymatic-Metallic Biofuel Cell
A. Falase, C. Lau, P. Atanassov, R. Arechederra, Z. Zulic and S. Minteer
- 28 Incorporating *Shewanella Onedensis* MR-1 in Silica Films Derived by Chemical Vapor Deposition
J. Roy, C. Lau, L. Ista, P. Atanassov, H. Luckarift and G. Johnson
- 29 Nitrogen Doped Carbon Nanotubes Based Nonprecious Metal Electrocatalysts for Oxygen Reduction Reaction at Alkaline Fuel Cell Cathode
Z. Chen and Z. Chen
- 30 Reversible Potentials for O(ads) Formation from OH(ads) on Pt (111) for Different OH and H₂O Coverages
F. Tian and A. Anderson
- 31 Diagnostic Methods of Solar Cell Based on Temperature Dependence
J. Dolensky, A. Vesely, J. Vanek and J. Hrozek
- 32 Novel Synthesis Methods and Post-Synthetic Treatments for the Preparation of Ni_xMn_xCo_{1-2x}(OH)₂
I. Rodrigues, J. Wontcheu and D. MacNeil
- 33 Stability and Degradation Mechanism of La₂O₃ Metal-Insulator-Metal Capacitors under Constant Voltage Stress
S. Wu, C. Deng, T. Hou and B. Chiou

- 34 Effect of Annealing on Dielectric Properties of Boron Carbo Nitride Thin Films Prepared by Reactive Sputtering
V. Todi, K. Sundaram, K. Coffey and S. King
- 35 A 1D Model for the Chemical Degradation of Nafion: Impact of Microstructure Modification on Cell Potential
R. Coulon, W. Bessler and A. Franco
- 36 Electrochemical Evaluations of KOH-Silicate Based Magnesium Anodic Coatings
L. Liu and C. Lin
- 37 The I-V Characteristics and Optical Properties of Hydrogenated Amorphous Silicon Germanium p-i-n Solar Cells
W. Son, J. Kim, J. Shin and S. Choi
- 38 Improvement of Drift Characteristic to Continuously Measure Al_2O_3 pH-ISFET with the Protective Structure
S. Lee and S. Choi
- 39 Dependence of Memory Margin on Interface Trap Density in the Cap-Less Memory Cell
T. Kim, C. Lee, S. Kim, T. Shim and J. Park
- 40 Influence of Doping on Electroless Ni Deposition in Single Crystalline Si
D. Lee, D. Kim and B. Yoo
- 41 Effect of Operating Temperature on Memory Margin of Cap-Less Memory Cell
S. Kim, J. Oh, K. Choi, M. Shin, T. Kim, T. Shim and J. Park
- 42 Electrochemical and Surface Characterization of Au Nanoparticle/Multiwalled Carbon Nanotube Composites
N. Alexeyeva, J. Kozlova, V. Sammelselg, P. Ritslaid, H. Mändar and K. Tammeveski
- 43 Effect of Ultraviolet-Ozone Treatment of Indium-Tin-Oxide on Hole Injection Efficiency of OLEDs
I. Lee, K. Hong, K. Kim, S. Kim and J. Lee
- 44 Development of PBI Electrodes for High Temperature Fuel Cells
H. Lee, H. Kim, H. Kim, D. Lee, J. Jang and T. Lim
- 45 Antibacterial Effects of Silver and Cerium Containing on Medical Stainless Steel
K. Ou, P. Peng, H. Lin and Y. Pan
- 46 Effects of Ethanolamine Aqueous Solutions on Dissolution of Copper Surface
C. Ko and W. Lee
- 47 A Study of Properties of F⁻ Removal in Dilute Solutions Using Mesoporous Carbon Electrodes
M. Hamada, S. Yoshida, K. Nakagawa and H. Oda
- 48 Cubic ZrO_2 as Charge-Trapping Layer for Nonvolatile Memory Application
Y. Hu, L. Chen, J. Wu, M. Wu, C. Chang and Y. Wu
- 49 Ab Initio of Nb Oxides as Support Materials for Pt Catalyst
L. Wang, K. Malek and M. Eikerling
- 50 A Copper Electrodeposition Technique for Through-Hole Filling
C. Lu and W. Dow
- 51 Sterilization Characteristics of Atmospheric Pressure Plasma Torch for Medical Applications
T. Kim, J. Yim, C. Jeong and W. Lee
- 52 Cavitation Behavior and Electrochemical Characteristics with Spray Distance of Al-Zn-Zr Alloy Thermal Spray Coating
S. Kim and S. Lee
- 53 Electrodeposition of Cu-Sn Alloy in Zinc Chloride-1-Ethyl-3-Methylimidazolium Chloride Ionic Liquids
Y. Hsieh, C. Tai and I. Sun
- 54 Chemical Bath Deposition of ZnO Buffer Layer for $\text{Cu}(\text{In,Ga})\text{Se}_2$ Solar Cells
Y. Kusano, J. Sasano, T. Shinagawa, S. Ishizuka, S. Niki and M. Izaki
- 55 Effects of Atmospheric Pressure DBD Plasma on Reaction Between Carbon Dioxide and Methane
T. Kim, H. Son and W. Lee

- 56 Electrodeposition of Silver(I) Oxide Thin Films from the Solutions Containing Ag-Lysine Complex
T. Ohata, J. Sasano, M. Inoue and M. Izaki
- 57 Controlled the Orientation of Multicopper Oxidases for Direct Electron Transfer
P. de la Iglesia, D. Ivnitski, C. Lau and P. Atanassov
- 58 Electrical Bistability of Polystyrene Thin Films Embedded with Low-Dimensional Nanostructures
Y. Lin, J. Wang and Y. Lai
- 59 The Reliability of LTPS-TFTs Alternately Stressed in OFF Region
H. Liu, S. Chiou and F. Wang
- 60 Surface Modifications of Nano Carbon Materials for Electrochemical Capacitors
T. Akter and K. Lian
- 61 Study of Boron-Doped ZnO Transparent Conductive Thin Films
L. Wong, Y. Lai and C. Hsi
- 62 Numerical Simulation for Convective Effect on Silicon Transport and Dissolution in a Germanium Melt
R. Motomura, Y. Takagi, Y. Okano, N. Armour and S. Dost
- 63 Noncovalent Functionalization of SWNTs with Conjugated Polymers
P. Imin, F. Cheng and A. Adronov
- 64 Novel Pd Anodes for Direct Formic Acid Fuel Cells
S. Sanii and E. Gyenge
- 65 Design and Characterization of Au|Quartz Microelectrodes
J. Casanova-Moreno, D. Bizzotto, J. Mauzeroll and A. Mezour
- 66 Electrogenated Fenton Reagent in a Flow-Cell Using a Paired Process Fitted with Conducting Polymer Modified Cathode for Hydrogen Peroxide Production; Comparison with Carbon Based Cathodes
B. Frontana-Uribe, R. Vásquez-Medrano, J. Ibáñez, A. García, C. Garduño, D. Barranco, B. Villa and M. Serrano
- 67 Study of Formaldehyde and Carbon Monoxide Oxidation on Palladium in Sulfuric Acid by Dynamic Impedance Spectroscopy
R. Sacci and D. Harrington
- 68 Promising Alternative for a CO₂ Tolerant Anion Exchange Membrane Fuel Cell
J. Vega, S. Smith, C. Chartier and W. Mustain
- 69 PEDOT-Modified Flexible Carbon-Based Electrode for Supercapacitor and Fuel-Cell Applications
C. Chu and C. Sun
- 70 Corrosion Behavior of Protective Coating Film Fabricated by PEO Process in High Si Aluminum Alloy
H. Jung, C. Chang, D. Park, Y. Choi, B. Park and N. Myung
- 71 Morphology Controlled 1-D Pt Nanostructures Synthesized by Galvanic Displacement of Cu Nanowires
D. Park, H. Jung, Y. Rheem, Y. Koo, Y. Choa, J. Ko and N. Myung
- 72 Investigation of Anticorrosive Performances for Some Environment Friendly Coatings
E. Vasilescu, P. Drob, C. Pirvu, C. Vasilescu, J. Calderon Moreno and S. Drob
- 73 Electrochemical Patterning of Platinum Nanoparticles for Methanol Oxidation on Single-Walled Carbon Nanotube Films
C. Li, K. Han, M. Bui, X. Pham and G. Seong
- 74 Micropatterning of Flexible Carbon Nanotube Films by Electrochemical Reaction
K. Han, C. Li, M. Bui, X. Pham and G. Seong
- 75 Electrochemical Detection of Glucose on Chitosan Modified Carbon Nanotube Films
X. Pham, M. Bui, C. Li, K. Han and G. Seong
- 76 Doping Controlled Stabilization of Passive Film in Fe-Based Bulk Metallic Glasses
Z. Wang and J. Wang
- 77 Gold Nanoparticle Patterning on Carbon Nanotube Films and Its Application to Electrochemical Detection of Hydroxylamine
M. Bui, X. Pham, K. Han, C. Li and G. Seong

- 78 Electrochemical Detection of Hydroxylamine Based on Gold Nanoparticles Patterned Single-Walled Carbon Nanotube Films
M. Bui, X. Pham, K. Han, C. Lee and G. Seong
- 79 Electrochemical Oxidation of Ammonia on Platinum Electrodeposited onto Pyrolytic Graphite
S. Le Vot, D. Reyter, L. Roué and D. Bélanger
- 80 Electrochemical Response of a High Temperature SOFC Fueled by PH₃ Containing Coal Syngas
K. De Silva, B. Kaseman and D. Bayless
- 81 Enhancement of ORR by Electrodeposited CoFePt Multilayered Alloys
A. Avekians and E. Podlaha
- 82 The Gas- and Photon-Sensing Properties of Fluorinated SnO₂ Nanowire Based Sensors
Y. Lin and H. Shih

A2 - Nanotechnology General Session

All Divisions

- 83 Synthesis of Nitrogen-Doped ZnO Particles by the Addition of Ammonium Borate Salts
P. Nandakumar and J. Villadares
- 84 Functionalized Carbon Nanotube Based Gas Sensors: Effects of Heat and Vacuum Treatment
E. Contés
- 85 Electrochemical Preparation of Bulk Pt/Carbon Nano-Onions for Fuel Cell Application
D. Santiago, A. Palkar, L. Echevoyen and C. Cabrera
- 86 Semiconducting Nanowires Deposited by a Template Approach: Towards Nanowire Electronic Devices
E. Matei, I. Enculescu, R. Neumann, S. Granville and J. Ansermet
- 87 Synthesis of Nanostructured Transparent Cu_xS Thin Films by Continuous Flow Reactor Process
S. Hwang, J. Jung, S. Han, C. Chang and S. Ryu
- 88 Electrical and Gas Sensing Properties of Zinc Oxide Nanorod Prepared by Microemulsion Method
D. Chang, K. Kim, S. Lim, H. Choi and S. Hong
- 89 Preparation and Characterization of Ga Doped ZnO Thin Films by Nitrogen Implantation
J. Kim, Y. Kim, J. Lee, S. Lee and K. An
- 90 Formation of Ni-Silicide Nanowires on Silicon-on-Insulator Substrates by Atomic Force Microscope Lithography
H. Hsu and T. Chen
- 91 Promotion of Power Generation in N719 Dye Sensitized Solar Cells Made by Dye Adsorption with a High-Temperature Dye Solution
F. Hirose, M. Shikaku, Y. Kimura and M. Niwano
- 92 Properties of Porous n-InP (100) Obtained by Electrochemical Method
J. Suchikova, V. Kidalov and G. Sukach
- 93 Photocatalytic Oxidation of Gaseous Styrene by Using Carbon-Doped TiO₂ Film in the Reactor with Optical Fibers
M. Kim, G. Liu and B. Kim
- 94 Redox Catalysis Applied to Chemical Modification of Carbon Surfaces with Methyl Groups by Using Ferrocene Derivatives
L. Hernandez-Muñoz, C. Vázquez-López, P. Astudillo, R. Fragoso, E. Klimova, L. Ortiz-Frade and F. González
- 95 Asymmetric and Symmetric Dipole-Dipole Interactions Drive Distinct Aggregation and Emission Behavior of Intramolecular Charge-Transfer Molecules
Y. Li, J. Xu, H. Liu and Y. Li
- 96 Controllable Growth Zero to Multidimensional Nanostructures of a Novel Porphyrin Molecule
C. Huang, Y. Li, H. Liu and Y. Li

- 97 Aggregation-Enhanced Emission in Gold Nanoparticles Protected by Tetradentate Perylene Derivative
H. Liu, J. Lv, Y. Li and Y. Li
- 98 Nanocomposites of Ni/SiO₂ and Fe/SiO₂: Synthesis, Characterization and Applications
M. Seehra and V. Singh
- 99 Palladium Nanostructures Synthesis by Sputtering Deposition on HOPG Surfaces
L. Arroyo-Ramírez, Y. Figueroa, D. Rodríguez, W. Otaño and C. Cabrera
- 100 Uptake and Distribution of Fullerenes in Human Mast Cells
A. Dellinger, Z. Zhou, S. Norton, R. Lenk, D. Conrad and C. Kepley
- 101 Preparation and Characterization of Nanostructures Using Scanning Probe Discharge Lithography
T. Fang and S. Kang
- 102 Layer-by-Layer Copper Photonic Crystals for Near Infrared Spectral Region
S. Wu, Y. Yang, W. Huang and Y. Huang
- 103 Fuel Cell Electrocatalyst Fabrication by Direct Reduction of Metal Salts Using Cellulose Nanocrystals
L. Johnson, W. Thielemans and D. Walsh
- 104 Physico-Chemical and Electrocatalytic Properties of Nanostructured Rhodium Thin Films Prepared by Pulsed Laser Ablation
F. Saidani, D. Rochefort and M. Mohamedi
- 105 Nafion/SAS-Modified Clay as a Novel Proton Exchange Nanocomposite Membranes for DMFC Applications
E. Dashtimoghadam, M. Hasani-Sadrabadi, F. Majedi and K. Kabiri
- 106 Electrooxidation of Formic Acid over Nitrogen Substituted Carbon Nanotubes
V. Subramanian and S. Murugesan
- 107 Characterizing Electrochemical Energy Storage Nanomaterials by Synchrotron Light
J. Zhou, J. Wang, J. Cutler, T. Sham and H. Fang
- 108 Ensemble Molecular Electronic Devices: Broadened Molecular Energy Levels and Resonant Charge Transport
A. Bergren, S. Jimenez-Sandoval, R. McCreery, S. Stoyanov, S. Gusarov and A. Kovalenko
- 109 In Situ Ultrahigh Vacuum Transmission Electron Microscope Investigations on Dynamical Changes of Nanostructures
L. Chen
- 110 Electronic Transport in Molecularly-Linked Gold Nanoparticle Films Near the Metal-Insulator Transition
J. Dunford, Y. Sukanuma and A. Dhirani
- 111 Ionic Liquids: Novel Tenside Like Materials for Size Controlled Synthesis and Stabilization of Nanomaterials
T. Schubert, T. Beyersdorff and F. Stiemke
- 112 Magnetic Switching of Electrochemically Prepared Fe/GaAs Spin Contacts
S. Majumder, A. Arrott and K. Kavanagh
- 113 Self-Aligned Patterning on Flexible Substrates Using a Dual-Tone Photoresist
C. Willson, W. Jen and B. Rawlings
- 114 Pattern Formation in Anodic Aluminum Oxide Growth by Flow Instability and Dynamic Re-Stabilization
D. Barkey and J. McHugh
- 115 Room-Temperature Synthesis of Cobalt Nanoparticles in Aqueous Solution
M. Balela, S. Yagi and E. Matsubara
- 116 Controlled Growth of Organic-Inorganic Hybrid Nanowires
Y. Li, H. Liu and Y. Li
- 117 Removing 10 nm Ceramic Particles Using a Supersonic Beam of Nanosized Volatile Particles
K. Hwang, I. Kim and J. Lee
- 118 EIS Study of Nanostructured Cerium Molybdate Doped Sol-Gel Films on 2024 Aluminum Alloy
K. Yasakau, M. Wittmar, M. Zheludkevich and M. Ferreira

- 119 Effect of Nanofillers on the Interfacial Properties of Structural Adhesive Bonds
J. Wernik and S. Meguid
- 120 Electrodeposition of Polypyrrole-Biotin Films by Square Wave Cyclic Voltammetry
N. Pham, A. Tavares and L. Dao
- 121 Artificial Lotus Structure with Hierarchical Silica Particles in Transparent Self-Clean Surface Modifications
L. Liu, C. Lin and P. Chen
- 122 Dependence of Photoelectrochemical Properties of LDH Nanosheet/CdS Nanoparticle Multilayer Films on Their Stacked Structure
T. Kameyama, K. Okazaki and T. Torimoto
- 123 A New Electroless Technique for the Deposition of Ag Nanoparticles on SiN_x:H Dielectric Layers
T. Nychyporuk, Z. Zhan, A. Fave, M. Lemiti and S. Bastide
- 124 AMOSFETs Fabricated on Grow-in-Place SiNWs
P. Garg, J. Wu and S. Fonash
- 125 High Performance Si Nanowire P-MOSFETs
K. Trivedi, H. Yuk, C. Floresca, W. Hu and M. Kim
- 126 Effects of Quantum Confinement on Interrelation Between DOS Spectrum and C(V) Dependence of Si Nanowire-Based MOS Structure
V. Ligatchev and S. Chin
- 127 Facile Preparation and Characterizations of Potential Low-Cost Nanostructured Materials for Hydrogen Storage
H. Misran, A. Aminuddin, F. Mohd Zini and R. Singh
- 128 Effects of Metallic Nanocrystal Species on the Programmable Memory Characteristics in Nonvolatile Nano-Floating Gate Memory Devices
Y. Park, H. Jung and J. Lee
- 129 Shape and Surface Structure Effects on Photocatalysis of TiO₂ Nanocrystals
N. Wu and J. Wang
- 130 Fabrication of TiO₂ Nanorod Arrays on a Quartz Substrate Using Anode Oxidation
H. Lin, Y. Chang and C. Chen
- 131 Self-Organized Titanium Oxide Nanotubes Prepared in Phosphate Electrolytes: Effect of Applied Voltage and Fluorine Concentration
S. Mahshid, A. Dolati, M. Goodarzi and M. Askari
- 132 Fabrication and Characterization of Metal-Doped ZnO Nanorods Based Field Effect Transistors
Y. Park, J. Kim, D. Kim, C. Choi and Y. Hahn
- 133 Influence of the Nitrate Precursors Concentrations on the Growth and Optical Properties of Electrodeposited ZnO Nanowires
M. Khajavi and D. Blackwood
- 134 Investigation on Growth of High Density, Highly Vertically Oriented 1D ZnO Nanostructures with High Aspect Ratio by Solely Electrochemical Steps
M. Khajavi and D. Blackwood
- 135 Template-Free Electrochemical Growth Zinc and Zinc Oxide Nanostructures below Room Temperature
D. Pradhan, S. Sindhwani and K. Leung

B1 - Batteries and Energy Technology Joint General Session

Battery / Energy Technology

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

- 137 Studies of the Performance of $\text{LiNi}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}\text{O}_2$ Electrodes and Aluminum Current Collectors for Advanced Lithium-Ion Batteries
F. Amalraj, H. Sclar, D. Kovacheva, E. Zhecheva, R. Stoyanova, R. Lavi, O. Girshevitz, J. Grinblat, B. Markovsky and D. Aurbach
- 138 Synthesis and Performance of High Tap Density LiFePO_4 Cathode Materials Doped with Copper Ions
Z. Chang, H. Lv, H. Tang, X. Yuan and H. Wang
- 139 High Power Lithium-Ion Batteries Employing Porous Al Current-Collector with Conformal Carbon Coating
H. Wu, H. Wu and N. Wu
- 140 Effects of Impurities on the Cycling Performance of LiFePO_4 Cathode Materials
S. Wu, M. Chen and J. Shiu
- 141 $\text{LiMn}_{2-x}\text{Co}_x\text{O}_4$ Cathode Material for Li-Ion Rechargeable Batteries
R. Singhal, K. Asmar, R. Katiyar and A. Manivannan
- 142 Gas Evolution of Overlithiated Li_2NiO_2 as Cathode Active Material for Li-Ion Rechargeable Batteries and Al_2O_3 Coating to Suppress the Gas Evolution
C. Back, I. Yoon, W. Choi, J. Kim, J. Lee, J. Ryu, Y. Kim, J. Moon, S. Park and G. Kim
- 143 Investigation of Lithium Insertion/Extraction Induced Morphology Changes in Micro-Machined Specimens of Li-Ion Battery Cathode Material
S. Kalnaus, J. Park, M. Park, C. Daniel, A. Sastry and N. Dudney
- 144 Studies on LiFePO_4 as Cathode Materials in Lithium-Ion-Batteries
T. Chrobak, M. Ender, J. Illig, J. Schmidt, D. Klotz and E. Ivers-Tiffée
- 145 Mixed Metal $\text{LiFe}_{1-x}\text{Mn}_x\text{PO}_4/\text{C}$ Olivine Composites Prepared by a Simple Nonaqueous Sol-Gel Route
T. Jones, J. Forrester and S. Donne
- 146 Electrochemical Synthesis and Characterization of Dual-Templated, Mesoporous Vanadium Oxide Nanomaterials for Lithium-Ion Cathodes
T. Gabriel, M. Armstrong, N. Petkov, C. O'Dwyer and J. Holmes
- 147 $\text{LiMn}_{0.8}\text{Fe}_{0.2}\text{PO}_4$ as a Promising Cathode Material for Rechargeable Lithium-Ion Batteries
S. Martha, J. Grinblat, O. Haik, E. Zinigrad, T. Drezen, J. Miners, I. Exnar, A. Kay, B. Markovsky and D. Aurbach
- 148 The Origin of Charge-Discharge Hysteresis in Insertion Li-Ion Cathodes
W. Dreyer, J. Jamnik, C. Guhlke, R. Huth, J. Moškon and M. Gaberšček
- 149 In Situ X-Ray Absorption Spectroscopy of the Oxygen K-Edge in a Lithiated Transition Metal Oxide Battery
C. Petersburg, R. Daniel, F. Alamgir, C. Jaye and D. Fischer
- 150 Improved Cyclic Performance of $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ Cathode Material by Particle Size Reduction
C. Lin and J. Duh
- 151 Fabrication and Characterization of Nanostructured Manganese Oxide Electrodes for Electrochemical Energy Storage Devices
K. Walz, C. Ban and A. Dillon
- 152 Thin Film Ru Oxide/Carbon Fabric Composites for Supercapacitors
X. Liu and P. Pickup
- 153 Enhancement of Capacitive Behavior of Manganese Oxide Electrodes Through Microstructural Changes
B. Babakhani and D. Ivey
- 154 The Effect of Applied Force on the Performance Characteristics of a Supercapacitor
G. Gourdin, P. Smith, T. Jing and D. Qu
- 155 Synthesis of Birnessite Type MnO_2 Nanotubes and Their Application in Aqueous Supercapacitors
A. Roberts and R. Slade
- 156 Electrodeposited Manganese Oxides for Supercapacitors
A. Cross, T. Hollenkamp and S. Donne

- 157 Size Effects in Oxide Nanomaterials for Electrochemical Capacitors
S. Limmer, W. Yelton and B. Bunker
- 158 AC Conductivity and Mobile Transport Pathways in $0.45\text{Li}_2\text{O}-(0.55-x)\text{P}_2\text{O}_5-x\text{B}_2\text{O}_3$ Glasses
T. Tho, P. Rayavarapu and S. Adams
- 159 Polyether Based Gel Membrane Polyelectrolytes with Ionic Liquid Moiety
K. Luo, R. Filler and B. Mandal
- 160 Molecular Analysis of Poly Styrene Concentration Effect on Poly Ethylene Oxide Based Electrolytes for Lithium-Ion Batteries
C. San and C. Hong
- 161 Li-Ion Battery Electrolyte Additives Combining Moisture Trapping and SEI Stabilization
A. Du Pasquier and D. Ramprasad
- 162 Computational Characterization of New Ionic Liquids for Li Electrolytes
A. Yeates
- 163 Functional Electrolytes that Inhibit Swelling for Lithium Nickel Cobalt Oxide Based Cells
W. Li and M. Payne
- 164 Revisiting LiClO_4 as an Electrolyte for Rechargeable Li-Ion Batteries
R. Marom, O. Haik, I. Halalay and D. Aurbach
- 165 Ionic Liquids: Enhanced Electrolytes for a New Generation of Batteries
M. Taige, T. Beyersdorff, F. Stiemke and T. Schubert
- 166 Developing LLTO/Alumina Composite for the Solid-Electrolyte in Lithium-Ion Battery
H. Zhang, Y. Jiang, A. Manivannan and X. Liu
- 167 Development of Li-Ion Battery Electrolytes with Improved Safety for NASA Applications
M. Smart, F. Krause, W. West, J. Soler, G. Prakash and B. Ratnakumar
- 168 Perfluoro Aryl Boronic Esters as Redox Shuttle Additives in Lithium-Ion Batteries
M. Patterson and A. Hunt
- 169 DOE Support for Development of Fuel Cell Technology: Overcoming Technological and Economic Barriers
D. Papageorgopoulos, J. Spendelow, N. Garland, K. Epping Martin, D. Lee Ho, J. Marcinkoski and S. Satyapal
- 170 Large-Scale CFD Simulations of Fuel Cell Flowfields
A. Kumar, R. Brost, S. Hirano and W. Schwartz
- 171 Stochastic 3D Models for the Pore Space Geometry of GDLs
R. Thiedmann, I. Manke, W. Lehnert and V. Schmidt
- 172 Influence of GDL Structure on PEM Fuel Cells Performances
J. Jonquille and J. Pauchet
- 173 State of Water in Perfluorosulfonic Ionomer (Nafion 117) Proton Exchange Membranes
Z. Lu, G. Polizos, E. Manias and D. Macdonald
- 174 The Performance of Novel Co-N-C Electrocatalysts for Oxygen Reduction Reaction in Acidic Solution
S. Li, L. Zhang and J. Zhang
- 175 Extended Structures for PEM Fuel Cell ORR Catalysts: Motivations and Concepts
J. Waldecker, P. Shirvanian and S. Hirano
- 176 Direct Oxidation of Alcohols in a Alkaline Electrolyte Environment
Q. He, P. Krtil and S. Mukerjee
- 177 The Effect of Wetting Properties on the Bubble Dynamics in the Flow Field of Direct Methanol Fuel Cells
T. Hutzenlaub, N. Paust, R. Zengerle and C. Ziegler
- 178 Understanding Oxygen Reduction in Complex Metal Organic and Inorganic Composites for Fuel Cell, Electrolyzer and Energy Storage Applications
S. Mukerjee, T. Arruda, K. Abraham, M. Trahan and N. Ramaswamy
- 179 Methanol Oxidation Activity of PtRu Catalysts and Their Microstructures
H. Daimon, T. Onodera, T. Nakagawa, S. Seino, H. Nitani and T. Yamamoto

- 180 The Use of Water Crossover Data for Parameter Estimation in Polymer Electrolyte Membrane Fuel Cells
T. Yau, P. Sauriol, X. Bi and J. Stumper
- 181 Electrochemical Pretreatment Procedures for DMFC Pt-Ru Catalysts
R. Kothandaraman, C. Bock and B. MacDougall
- 182 Parametric Studies of the Direct Alcohol Phosphoric Acid Fuel Cell
S. Fan, D. Wilkinson and H. Wang
- 183 Novel Method of Preparation for Ni-Rich Cathode Material of $\text{LiNi}_{0.8}\text{Co}_{0.15}\text{Al}_{0.05}\text{O}_2$
S. Yoon, C. Lee, I. Hwang, Y. Park, J. Lee and J. Song
- 184 Electrochemical Performance of Carbon Coated LiMnPO_4 as Lithium-Ion Battery Cathodes
P. Muralidharan, S. Moon, H. Lee and D. Kim
- 185 Electrochemical Characterization of One-Dimensional Li_2MnO_3 Nanorod as Cathodes for Lithium-Ion Battery
H. Lee, P. Muralidharan and D. Kim
- 186 Numerical Analysis of Efficiency and Dynamic Performance of Li-Polymer Battery
M. Xiao and S. Choe
- 187 Electrochemical Investigation on LiFePO_4/C Composite for Li Secondary Battery
H. Ko, Y. Chun, Y. Ahn and K. Han
- 188 All-Solid-State Rechargeable Lithium-Ion Batteries with $\text{Li}_2\text{S}-\text{P}_2\text{S}_5$ Based Electrolytes
J. Trevey, C. Stoldt and S. Lee
- 189 Improved High-Temperature Performance of LiMn_2O_4 by Surface Modification with ITO
C. Kim, S. Kwon, J. Yoon and K. Han
- 190 Remote Siting and Plant Cost of an SOFC Power Plant Fed by a MHB in an Extended Deployable Coast Guard Ice Breaker
E. Newton and H. Knickle
- 191 Study of the Effect of Organic Lithium Salts on the Irreversible Capacity Loss of Natural Graphite Electrode
X. Sun and S. Dai
- 192 Optimization of RRDE Method for the Evaluation of Catalyst Activity in Alkaline Solution
K. Oda, H. Kato, K. Fukuta and H. Yanagi
- 193 Polypyrrole for Supercapacitors
P. Ningsih and S. Donne
- 194 Microstructural Change of Si-Based Carbon Coated Anode during In-Situ Heating Transmission Electron Microscopy
T. Ahn, S. Kim, D. Ko, S. Lim, J. Cho and Y. Kim
- 195 Sn-Based Composite Anode Materials Prepared Using an Electrochemical Method
J. Lee and H. Shin
- 196 Electrochemical Preparation of Porous Nickel Foams for High Efficient Electrochemical Devices
W. Choi, H. Jung and H. Shin
- 197 Synthesis and Characterization of PdCu ORR Catalyst for a PEM Fuel Cell
D. Martínez-Casillas, G. Vázquez-Huerta and O. Solorza-Feria
- 198 A Study on the Thermal Behavior of a Lithium-Ion Battery Pack
J. Lee, J. Yi, U. Kim, C. Shin, Y. Hong and C. Kim
- 199 The Structural and Electrochemical Properties of Pyrolytic Carbon Derived from Sorona
M. Christy, J. Manasansodi, A. Kim, K. Nahm and E. Suh
- 200 Synthesis of Nanoscopic Co_3O_4 Prepared with Avian Egg Membrane as a Template and Fabrication of Asymmetric Supercapacitor
J. Manasansodi, M. Christy, A. Kim, K. Nahm, D. Yoo and P. Kim
- 201 Metal Supported SOFC for Intermediate Temperature Operations
K. Kim, Y. Park and H. Kim

- 202 Effect of TiO₂ Langmuir-Blodgett Monolayer as a Blocking Layer on Performance of Dye-Sensitized Solar Cell
C. Han, Y. Lin, C. Hsu and Y. Chen-Yang
- 203 Synthesis of High Power LiFePO₄/C Cathode Materials Using Dual Carbon Sources
G. Fey, Y. Cho, S. Huang and H. Kao
- 204 Effect of Li-La-Ti-O Coating Concentration on Electrochemical Performances of Li[Ni_{0.3}Co_{0.4}Mn_{0.3}]O₂ Cathode
H. Lee, S. Kim and Y. Park
- 205 Gel Electrolyte as Binder of the Activated Carbon Electrode in EDLC
P. Dvorak, J. Vondrak, M. Sedlarikova and M. Macalik
- 206 The Effects of Lithium Lanthanum Titanate Surface Modification on the Electrochemical Performance of Cathode Materials for Lithium Secondary Batteries
K. Jung, H. Kim and Y. Park
- 207 Modification of Solid-State Electrolyte/Cathode Interfaces for Thin Film Batteries
K. Chiu and B. Chen
- 208 SiN/BCNT Composite Electrodes for Lithium-Ion Rechargeable Batteries
S. Katar, D. Hernandez, A. Biaggi, E. Mosquera-Vargas, L. Fonseca, B. Weiner and G. Morell
- 209 Influence of Electrolyte Composition on Deactivation Mechanism of a RuO₂-IrO₂-TiO₂ Coated Titanium Anode
S. Hoseinie, F. Ashrafizadeh and M. Maddahi
- 210 Enhanced Contrast: Switching Speed and Its Scalability of Electrochromic Windows Based Viologen Anchored to TiO₂
S. Kim, F. Su, Y. Rong and M. Taya
- 211 The Influence of Mechanical Properties on the Long-Term Cycling Performance of Graphite Anode
H. Zheng, G. Liu, X. Song, D. Cheung, P. Rigdway and V. Battaglia
- 212 Ab Initio Molecular Dynamics Simulations of the Initial Stages of Solid-Electrolyte Interface Formation on Graphite and Lithium Metal Anode Surfaces
K. Leung
- 213 Differentiating Contributions to "Ion Transfer" Barrier at Electrolyte/Graphite Interface from Interphasial Resistance and Li⁺-Desolvation
K. Xu, A. Cresce and U. Lee
- 214 Effect of Variations in Current Density on Conversion Reactions
S. Hariharan, K. Saravanan and P. Balaya
- 215 In Situ Growth of SnO₂ on Graphene Nanosheets as Advanced Anode Materials for Rechargeable Lithium Batteries
X. Yang, Y. He, X. Liao, D. Bai, J. Chen, G. Wallace and Z. Ma
- 216 Superior Lithium Storage Performance of Mesoporous TiO₂ Synthesized Using Soft Template Method
K. Saravanan, K. Ananthanarayanan and P. Balaya
- 217 Electrochemical Characteristics of Bi(111) and Nanoporous Carbon Electrodes in Ionic Liquids
L. Siinor, H. Kurig, A. Jänes, K. Lust and E. Lust
- 218 Silicon Composite Electrode for Lithium Insertion Cell: Theoretical and Experimental Investigation of Electrode Processes
R. Chandrasekaran, A. Magasinski, G. Yushin and T. Fuller
- 219 Silicon Coated Nanotube Paper as a Lithium-Ion Anode
D. Firsich, V. Arrieta and A. Fortini
- 220 Synthesizing Nanosized and Hollow Structure of SnO₂ Anode Materials for Li-Ion Batteries
Y. Lin and J. Duh
- 221 Water Soluble Binders for Graphite Anode for Lithium-Ion Batteries
F. Courtel, S. Niketic, Y. Abu-Lebdeh and I. Davidson

- 222 Comments on Mitigating Zinc Corrosion in Alkaline Battery
M. Reda
- 223 Pursuing a Higher-Voltage Aqueous Lithium Battery
C. Wessells, F. La Mantia, R. Huggins and Y. Cui
- 224 Evaluation of the Activity of Different MnO_2 for Oxygen Reduction in Alkaline Media
E. Gyenge and J. Drillet
- 225 High Energy Density Mg Battery System
H. Kim, J. Muldoon and M. Matsui
- 226 Voltammetric and Impedance Study of the Polymerization of Pyrrole on Carbon Black Electrodes
R. Moghaddam and P. G. Pickup
- 227 Thin Film Microbatteries: Fabrication and Electrochemical Performance
J. Feng, J. Zhu, H. Xia, M. Lai and L. Lu
- 228 Electrode Development in a Novel Self-Assembled Lithium Iodide Battery
W. Yourey, L. Weinstein, A. Halajko and G. Amatucci
- 229 Characterization of Sodium-Metal Halide Electrochemical Cell Cathodes Using High-Resolution Computed Tomography
D. Hall, J. Urbanski, M. Vallance and A. Meshkov
- 230 Sodium-Metal Chloride Batteries for Electrified Transportation and Stationary Power Applications
D. Bogdan, S. Brooker, R. Bull, R. Galloway, K. Gourishankar, C. Iacovangelo, J. Rijssenbeek, J. Sudworth, G. Zappi and M. Vallance
- 231 A Comparison of TiO_2 Nanotubes and Anodic TiO_2 Mesosponge in Dye Sensitized Solar Cells: Towards High Energy Conversion Efficiency
D. Kim, P. Roy, K. Lee and P. Schmuki
- 232 Dye-Sensitized Solar Cells Fabricated with Electrode Films of TiO_2 and ZnO Using an Electrophoretic Deposition Method
Y. Hara, M. Tejedor and M. Anderson
- 233 Long Term Stability of Nafion Hybrid Membranes for Use in Vanadium Redox Flow Batteries
J. Drillkens, D. Schulte and D. Sauer
- 234 Stopping Ionic Currents in Wet Batteries
A. Banerjee and H. Grebel
- 235 Performance Evaluation of Sandia Prepared Electrodes for Li-Ion Batteries
G. Nagasubramanian and P. Roth
- 236 Life Cycle Analysis of Lithium-Ion Batteries under Low-Earth-Orbit Cycling Conditions
Y. Anguchamy and B. Popov
- 237 Study on Temperature-Dependent Power Performance of Rechargeable Lithium Battery
H. Cho and H. Shin
- 238 Initial Characterizations of Commercial Li-Ion Cells Chosen for PHEV Duty Cycle Protocols
M. Dubarry, M. Cugnet, B. Liaw, K. Gering, S. Sazhin, D. Jamison and C. Michelbacher
- 239 Control and Estimation of Uncertain Parameters in Lithium-Ion Battery Packs
T. Aliyev, E. Gatzke and R. White
- 240 Thermal Effects in Automotive Li-Ion Batteries during Low Temperature Operation
O. Kwon and C. Wang
- 241 Nanoindentation Testing of Lithium-Ion Battery Separators
M. Lukitsch, M. Balogh, C. Wong and I. Halalay
- 242 Si/C and Li-Si/C Based Nanocomposite Anodes for Lithium-Ion Batteries
M. Datta and P. Kumta
- 243 Measuring Li Diffusion and Electrochemical Processes on the Nanoscale
N. Balke, S. Jesse, Y. Kim, L. Adamczyk, N. Dudney and S. Kalinin
- 244 Towards a Fully Printable Battery: *Robocast* Deposition of Printable Separators
K. Fenton, P. Clem, C. Apblett and P. Atanassov

- 245 Mechanical Hysteresis in Lithium Polymer Batteries Due to Viscoelastic Response of Polymer Separator
C. Peabody and C. Arnold
- 246 Effect of Surface Modification of Electrode on Electrochemical Performance and Safety of Li-Ion Batteries
Y. Li, Y. Kuo, C. Yang, J. Pan and P. Chu
- 247 Computer-Aided Optimization of Macroscopic Design Factors for Lithium-Ion Cell Performance and Life
K. Smith, G. Kim and A. Pesaran
- 248 Synthesize Confined Structure of Sn/C-C (MWCNT) Composite Anode Materials for Lithium-Ion Battery by the Carbothermal Reduction method
Y. Jhan and J. Duh
- 249 Optimal Design of Electrode Material Properties for Lithium-Ion Batteries
V. Ramadesigan, R. Methekar, V. Subramanian, F. Latinwo and R. Braatz
- 250 Structurally Integrated Cathode Materials for High-Energy Li-Ion Batteries
I. Belharouak, H. Deng, H. Wu and K. Amine
- 251 Modeling Volume-Changes in Porous Electrodes
P. Gomadam and J. Weidner
- 252 High-Temperature Performance and Safety Characteristics of High-Energy-Density Cathode Materials
H. Deng, I. Belharouak, H. Wu and K. Amine
- 253 Alternative Perovskite Materials as Cathode Materials for Single-Chamber SOFC
C. Gaudillère, L. Olivier, P. Vernoux, Z. Shao and D. Farrusseng
- 254 Interfacial Properties of Fullerene Coated Silicon Film as an Anode Material for Lithium Secondary Batteries: Effect of Coating Layer Thickness
A. Arie and J. Lee
- 255 Thermal Collapse of Nanopores in Palladium Alloys and Their Hydrides
D. Robinson, M. Ong, B. Jacobs, M. Langham and S. Fares
- 256 Porous Electrode and Nonequilibrium Water Transport Modelling in Polymer Electrolyte Fuel Cells
N. Mellgren, M. Vynnycky and A. Dahlkild
- 257 Hysteresis Phenomena in PEM Fuel Cells Materials Degradation: A Multiscale Modeling Viewpoint
A. Franco, S. Cheah and O. Lemaire
- 258 Competitions and Synergies Between Electrochemical Aging Mechanisms in PEM Fuel Cells
A. Franco and O. Lemaire
- 259 A Mathematical Model Showing Temperature Variations in a Direct Propane Fuel Cell
H. Khakdaman, Y. Bourgault and M. Ternan
- 260 Pt-Ag Alloys for Oxygen Reduction in Alkaline Media
S. Schwamborn and W. Schuhmann
- 261 Two-Phase Flow Pressure Drop Hysteresis in PEM Fuel Cell Flow Channels
R. Anderson, D. Wilkinson, X. Bi and L. Zhang
- 262 Adhesion and Thermal Stability of the Low Emissivity Electroplated Au Coatings on 304L Stainless Steel for the Thermal Management
N. Yang, J. Jorenby, M. Clift, J. Hachman, J. Chames and A. Gardea
- 263 Solid State EDLCS Using Various Ionic Polymers: A Study
C. Subramaniam
- 264 Performance and Durability of Pd-Alloy Electrocatalysts for Oxygen Reduction Synthesized Using Supercritical Carbon Dioxide
S. Ang and D. Walsh
- 265 Detailed Chemical Characterization of the PEMFC Materials Aging: Identification of the Mitigating Role of an Anodic CO Contamination on Cathode Degradation
V. Parry, G. Berthomé, J. Joud, O. Lemaire and A. Franco
- 266 Electrodeposition of CoMn onto Stainless Steels Interconnects for Increased Lifetimes in SOFCs
T. Hall, H. McCrabb, J. Wu, H. Zhang, X. Liu and E. Taylor

- 267 Finite Element Analysis of a Sodium-Metal Halide Electrochemical Cell
M. Vallance and D. Hall
- 268 Electrocatalysis of Oxygen Reduction on Non-Precious Metallic Centers at High pH Environments
N. Ramaswamy and S. Mukerjee
- 269 Crossover Effects on Product Distribution of Ethanol Oxidation at Various Anode Catalysts
D. James, G. Li and P. Pickup
- 270 Fabrication and Properties of SnO₂-Based Inert Gas Anodes for Electrowinning
T. Mokkelbost, O. Paulsen, S. Xiao, G. Haarberg and A. Ratvik
- 271 Characterization of the Wetting Properties of Gas Diffusion Layers by the Dynamic Wilhelmy Plate Method: Effects of the Temperature of Liquid Water
V. Parry, E. Appert and J. Joud
- 272 Effect of MEA Fabrication and Testing Parameters on the Performance of Direct Ethanol Fuel Cells
V. Alzate, K. Fatih and H. Wang
- 273 Catalyst Degradation and Cell Voltage Decay in High Temperature PEMFC
J. Park, T. Kim, Y. Aihara, M. Takezawa and S. Choi
- 274 High Efficiency Electrochemical Conversion of Carbon Dioxide to Formate in a Polymer Electrolyte Membrane Cell
S. Narayan, B. Haines, J. Soler and T. Valdez
- 275 Improved Maximum Power Density of Alkaline Membrane Fuel Cells by the Optimization of Catalyst Layer Construction
K. Fukuta, H. Inoue, Y. Chikashige and H. Yanagi
- 276 The Effect of Clamping Pressure on GDL Porosity
M. Arzutug and M. Fowler
- 277 Influence of Gradient PTFE Coating in Cathode Gas Diffusion Layer on the Performance of PEMFCs
M. Arzutug, M. Fowler, V. Singaram and S. Dhanushkodi
- 278 Carbon Corrosion and Wetting Behavior in Direct Carbon Fuel Cells
C. Chen, T. Maruyama and J. Selman
- 279 Hysteresis and Phase Transformations in Solid Acid Electrolytes
M. Kislitsyn, M. Louie, K. Bhattacharya and S. Haile

B2 - Advanced Organic and Inorganic Materials for Electrochemical Power Sources

Battery / Energy Technology / Industrial Electrochemistry and Electrochemical Engineering

- 280 High-Capacity Organic Cathode Material Based on Dialkoxybenzoquinone for Lithium-Ion Batteries
M. Yao, H. Senoh, S. Yamazaki, Z. Siroma, T. Ioroi, N. Fujiwara and K. Yasuda
- 281 Synthesis and Electrochemical Properties of Nanostructured Lithium Manganese Oxide on Carbon Materials for Energy Storage Devices
H. Choi, S. Ma and K. Kim
- 282 Investigation of Silver Vanadium Phosphorous Oxide (Ag₂VO₂PO₄)/Lithium Battery Resistance
A. Marschilok, E. Kozarsky, K. Tanzil, K. Takeuchi and E. Takeuchi
- 283 Lithium Cobalt Oxide/Carbon Nanotube Nanocomposite with High Rate Capability
J. Kim and K. Kim
- 284 An Novel GITT Technique for Phase Transformation Electrodes
Y. Zhu and C. Wang
- 285 Organic Electrodes for Organic Batteries
B. Esat, C. Kilic, A. Ata and M. Kose
- 286 Binder Design for Stable Nano-Silicon Anodes
B. Zdyrko, A. Magasinski, I. Kovalenko, B. Hertzberg, T. Fuller, I. Luzinov and G. Yushin

- 287 A Novel Anode Protection Layer for Thin-Film Rechargeable Lithium Battery
Y. Sabi, K. Takahara, T. Furuya, H. Morioka, M. Adachi and K. Hinokuma
- 288 Oxygen Reduction Reaction Activities of Carbon-Supported Ag Nanoparticles in Alkaline Media
J. Guo, A. Hsu, D. Chu and R. Chen
- 289 PEM Fuel Cell Catalysts and Catalyst Supports Prepared by Template Assisted Ultrasonic Spray Pyrolysis
H. Liu and J. Zhang
- 290 Pt-Decorated Pd/C Catalysts for Methanol-Tolerant Oxygen Reduction Reaction
W. He, Z. Li, Z. Zhou, X. Zhang and H. Yang
- 291 Novel Metastable Pd-Ru Catalysts for Electrooxidation of Formic Acid
P. Kedzierzawski, A. Mikołajczuk, A. Borodziński, B. Mierzwa and L. Stobiński
- 292 Electrocatalytic Properties of Pt Monolayers on Ni Prepared by Atomic Layer Deposition
Y. Tolmachev, R. Hoover, C. Bekele, D. Boyd and D. Coates
- 293 Pt Monolayers on Au: A Study of Reactivity and Durability in the Oxidation of Ethylene Glycol
R. Rettew and F. Alamgir
- 294 Structured Multilayer Electrodes Without Nafion for Polymer Electrolyte Membrane Fuel Cells
A. Wolz, S. Zils, M. Michel and C. Roth
- 295 In Situ Studies of Electrode Processes within Alkaline Fuel Cells
F. Brushett, M. Naughton and P. Kenis
- 296 Characterization of Electrochemical Processes on PEO/LiTFSI Polymer Electrolyte System
E. Kalu, W. Bennett and M. Manzo
- 297 Characterization and Optimization of the Polymeric Electrolytes Based on Methalalumoxane and Polyethylene Glycols
M. Siekierski, M. Marczewski, M. Piszcz and A. Plewa-Marczewska
- 298 Association Constant in PEO-Based Systems Observed from the NMR and IR Spectroscopies in Comparison to Conductivity Based Fuoss-Kraus Method
A. Plewa-Marczewska, M. Bukat, G. Zukowska and M. Siekierski
- 299 Improvement of Polymeric Electrolytes Properties: Strategies of System Modification
M. Siekierski and W. Wieczorek
- 300 Electrochemical Behavior of Carbide Derived Carbons in LiPF_6 and LiCF_3SO_3 Nonaqueous Electrolytes
A. Laheäär, A. Jänes and E. Lust
- 301 Development of Novel Starch-Based Gel Electrolyte Films for Electrochemical Device Applications
S. Pang and C. Tay
- 302 Proton Conducting Polymer Electrolytes for Electrochemical Capacitors
K. Lian, H. Gao and Q. Tian
- 303 Electrochemical and Physical Properties of Polymerized Imidazolium Anion Complexes
T. Sutto, T. Wong, J. Taft and T. Duncan
- 304 Fast Protonic Conductivity in Crystalline Benzenehexasulfonic Acid
Y. Tolmachev, E. Garanin, A. Turanov and A. Khitrin
- 305 Investigation of the Effect of Functional Group Substitutions on the Gas-Phase Electron Affinities and Ionization Energies of Room-Temperature Ionic Liquids Ions Using Density Functional Theory
S. Ong and G. Ceder
- 306 Anion Conduction in Solid Electrolytes Probed by Water Transport Measurements
H. Takahashi, T. Takeguchi, T. Yamanaka and W. Ueda
- 307 Temperature Effect on the Capacitance of Carbon Nanotube Supercapacitors
B. Wei
- 308 Synthesis of KOH-Activated Glucose-Based Carbon with High Electrochemical Performance for Use in Supercapacitor
S. Chun and J. Whitacre
- 309 Co-Polymerization Preparation and Capacitive Performance of Composite Films of CNTs/PANI/NiHCF
Y. Zang, X. Hao, Z. Wang, Z. Zhang and S. Liu

- 310 Nanoporous Carbon as a Model System for Electrochemical Capacitors
S. Limmer, W. Yelton, M. Siegal, D. Overmyer and B. Bunker
- 311 Flexible Supercapacitor Based on Polyaniline Nanowires/Carbon Cloth with Both High Gravimetric and Area-Normalized Capacitance
Y. Horng, Y. Lu, Y. Hsu, K. Chen and L. Chen
- 312 Hybrid Gold Nanoparticle-PEDOT Materials for Supercapacitor Applications
G. Bremner and M. Wolf
- 313 Ion Diffusion in EDLC Based on Microporous Carbons
A. Kajdos, A. Kvit, J. Jagiello and G. Yushin
- 314 Enhanced Ultracapacitor Utilizing Vertically Aligned CNTs Attached with MnO₂ Nanoparticles
S. Wei, W. Kang, J. Davidson, B. Rogers and J. Huang
- 315 Oriented NiO-TiO₂ Nanotube Arrays for Supercapacitors: Microstructure and Electrochemical Properties
K. Zhu, J. Kim, Y. Yan, C. Perkins and A. Frank
- 316 Synthesis and Electrochemical Characterization of Graphene Based Materials for Electrochemical Capacitor Application
S. Bak and K. Kim
- 317 Advanced Laser Processing of Hydrrous Ruthenium Oxide Supercapacitor Electrodes for Improved Performance
J. Scholl, C. Peabody and C. Arnold
- 318 Nano-V₂O₅ and Conducting Polymer Composite Film Cathodes for Lithium Batteries
H. Song, Y. Kim, Q. Ta, I. Yeo, W. Cho and S. Mho
- 319 Building Li-Ion Battery Cathodes on Conductive Carbon Fibers
N. Dudney, J. Kiggans, A. Kercher, P. Ritt and H. Wang
- 320 Characteristics of Conducting Polymer-Coated Nanosized LiFePO₄ Cathode in the Li⁺ Batteries
H. Dinh, I. Yeo, W. Cho and S. Mho
- 321 Room Temperature Cross-Linkable Gel Polymer Electrolytes for Lithium-Ion Batteries by In Situ Cationic Polymerization of Divinyl Ether
S. Hwang, C. Cho and H. Kim
- 322 Effect of Silica Aerogel on Properties of the Polyacrylonitrile/LiClO₄ Polymer Electrolytes for Lithium Battery
Y. Chen, Y. Chuang, C. Su, H. Yu and Y. Chen-Yang
- 323 Nonprecious Metal Electrode Catalysts for Alkaline Fuel Cells
A. Nakamura, H. Takahashi, T. Takeguchi, T. Yamanaka and W. Ueda
- 324 Hydrogen Permeation, Diffusion and Solution in LaNi₅ - Based Electrode
L. Mirkova
- 325 SnO₂-Ionomer Composites: A Comparative Study of the Transport Properties
B. Mecheri, V. Felice, A. D'Epifanio, A. Tavares and S. Licoccia
- 326 Preparation and Evaluation of Novel Polymer Complexes for Improved Alkaline Anion Exchange Membranes
D. Xie, Y. Weng, X. Guo, G. Wang, D. Chu and R. Chen
- 327 Effect of a Fluoropolymer on the Properties of the Polysulfone-Based Alkaline Anion Exchange Membranes
G. Wang, J. Zhou, Y. Weng, X. Guo, D. Chu, R. Chen and D. Xie
- 328 Development of New Thin Film Electrolytes Composed of Layered Compound NaCo₂O₄ as Alkaline Fuel Cell
M. Matsuda, T. Murota, H. Takahashi, T. Takeguchi and W. Ueda
- 329 Development of New Anion-Conducting Layered Perovskite-Type Oxides Electrolytes
H. Watanabe, T. Takeguchi, T. Yamanaka and W. Ueda
- 330 Synthesis and Characterization of Cross-Linked Polymer Electrolyte for Fuel Cell Applications
B. Kim, D. Lee, H. Lee, D. Henkensmeier, E. Cho, J. Jang, T. Lim and H. Kim

- 331 Layer-by-Layer Self-Assembly of Permselective Silicate/Polyelectrolyte Multilayers onto Nafion as Methanol Blocking Barrier in DMFC
J. Kim and S. Kwak
- 332 UV-Curable Silver Nano Inks for Direct Printing
J. Kim, C. Jung and S. Koo
- 333 SnO₂-Modified MnO₂ Electrode Material for Electric Double-Layer Capacitors
Y. Chen, P. He, Y. Liang, X. Yi, J. Sun and Q. Jiang
- 334 Morphology Variation of the Electrode Material in Inverted Polymer Solar Cell
Y. Suh, S. Park, T. Lee, W. Chung, K. Kim and M. Kim
- 335 Advanced Electrochemical Properties of Composite Electrolyte Based on Carbon Nanotubes—Polyethylene Oxide For Dye-Sensitized Solar Cells
M. Akhtar, J. Park, U. Kim and O. Yang
- 336 Fabrication of Dye Sensitized Solar Cells with Plasma Enhanced Polymerized Polyaniline/TiO₂ Nanoparticulate Thin Film Electrode
S. Ameen, C. Jo, Y. Kim and H. Shin
- 337 CIGS Thin Film Fabrication Using Spray Deposition Method
J. Cho, C. Ham, E. Bae, J. Suh and K. Song
- 338 Preparing of CIGS Nanoparticles Using One Step Synthesis
C. Ham, J. Cho, J. Suh, E. Bae and K. Song
- 339 CdS or CdSe Decorated TiO₂ Nanotube Arrays from Spray Pyrolysis Deposition
K. Shin, S. Im, P. Yoo, D. Kim and J. Park
- 340 Emission Properties of Nonstoichiometric Ba(B'_{1/3}B''_{2/3})O₃ (B' = Co or Zn, B'' = Nb) Perovskite Type Materials for Photocatalytic Water Splitting
D. Grebennikov and P. Mascher
- 341 Engineered Tungsten Oxy-Nitride Thin Film Materials for Photocatalytical Water Splitting Fabricated by MOCVD
A. Milanov, V. Gwildies, S. Cwik, T. Thiede, V. Vidyarthi, A. Savan, R. Meyer, H. Becker, D. Rogalla, A. Ludwig, R. Fischer and A. Devi
- 1014 Aerosol Jet Deposition for SOFC Fabrication
M. Sukeshini, P. Gardner, T. Jenkins, R. Miller, T. Reitz, M. Renn and D. Ramahi
- 342 LiPF₆ Based Environmentally Friendly Mixed Electrolyte for Symmetric Supercapacitors of High Specific Performance
A. Jänes, A. Laheäär, H. Kurig and E. Lust
- 343 Phosphonium Salt Based Electrolytes for Electrical Double Layer Capacitors
H. Kurig, A. Jänes and E. Lust
- 344 Specific Performance of Supercapacitors Based on Different Micro/Mesoporous Membrane Materials
K. Tõnurist, T. Thomberg, A. Jänes and E. Lust
- 345 High Voltage Stacks of Aqueous Supercapacitors: Materials, Fabrication and Performance
X. Zhou, C. Peng and G. Chen
- 346 Dye-Sensitized Solar Cell Based on Titanium Nanofibers Produced by Electrospinning
J. Macak, J. Pytel, M. Dusek and J. Trckova
- 347 Organometallic Vanadium Complexes for Nonaqueous Single Metal Flow Batteries
A. Shinkle, A. Sleightholme, L. Thompson and C. Monroe
- 348 Durability Issues and Status of High Temperature Proton Exchange Membrane Fuel Cells Based on Acid Doped Polybenzimidazole Membranes
Q. Li, J. Jensen, C. Pan, J. Liao, H. Rudbeck, L. Cleemann and N. Bjerrum
- 349 Degradation and Diagnostic Analysis of Gas Diffusion Layers under Humidity Cycling
S. Dhanushkodi, M. Fowler, M. Pritzker, X. Yuan and H. Wang
- 350 Development of Solid Alkaline Inorganic Fuel Cell Consisting of Layered Mixed Oxides
T. Takeguchi, H. Takahashi, T. Yamanaka, T. Kuroki and W. Ueda

- 351 Impedance Monitoring of the Anodic Dissolution of PANi during the V₂O₅ Deposition Step for the PANi/V₂O₅ Composite Film Preparation
K. Park, J. Kim, I. Yeo and S. Mho

B3 - Batteries for Renewable Energy Storage

Battery / Energy Technology / Industrial Electrochemistry and Electrochemical Engineering

- 352 Nanostructured Hybrid Silicon/Carbon Nanotube Heterostructures: Novel Reversible High-Capacity Lithium-Ion Anodes
W. Wang and P. Kumta
- 353 The Electrochemical Production of Tin Filled Carbon Nanotubes and Their Use as Anode Materials in Lithium-Ion Batteries
R. Das Gupta, C. Schwandt and D. Fray
- 354 Highly Patterned Micron-Sized Ni-Sn Alloys with 3-Dimensionally Ordered Macroporous Structure as Anode for Lithium Batteries
M. Kotobuki, N. Okada, S. Woo, H. Munakata and K. Kanamura
- 355 Nanoporous Hollow Spheres of Metal Oxides for Li-Ion Rechargeable Batteries
M. Au and T. Adams
- 356 Three-Dimensionally Ordered Porous Membrane for High Rechargeable Lithium Metal Anode
K. Sasajima, Y. Yamamoto, H. Munakata and K. Kanamura
- 357 LiCo_xMn_{1-x}PO₄/C Composites Synthesis by a Combination of Spray Pyrolysis with Wet Ball-Milling and Their Electrochemical Properties
T. Doan and I. Taniguchi
- 358 ALD Surface Coatings for High Rate Performance of Nanoparticle LiCoO₂
I. Scott, A. Cavanagh, S. George and S. Lee
- 359 Synthesis of Nanostructured LiMn₂O₄ Using Hierarchical MnO₂ and Its Electrochemical Performance as Cathode Materials in Li-Ion Batteries
W. Ryu, D. Han, W. Kim and H. Kwon
- 360 In Situ FTIR Study of the Gaseous Decomposition Products of N-butyl-N-methylpyrrolidinium Bis(trifluoromethanesulfonyl)amide Ionic Liquid Electroreduction
D. Aurbach, E. Markevich, R. Sharabi, V. Borgel, H. Gottlieb, G. Salitra, G. Semrau and M. Schmidt
- 361 Fabrication of All-Solid-State Lithium Battery Using Novel Garnet Type Electrolyte
M. Kotobuki, K. Kanamura, Y. Sato, K. Yamamoto and T. Yoshida
- 362 Nanoparticle Organic Hybrid Electrolytes
J. Nugent and L. Archer
- 363 A Roadmap Towards the Selection of the Most Adapted Battery System for Electrical Energy Storage
M. Dubarry, M. Cugnet and B. Liaw
- 364 Monitoring Mechanical Degradation of Composite Electrodes for Lithium-Ion Batteries by Acoustic Emission Techniques
K. Rhodes, C. Daniel, E. Lara-Curzio and N. Dudney
- 365 R & D Activities of Redox Flow Battery for Energy Storage at DICP
H. Zhang
- 366 Electrochemical Energy Storage for Renewable and Grid Applications: Status and Challenges
Z. Yang, J. Liu, M. Kintner-Meyer, J. Lemmon and G. Graff
- 367 A Nanostructured Li₂S/Silicon Rechargeable Battery with High Specific Energy
Y. Yang, M. McDowell, A. Jackson, J. Cha, S. Hong and Y. Cui
- 368 Microstructural Investigation of the Sodium-Nickel Chloride (ZEBRA) Battery
T. Javadi, G. Botton and A. Petric

- 369 Electrochemical Properties of Nickel-Aluminum Layered Double Hydroxide Fabricated by the Liquid Phase Deposition
A. Béléké and M. Mizuhata
- 370 Investigation of Hydrogen Evolution During the Preparation of Anolyte for a Vanadium Redox Flow Battery
X. Gao, M. Leahy and D. Buckley
- 371 High Power Planar Sodium Metal Halide Battery
J. Lemmon, G. Yang, X. Lu, G. Xia, V. Sprenkle and K. Meinhardt
- 372 Nonaqueous Redox Flow Battery Employing Redox Couples Able to Transfer Multi Electrons
D. Lee, H. Sun, S. Hwang, J. Park and S. Doo
- 373 ALD and MLD Surface Coatings for Performance and Safety Enhancement of Li-Ion Batteries
L. Riley, A. Cavanagh, S. George, S. Lee and A. Dillon
- 374 Performance and Life Testing of Altairnano PHEV Lithium-Ion Cells
J. Belt and C. Ho
- 375 The Electrochemical Properties of Nickel Sulfide Electrode by for Na Batteries
H. Ryu, J. Kim, J. Park, I. Kim, H. Ahn, K. Kim, J. Ahn and J. Wang
- 376 Enhanced Cyclic Performance of Surface Modified LiMn_2O_4 by Al_2O_3 Coating for Li-Ion Batteries
W. Kim, W. Ryu, D. Han and H. Kwon
- 377 Application of Microporous Cu Foam Structure Prepared by Electrodeposition to Substrate of Sn Anode for Li-Ion Battery
D. Nam, R. Kim, J. Kim and H. Kwon
- 378 Cell Balancing and Cell Variations in Large Capacity Li-Ion Cells
N. Beck and A. Paterson
- 379 A Laboratory Experiment with PEMFC Oriented Towards Evaluation of the Fuel Cell For Failure Analysis In Automobiles
K. Santhanam, N. Karla, T. Hill, J. Stephenson and M. Wahila
- 380 Electrochemical Properties of LiFePO_4 Cathode Material and Effect of the Carbon Content on the Rate-Capability
A. Kumar, R. Thomas, M. Tomar and R. Katiyar
- 381 Synthesis and Characterization of P(ECH-EO) Based Solid Polymer Electrolyte for Lithium-Ion Rechargeable Battery
N. Hellar, S. Subramanian, A. Dorai, S. Ayyasamy, H. Muthusamy, J. Kawamura, B. Rangasami and P. Selvin
- 382 Positive Effects of E-Beam Irradiation Ion Inorganic Particle Based Separator for Lithium-Ion Battery
M. Kim, S. Cho, C. Chung and J. Park
- 383 High-Voltage Stability of Interfacial Reaction at the LiMn_2O_4 Thin Film Electrodes/Liquid Electrolytes with Boroxine Compounds
T. Horino, H. Tamada, A. Kishimoto, Y. Iriyama, Y. Tanaka and T. Fujinami
- 384 A New Sythetic Route for Preparing Carbon-Coated LiFePO_4
Y. Li, W. Zhu, D. Lai and X. Shi
- 385 A Dynamic Modelling of the All-Vanadium Redox Flow Battery
H. Al-Fetlawi, A. Shah and F. Walsh
- 386 An Adaptable Lithium-Ion Battery Model
C. Parfitt, W. Crofts and R. Buckle
- 387 Temperature-Dependent Discharge Behavior of a Lead-Acid Battery Simulated by a Mathematical Model
M. Cugnet and B. Liaw
- 388 Cycle Life Prediction of Battery-Supercapacitor Hybrids Using Artificial Neural Network
Q. Tian and K. Lian
- 389 Performance Modeling of a Na/ NiCl_2 Battery
B. Ramamurthi, A. Shapiro and R. Sarrafi-Nour

- 390 A Mathematical Model for All Solid-State Lithium-Ion Batteries Incorporating Mechanical Effects
K. Becker-Steinberger, S. Funken, M. Landstorfer and K. Urban
- 391 Thin-Film Battery Cell Modeling with Concentration Dependent Diffusion Coefficients
K. Becker-Steinberger, S. Funken, M. Landstorfer and K. Urban
- 392 Path Dependence of Aging in Commercial Li-Ion Cells Chosen for PHEV Duty Cycle Protocols
K. Gering, S. Sazhin, D. Jamison, C. Michelbacher, M. Dubarry, M. Cugnet and B. Liaw
- 393 Maximization of Energy Storage and Minimization of Capacity Fade in Lithium-Ion Battery Pack
R. Methekar, V. Ramadesigan, V. Subramanian and R. Braatz

B4 - Biological Fuel Cells 4

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

- 394 Advanced Glucose-Air Enzymatic Fuel Cell for Portable Applications
V. Svoboda, U. Lindstrom, S. Singhal, C. Lau and P. Atanassov
- 395 Microbial Fuel Cell Design Sufficient to Power a Hydrophone over a Several Month Period
K. Richter, D. Chadwick and L. Tender
- 396 Evolution of Sony's Biofuel Cell
H. Sakai, T. Nakagawa, H. Mita, H. Kumita and Y. Tokita
- 397 Potentially Implantable Glucose/Oxygen Biofuel Cells
S. Shleev
- 398 Microstructured Biological Fuel Cells for Automatic Series-Connection and Relay Systems
T. Miyake and M. Nisizawa
- 399 Protein Engineering for Bioelectrocatalysis: We Can Do More than V_{max}
S. Banta
- 400 Rational Design of Cellobiose Dehydrogenase for Biosensor and Biofuel Cell Applications
R. Ludwig, C. Sygmund, W. Harreither, D. Haltrich and L. Gorton
- 401 Development of Thermostable Gluconate 5-Dehydrogenase for Biofuel Cell System
D. Yamaguchi, R. Matsumoto, Y. Goto, H. Sakai and Y. Tokita
- 402 Understanding the Mechanism of Mitochondrial Bioelectrocatalysis in Organelle Based Biofuel Cells
R. Arechederra and S. Minteer
- 403 Fluorescence Characterization of Immobilized Enzymes
G. Martin, C. Lau, S. Minteer and M. Cooney
- 404 In Situ and On-Demand Biocatalytic Hydrogen Production System for Microfuel Cells
A. Ranta, S. Kielosto, T. Noponen and A. Halme
- 405 Modeling Study of a Methanol Biofuel Cell Operating on Multi-Step Enzyme Kinetics and Mediated Electron Transfer
P. Kar and S. Calabrese Barton
- 406 Conversion of a Biofuel Cell to a Rechargeable Biobattery
P. Addo, R. Arechederra and S. Minteer
- 407 Novel In Situ Spectro-Electrochemical Methods for Newer Insights on Enzymatic Reaction Centers
T. Arruda, S. Mukerjee, D. Chakraborty and S. Calabrese Barton
- 408 Mechanism and Performance of an Inexpensive Monosaccharide Biofuel Cell
L. Chetty, J. Kim, N. Zhao, D. Scott and B. Liaw
- 409 Inhibition and Uncoupling Mechanisms in Mitochondrial Bioelectrocatalysis
M. Arechederra, C. Fischer, D. Wetzel and S. Minteer
- 410 Biofuel Cells Controlled by Logically Processed Biochemical Signals
E. Katz
- 411 Glucose Oxidase Enzymes Rationally Engineered for Direct Electron Transfer
T. Holland, S. Brozik, C. Lau, P. Atanassov and S. Banta

- 412 Calculation of Redox Potentials in Multi-Copper Oxidases: A Combined First Principles and Molecular Dynamics Study
G. Hong, D. Ivnitski, G. Johnson, P. Atanassov and R. Pachter
- 413 Fluorescence Characterization of Enzyme Aggregation in the Immobilized State
G. Martin, S. Minteer and M. Cooney
- 414 Complete Oxidation of Hexose by Using a Synthetic Thermophilic Enzymes Pathway for Enzymatic Biofuel Cells
Y. Wang, G. Wu, X. Ye, S. Minteer and Y. Zhang
- 415 Characterization of Flow-Through Microbial Fuel Cells
S. Higgins, M. Cooney, S. Minteer, P. Atanassov, C. Lau, A. Cheung, O. Bretschger and K. Nealon
- 416 DNA-Directed Assembly of Enzymes and Nanomaterials: Small Laccase-Carbon Nanotube Supramolecular Assemblies
S. Brocato, C. Lau, E. Chi, M. Werner-Washburne, P. Atanassov, G. Szilvay, C. Li and S. Banta
- 417 Incorporating *Shewanella Oneidensis* MR-1 in Silica Films Derived by Chemical Vapor Deposition
J. Roy, C. Lau, L. Ista, P. Atanassov, H. Luckarift and G. Johnson
- 418 Controlling the Orientation of Multicopper Oxidases for Direct Electron Transfer
P. de la Iglesia, D. Ivnitski, C. Lau and P. Atanassov
- 419 Complete Glycerol Oxidation: Development of a Hybrid Enzymatic-Metallic Biofuel Cell
A. Falase, C. Lau, P. Atanassov, R. Arechederra, Z. Zulic and S. Minteer
- 420 Measurement Setup to Study the Electrode Potentials Separately in a Printed Biofuel Cell
S. Tuurala, M. Smolander, M. Valkiainen, A. Vaari, V. Ojala and M. Bergelin
- 421 Electrochemical Functionalization as a New Approach for Enzyme Immobilization
M. Moumene and M. Mohamedi
- 422 Electricity Generation Capability of Various Carbonaceous Electrodes in Microbial Fuel Cell
I. Park, G. Gnana Kumar, A. Kim, K. Nahm and P. Kim
- 423 Small Scale Microbial Fuel Cells and Different Ways of Reporting Output
I. Ieropoulos, J. Winfield and J. Greenman
- 424 Toward Predicting the Power Output of Benthic Microbial Fuel Cells
R. Snider, Y. Furukawa, J. Book, A. Quaid and L. Tender
- 425 Microbial Fuel Cells Based on Immobilized Bacteria Using Carbon Nanoparticles and Chemical Modification
Y. Yuan and S. Kim
- 426 Bacterial Nanowires and Electricity Generation in Microbial Fuel Cells
Y. Gorby, M. El-Naggar, G. Wanger, T. Yuzvinsky and K. Nealon
- 427 Electrochemical-Induced Growth of Biofilms in Microbial Fuel Cells
D. Leech, K. Katuri, T. Catal, R. Saravanan, S. Boland and P. Kavanagh
- 428 Voltammetric Analysis of Biofilms Catalyzing Cathode Reactions and Implications for Solar Microbial Fuel Cells
S. Strycharz, R. Snider and L. Tender
- 429 Cellular Encapsulation by Silica CVD: 'Artificial Biofilms' in Microbial Fuel Cells
H. Luckarift, S. Sizemore, G. Johnson, G. Gupta, G. Lopez and P. Atanassov
- 430 Electrochemical and Metabolic Control of Electron Transfer in Biofilms
H. Beyenal, A. Dewan, J. Babuta, H. Ngyen, R. Renslow and B. Cao
- 431 Electrochemical Quartz Crystal Microbalance to Monitor Biofilm Growth and Properties during BioElectrochemical System Inoculation and Load Conditions
S. Brown, S. Read, A. Rowlands, B. Laycock, J. Cooper-White and J. Keller
- 432 Microbial Fuel Cells and Algae
I. Ieropoulos, J. Greenman and M. Sauer
- 433 Voltammetric Analysis of *Geobacter Sulfurreducens*: Catalyzed Anode Reactions
L. Tender, S. Strycharz and R. Snider

- 434 Design and Characterization of Nanostructured Laccase Electrodes
D. Ivnitski, H. Luckarift, C. Khripin, B. Halevi, G. Johnson and P. Atanassov
- 435 Development of Bioelectrocatalytic Multi-Component Films for Reduction of Oxygen and Hydrogen Peroxide
P. Kulesza, B. Kowalewska, A. Dobrzaniecka and K. Miecznikowski
- 436 Synergy Effect of Multiple Redox Enzymes at Carbon Nanocomposite Electrodes: Towards a High Potential Biocathode
L. Stoica, W. Jia, Y. Ackermann and W. Schuhmann
- 437 Air Diffusion Biocathode Based on Direct Electron Transfer-Type Bioelectrocatalysis
K. Kano and S. Tsujimura
- 438 Principal Component Analysis of In Situ Spectro-Electrochemistry Data for ORR Catalyzed by Laccase
K. Artyushkova, P. Atanassov, T. Arruda and S. Mukerjee
- 439 Development of High Performance Bio-Cathode
T. Nakagawa, H. Mita, H. Kumita, H. Sakai and Y. Tokita
- 440 Bilirubin Oxidase as a Highly Efficient Electrocatalyst for the Oxygen Reduction Reaction
L. dos Santos, C. Blanford, V. Climent, E. Gonzalez and F. Armstrong
- 441 Air-Breathing Enzymatic Cathode for Portable Biofuel Cells
C. Lau, P. Atanassov, V. Svoboda and S. Singhal
- 442 Cyclic Voltammetric Study of Glucose Oxidation in Alkaline Solution with the Presence of Viologen
J. Kim, N. Zhao, D. Scott, M. Dubarry and B. Liaw
- 443 Methylene Green Electrodeposited on SWNTs-Based "Bucky Papers" for NADH and L-Malate Oxidation.
C. Narváez Villarrubia, R. Rincón, P. Atanassov, V. Radhakrishnan and V. Davis
- 444 Characterization of Redox Hydrogel Thin-Film Electrodes for Precise Estimate of Hydrogel Transport Properties and Kinetic Parameters of Enzymes
D. Chakraborty and S. Calabrese Barton
- 445 Flow-Through 3D Biofuel Cell Anodes for NAD-Dependent Enzymes
R. Rincón, C. Lau and P. Atanassov
- 446 Poly(Methylene Blue) and Poly(Methylene Green): Comparison Between the Electrochemical and Chemical Syntheses, Chemical Properties and Application as an NADH Electrocatalyst
M. Arechederra, C. Jenkins, R. Rincón, K. Artyushkova, P. Atanassov and S. Minter
- 447 Redoxpolymers and Nanostructured Electrode Surfaces: Design and Optimization of Biofuel Cell Electrodes
W. Schuhmann
- 448 Investigation of Conducting Polymers Containing Amino Reactive Groups for Enzyme Immobilization by Microencapsulation in Biofuel Cells
M. Hébert and D. Rochefort
- 449 Combining Mediator and Enzyme Libraries for Biocatalytic Fuel Cell Performance
D. Leech, P. Kavanagh, S. Boland, R. Saravanan and P. Jenkins
- 450 New Materials for Biofuel Cell Anodes Based on Linear Poly(ethylenimine) and Ferrocene
M. Meredith, D. Schmidtke and D. Glatzhofer
- 451 High-Surface-Area Bioanode Made of Redox Polymer Grafted Carbon and Glucose Oxidase
T. Tamaki, A. Hiraide, H. Ohashi, T. Ito and T. Yamaguchi
- 452 Engineering Enzymes for High Power Biofuel Cells
N. Mano
- 453 Carbon Nanotubes as a Conductive Interface for Enzymatic Fuel Cell Designs
H. Luckarift, R. Ramasamy, L. Barnes, D. Ivnitski, P. Atanassov, R. Pachter and G. Johnson
- 454 Bioelectrocatalytic Reaction of Fructose Dehydrogenase on Mesoporous Carbon Electrodes
S. Tsujimura, A. Nishina, Y. Hamano, S. Shiraishi and K. Kano

- 455 Effect of Nanostructured Carbon Electrode Surfaces on the Percentage of Adsorbed Redox Enzyme Molecules in Direct Electron Transfer Contact
F. Chekin, V. Coman, F. Tasca, M. Zafar, G. Safina, W. Harreither, R. Ludwig and L. Gorton
- 456 Nanobiocatalysis and Its Potential Applications in Biofuel Cells
J. Kim
- 457 Engineered Bio-Nano Materials for Improved Biofuel Cell Electrodes
N. Akers, W. Gellett, J. Schumacher, D. Le, W. Patterson and P. Atanassov
- 458 Use of Chitosan in the Development of Mesoporous Carbon Structures for Use in Bioelectrocatalysis
K. Sjöholm, R. Arechederra, E. Schwarz, M. Cooney and S. Minteer
- 459 Biofuel Cell Based on Printed Bioelectrocatalytic Layers
M. Smolander, A. Vaari, S. Tuurala, M. Valkiainen, H. Boer, A. Koivula, J. Keskinen, O. Kaukonen, J. Uotila and M. Bergelin
- 460 Development of Sol-Gel Bioelectrodes for Low Temperature Biofuel Cell: Covalent Immobilization of Glucose Oxidase and Laccase on Conductive Carbon-Chitosan Composites
C. La Rotta, G. Ciniciato and E. Gonzalez

B5 - Combinatorial Screening of Materials for Energy Conversion and Storage

Energy Technology / Battery / Industrial Electrochemistry and Electrochemical Engineering

- 461 Thermal, Electrical, and Electrochemical Properties of Scandium-Doped $\text{Ln}_{0.6}\text{Sr}_{0.4}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$ as Cathodes for IT-SOFC
Y. Yin, N. Yang, M. Xiong, Z. Tong, J. Feng, Z. Ma, E. Sun, Y. Jean and B. Jing
- 462 Scanning Electrochemical Microscopy Characterization of Pt-M (M: Pd, Ru, Ir) as Electrocatalysts for Hydrogen Oxidation
Y. Weng and C. Hsieh
- 463 Discovery and Characterization of Novel Direct Hydrazine Fuel Cell Anode Electrocatalysts
J. Sanabria-Chinchilla, Z. Liu, K. Asazawa, T. Sakamoto, H. Tanaka and P. Strasser
- 464 High Throughput Screening of Potential Ethanol Oxidation Catalysts for PEM Fuel Cells
D. Stevens, E. Marvel, R. Sanderson, E. Moreau and J. Dahn
- 465 Investigating the Liquid Water Transport in a PEFC by Electrochemical Impedance Spectroscopy and ESEM Imaging
R. Alink and D. Gerteisen
- 466 Screening of Ceria-Based Catalysts for Methane Reforming in Intermediate Temperature Single-Chamber SOFC
C. Gaudillère, P. Vernoux, C. Mirodatos and D. Farrusseng
- 467 Novel Copper-Zinc Oxide Nanoarchitectures as Microreformation Catalysts for Hydrogen Production
Y. Lin, Y. Hsu, Y. Lin, S. Chen, L. Chen and K. Chen
- 468 Optimization of Electrodes and Operating Conditions Using High-Throughput Electrochemistry for Low-Voltage Generation of Alkalinity for CO_2 Sequestration
S. Gorer, M. Kostowskyj, R. Gilliam, N. Knott and B. Constanz
- 469 High Throughput Synthesis and Screening for Discovery of Improved Electrode Materials for Lithium-Ion Batteries
B. Li, F. Matsumoto, D. Greenburg, B. Howard, R. Olugbile, C. O'Neill and S. Kaye
- 470 High Performance Supercapacitor Based on MnO_2 Nanosheet/ CNx Nanotubes-Grown Carbon Cloth
Y. Chen, Y. Hsu, Y. Horng, L. Chen and K. Chen
- 471 A Combinatorial Approach to Discovery of Semiconducting Oxides for Solar Water Splitting
B. Parkinson
- 472 The Solar Hydrogen Activity Research Kit Project: Dedicated to Splitting Water with Sunlight
J. Schuttlefield, C. Markum and B. Parkinson

- 473 Metallic Titanium-Based Photoelectrode for Large Area Dye-Sensitized Solar Cells
S. Ngamsinlapasathian, K. Onoda, T. Takayasu, T. Sagawa and S. Yoshikawa
- 474 Sensitization of Anatase TiO₂ Films by Adsorption of N719 Dye
K. Lee, M. Gomez, S. Elouatik, C. Charbonneau, N. Parsi, G. Shan and G. Demopoulos

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

Energy Technology / High Temperature Materials

- 475 Energy Storage Systems Markets, Value and Cost Analysis
D. Rastler
- 476 The Role of Energy Storage in Electric Grid of the Future
P. Denholm
- 477 Sustainable Bioenergy Feasibility and Economics: A Case Study on the Yakama Nation
K. Spies, J. Richardson, V. Lieu, S. Rigdon, S. York, L. Nackley, B. Batalla-Garcia, R. Cawston and D. Schwartz
- 478 Characterization of Lithium-Ion Batteries of Various Chemistries: Energy Density, Resistance and Power Capability, and Fast Charging
A. Burke
- 479 The Economics of Materials for Energy Storage
J. Whitacre
- 480 Assessing the Costs and Benefits of EV or HEV Usage Using Pattern Recognition and Vehicle Simulation
M. Dubarry, C. Truchot and B. Liaw
- 481 Adoption of Micro-Fuel Cells
J. St-Pierre and C. Hebling

B7 - Electrode Processes Relevant to Fuel Cell Technology

Physical and Analytical Electrochemistry / Energy Technology

- 482 Platinum Monolayer Electrocatalysts for O₂ Reduction: Pt Monolayer on Carbon-Supported PdIr Nanoparticles
S. Knupp, M. Vukmirovic, P. Haldar and R. Adzic
- 483 Kinetics of Oxygen Dissociation on Pt(111)
L. Naslund, H. Ogasawara, D. Miller, H. Oberg, V. Viswanathan, T. Anniyev, H. Pitsch, L. Pettersson and A. Nilsson
- 484 Electrocatalytic Activity of (100) Preferentially Oriented Pt Nanostructure
S. Garbarino, A. Ponrouch and D. Guay
- 485 On the Nature of Pt-O Species Observed with XANES and Implications for the Oxygen Reduction Reaction
D. Friebel, D. Miller, H. Ogasawara, T. Anniyev, C. O'Grady, U. Bergmann, J. Bargar, A. Nilsson, K. Wikfeldt and L. Pettersson
- 486 Pt/C vs. Pt_xFe_y/C and Pt_xCo_y/C Catalysts for the Oxygen Reduction Reaction: Structure, Activity and Stability
L. Chen, C. Bock, B. MacDougall and P. Mercier
- 487 Removing the Low Coordination Sites of Palladium Nanoparticles Using Bromide Adsorption to Enhance the Oxygen Reduction Reaction Kinetics
Y. Cai and R. Adzic
- 488 PEM Fuel Cell Non-Noble Metal Catalysts: Challenges and Perspective
J. Zhang, H. Liu, L. Zhang and R. Baker
- 489 Electrocatalytic Properties of Metal Nanoparticles for Selective Reduction of Oxygen
F. Mirkhalaf

- 490 Electrocatalytic Activity of Ta Compound Thin Film for Oxygen Reduction Reaction
K. Matsuzawa, A. Kikuchi, A. Ishihara, S. Mitsushima and K. Ota
- 491 Alloys of Platinum and Early Transition Metals as Oxygen Reduction Electrocatalysts
I. Stephens, A. Bondarenko, T. Johansson, T. Jaramillo, I. Chorkendorff, J. Greeley, H. Hansen, F. Calle-Vallejo, J. Rossmeisl and J. Nørskov
- 492 Photocatalytically Generated Bi- and Trimetallic Oxygen Reduction Catalysts Supported on Titanium Dioxide-Carbon Matrix
K. Rajeshwar, N. de Tacconi, W. Chanmanee, W. Wampler, W. Lin and L. Nikiel
- 493 A New Two-Step Synthesis of CoFe-Based Nonprecious Metal ORR Catalysts
G. Wu, M. Nelson, C. Johnston and P. Zelenay
- 494 Ti-Co Catalysts Prepared by Polymerized Complex Method as Nonnoble Metal Cathode for PEFC
K. Takanabe, F. Yin, J. Kubota and K. Domen
- 495 Cu-Containing Oxygen Reduction Catalysts
A. Gewirth and M. Thorum
- 496 Nonprecious Metal Oxide Based Powder Using Group 4 and 5 Metals for PEFC Cathode
K. Ota, K. Matsuzawa, S. Mitsushima and A. Ishihara
- 497 Investigation on Niobium and Titanium Oxide Based Catalyst for PEFC
Y. Wakizaka, M. Horikita, T. Imai, R. Monden, C. Yu and K. Lee
- 498 Development of Less-Expensive Oxide Cathode Catalysts for PEFCs
Y. Takasu, Y. Hongsheng and W. Sugimoto
- 499 Electrocatalytic Oxygen Reduction and Oxygen Evolution on Manganese Oxide Surfaces
Y. Gorlin and T. Jaramillo
- 500 Mass Transport and ORR Kinetics in Solid Polymer Electrolytes
A. Mani, J. Peron, K. Shi and S. Holdcroft
- 501 Effect of Heat Treatment on Electronic States of Carbon in Iron Phthalocyanine-Based Oxygen Reduction Catalysts Studied by Soft X-Ray Absorption Spectroscopy
H. Niwa, M. Saito, M. Kobayashi, Y. Harada, M. Oshima, S. Moriya, K. Matsubayashi, Y. Nabae, S. Kuroki, T. Ikeda, K. Terakura, J. Ozaki and S. Miyata
- 502 X-Ray Absorption Spectroscopy Analysis of Nitrogen in Carbon-Based Catalyst for Polymer Electrolyte Fuel Cells
M. Saito, H. Niwa, M. Kobayashi, Y. Harada, M. Oshima, S. Moriya, K. Matsubayashi, Y. Nabae, S. Kuroki, T. Ikeda, K. Terakura, J. Ozaki and S. Miyata
- 503 Electrochemical Oxygen Reduction on Carbon Nitride
S. Lyth, Y. Nabae, S. Moriya, S. Kuroki, M. Kakimoto, J. Ozaki and S. Miyata
- 504 Nitrogen Functionalized Mesoporous Carbon for PEM Fuel Cells
S. Shrestha and W. Mustain
- 505 Nitrogen-Doped Carbon Nanotubes as a Novel Catalyst Support for PEM Fuel Cells
Y. Chen, H. Liu, J. Wang, R. Li, A. Sun, S. Ye and S. Knights
- 506 Highly Active Carbon Nitride Electrocatalyst for the Oxygen Reduction Reaction in PEM Fuel Cell Applications
R. Hsu and Z. Chen
- 507 Pt- and Pd-Based Carbon Nitride ORR Electrocatalysts Supported on Conductive Nanoparticles for Application in PEMFCs
V. Di Noto and E. Negro
- 508 Interfacial Properties of Chalcogenide Metal Centers Towards the Oxygen Reduction Reaction
A. Gago Rodriguez, Y. Feng, L. Timperman and N. Alonso-Vante
- 509 A Quantum Mechanical and Experimental Study of Cobalt/Polypyrrole Catalysts: Investigation of Oxygen Reduction Active Site
Z. Shi, H. Liu, K. Lee, J. Zhang, Z. Liu, J. Chlistunoff, M. Blair and P. Zelenay

- 510 Electrochemistry of Fe-Phenylenediamine Derived Cathode Catalysts Supported on Carbon
S. Gharaibeh and V. Birss
- 511 Effect of Synthesis Conditions on ORR Activity of Polyaniline-Fe-C Catalysts
G. Wu, K. Artyushkova, C. Johnston and P. Zelenay
- 512 A Surface Functionalization Approach to Fe-N/C Oxygen Reduction Catalysts
A. Pauric, E. Easton and B. MacLean
- 513 Novel Cathode Catalyst Development in a pH-Flexible Microfluidic Platform
F. Brushett, A. Gewirth, A. Wiekowski and P. Kenis
- 514 Highly Active Porous Carbon-Supported Nonprecious Metal-N Electrocatalyst for Oxygen Reduction Reaction in PEM Fuel Cells
J. Choi, R. Hsu and Z. Chen
- 515 The Importance of Catalyst Supports for the Improvement of PEM Fuel Cell Performance and Durability
S. Ye, A. Young, S. Knights and A. Sun
- 516 Electrocatalysis at Microelectrodes: Geometrical Considerations
H. Zhu, Y. Tolmachev and D. Scherson
- 517 Model of a Water-Filled Nanopore in an Ionomer-Free Cathode Catalyst Layer
K. Chan and M. Eikerling
- 518 High Performance Electrode for PEMFC Based on a Double-Layered Buckypaper
W. Zhu, J. Zheng, R. Liang, B. Wang, C. Zhang, G. Au and E. Plichta
- 519 Modeling the Effect of Low Carbon Conductivity of the Cathode Catalyst Layer on PEM Fuel Cell Performance
M. Baghalha, M. Eikerling, J. Stumper and D. Harvey
- 520 Improved Performance of Oxygen-Reducing Biocathode in Biological Fuel Cells
K. Kano and S. Tsujimura
- 521 The Effect of Oxide Blocking on the ORR on Platinum in Alkaline Solution
G. Wiberg and M. Arenz
- 522 Nitrogen Doped Carbon Nanotube Thin Films as Efficient Oxygen Reduction Catalyst for Alkaline Anion Exchange Membrane Fuel Cells
D. Higgins and Z. Chen
- 523 Micromagnets in the PEMFC Catalyst Layer: Impacts on Adsorbate Kinetics
W. Gellert, S. Minter, D. Dunwoody and J. Leddy
- 524 Recent Progress in Anode Materials for Solid Oxide Fuel Cells
Q. Li and V. Thangadurai
- 525 Carbon and Sulfur Poisoning in SOFC Anodes
J. Giorgi, S. Bukhari and J. O'Brien
- 526 Developing an Electrochemical Method to Assess SOFC Anode Losses during H₂S Poisoning under Polarization
S. Paulson, M. Sponiar and V. Birss
- 527 Electrochemical Promotion of CO Oxidation on Pt/YSZ: The Effect of Catalyst Potential on the Induction of Highly Active Stationary and Oscillatory States
M. Tsampas, F. Sapountzi and C. Vayenas
- 528 Evaluation of Anode Architectures for Single-Chamber SOFC by Impedance Spectroscopy Coupled with Gas Chromatography
C. Gaudillère, P. Vernoux and D. Farrusseng
- 529 Electrochemical Reactions at the Anode-Electrolyte Interface of Solid Oxide Fuel Cells: DFT Study
M. Shishkin and T. Ziegler
- 530 Performance and Stability of Cermet Supported SOFCs with an SDC Barrier Layer Prepared by Pulsed Laser Deposition
X. Zhang, D. Yang, M. Robertson and C. Decès-Petit

- 531 Rate Determining Step of High Temperature Cathode Reaction Studied by In Situ Electrochemical XAS
Y. Orikasa, T. Ina, T. Nakao, T. Fukutsuka, A. Mineshige, K. Amezawa, T. Kawada and Y. Uchimoto
- 532 Electrochemical Performance of $\text{SmBaCo}_{2/3}\text{Fe}_{2/3}\text{Cu}_{2/3}\text{O}_{5+\delta}\text{-Ce}_{1.9}\text{Gd}_{0.1}\text{O}_{1.9}$ Composite Cathodes for IT-SOFC
S. Lee, S. Jo, P. Muralidharan and D. Kim
- 533 Fabrication and Performance of Graded LSCF/GDC Cathode for Solid Oxide Fuel Cell
N. Li, A. Smirnova, A. Verma, P. Singh and J. Kim
- 534 Investigation of SOFC Cathode Kinetics by Means of Continuum Modeling and Well-Defined Electrodes
M. Lynch, X. Li, L. Yang, D. Mebane and M. Liu
- 535 Theoretical Investigation of Ammonia Oxidation Kinetics on Pt(111)
D. Daramola, A. Dugovics and G. Botte
- 536 Controlled Growth of Silver Nanostructures for Oxygen Reduction Reaction in an Alkaline Electrolyte
C. Chen, Y. Chang, P. Wu and P. Lin
- 537 3D Multiphase Modeling of PEMFC with Uneven Compression and Deformation of GDL
L. Qi, K. Jiao, A. Pereira and X. Li
- 538 Investigation of Gas Diffusion Electrodes for Electrochemical Oxygen Reduction
B. Schuster, N. Wagner and M. Schulze
- 539 Investigation of Leakages in PEFC Fuel Cells by Measuring Current Density Distributions and Raman Spectra
M. Schulze, E. Gülzow, K. Friedrich, P. Fischer and H. Bettermann
- 540 Prospective of Pd/MO_x as Alternative Anode Pt Catalyst for Polymer Electrolyte Fuel Cell
E. Muhamad, T. Takeguchi, G. Wang, T. Yamanaka and W. Ueda
- 541 Fabrication and Characterization of High Activity Pt/C Electrocatalysts for Oxygen Reduction
B. Lim, J. Kim, S. Hwang, E. Cho, T. Lim and S. Kim
- 542 Electrochemical Preparation of Ternary Pt-Fe-Co Catalysts for the Oxygen Reduction Reaction: Size and Composition Dependent Activity
S. Hwang, S. Kim and T. Lim
- 543 Effects of Upper Potential Dwell Time, Transients and Relative Humidity on PEM Fuel Cell Cathode Catalyst Degradation
M. Dutta, N. Jia, S. Lu, V. Colbow and S. Wessel
- 544 Electrocatalytic Activity of 4A-Zeolite Modified Pt/C for Electrooxidation of Methanol in Alkaline Medium
Y. Liang, P. He, X. Yi, Y. Chen, J. Sun and Q. Jiang
- 545 Effect of Solvent on the Electrocatalytic Activity of Pt/C Catalyst for Methanol Electrooxidation
Y. Liang, P. He, X. Yi, Y. Chen, J. Sun and Q. Jiang
- 546 Impacts of Ru Dissolution and Crossover on PEMFC Performance and Anode Functionality
T. Cheng, V. Colbow and S. Wessel
- 547 On the Effect of Vanadium Doping in Lanthanum Strontium Chromite
S. Carré, E. Koep and J. Morante
- 548 High Performance Electrolyte for Carbonate Fuel Cell
A. Hilmi, C. Yuh and M. Farooque
- 549 Temperature-Dependence of Oxygen Reduction Reaction Activity at Pt/Graphitized Carbon Catalysts Prepared by Nanocapsule Method
H. Yano, T. Akiyama, M. Uchida, H. Uchida and M. Watanabe
- 550 Carbon-Supported Pt-Pd Alloy as Methanol-Tolerant-Oxygen-Reduction Catalyst for DMFCs
K. Nishanth, P. Sridhar, S. Pitchumani and A. Shukla
- 551 Two-Step Conditioning Method for High-Power Generating Direct Methanol Fuel Cell
M. Umeda, T. Iwasaki and M. Inoue
- 552 Detection of H₂O₂ Generation during O₂ Reduction at Porous Microelectrode Packed with Pt-Based Catalysts
M. Umeda and A. Kishi

- 553 Effect of Core Size on Activity and Durability of Pt Core-Shell Catalysts for PEFCs
M. Inaba, H. Ito, H. Tsuji, M. Banno, H. Yamada, M. Saito and A. Tasaka
- 554 Electrospun Metal Oxides for Energy Storage
M. Dusek, J. Macak, J. Trckova and J. Pytel
- 555 In Situ Observation of CO Oxidation by Anode PtRu/C Catalysts for Polymer Electrolyte Fuel Cells
T. Yamanaka, T. Takeguchi, G. Wang, E. Muhamad and W. Ueda
- 556 Characterization of Core-Shell Catalyst for Electrooxidation of Small Organic Molecules
P. Ochal, J. Gomez de la Fuente, M. Tsykin, F. Seland, S. Alayoglu, B. Eichhorn and S. Sunde
- 557 Impedance Analysis of PdCo as Cathode for a PEM Fuel Cell
G. Vázquez-Huerta, D. Martínez-Casillas and O. Solorza-Feria
- 558 $\text{Sr}^{3+}/\text{Sm}^{3+}$ Co-Doped Based Two Phase Nanocomposite Electrolytes
R. Raza, S. Imran and B. Zhu
- 559 Fabrication of Hydrophobic Coating on GDL with Silicone Based Materials
Y. Wang, S. Saher and X. Li
- 560 Improving CO Tolerance of $\text{Pt}_2\text{Ru}_3/\text{C}$ Catalyst by the Addition of Tin Oxide
G. Wang, T. Takeguchi, T. Yamanaka, E. Muhamad and W. Ueda
- 561 Rotating Disc Studies of Bulk CO Oxidation on Polycrystalline Platinum
P. Dahlstrøm and D. Harrington
- 562 EIS Analysis on SO_2 Contamination in PEMFCs
Y. Zhai, K. Bethune, S. Dorn, G. Bender and R. Rocheleau
- 563 Analysis of Processes in Solid Oxide Fuel Cells Based on the Porous Cathodes and Anodes
E. Lust, I. Kivi, K. Tamm, P. Möller, A. Samussenko, E. Anderson and H. Kurig
- 564 Analysis of Oxygen Reduction Reactions in Protic Ionic Liquids by In Situ FT-IR Spectroscopy
H. Munakata, T. Tashita, K. Sasajima and K. Kanamura
- 565 A New Method for the Measurement of Effective Ionic Conductivity in a PEMFC Catalyst Layer
Z. Siroma, J. Hagiwara, K. Yasuda, M. Inaba and A. Tasaka
- 566 Platinum-Ruthenium Catalyst Structure and Its CO Tolerance in PEMFC
P. He, T. Cheng, R. Bashyam and S. Knights
- 567 Single Chamber SOFC Based on LDMW Electrolyte and Its In Situ Anode Initialization
D. Tsai, J. Lo and Y. Chen
- 568 Electrochemical Study of Surface-Functionalized Carbon Support Materials
A. Abdullah, D. Banham, F. Feng, S. Gharaibeh, K. Pei and V. Birss
- 569 Degradation Mechanisms in PEM Fuel Cells: New Insights from a Mesosstructural Resolved Kinetic Modeling Approach
A. Franco and K. Malek
- 570 Physical Theory of Platinum Nanoparticle Dissolution in Polymer Electrolyte Fuel Cells
S. Rinaldo, J. Stumper and M. Eikerling
- 571 Aging of Pt/C Electrocatalysts at the Micrometer Scale: An Electrochemical and Transmission Electron Microscopy Study
B. Vion-Dury, M. Chatenet, L. Guétaz and F. Maillard
- 572 Ageing Phenomena of Polymer Electrolyte Fuel Cell Electrodes
K. Friedrich, M. Schulze, A. Haug, X. Yuan and H. Wang
- 573 PEMFC Contamination Model: Competitive Adsorption Followed by a Surface Segregated Electrochemical Reaction Leading to an Irreversibly Adsorbed Product
J. St-Pierre
- 574 Ionomer Degradation in Polymer Electrolyte Membrane Fuel Cells
A. Young, S. Knights, J. Stumper and E. Gyenge
- 575 Evaluation of Structure-to-Property Relationships in Fuel Cell Durability Performance by Multivariate Analysis
K. Artyushkova, S. Pylypenko, M. Dowlapalli and P. Atanassov

- 576 Investigation of the Degradation of Hydrophobized Carbon Structures in PEFC
A. Haug, M. Schulze, K. Friedrich, X. Yuan and H. Wang
- 577 Characterization of Platinum Monolayer Electrocatalysts in Long-Term Fuel Cell Cathode Tests
K. Sasaki, H. Naohara, Y. Cai, D. Su and R. Adziki
- 578 Stability of PtZn Nanoparticles Supported on Carbon in Acidic Electrochemical Environments
A. Sode, A. Musgrove and D. Bizzotto
- 579 The Impact of SO₂ on the Degradation of MEA Components in PEMFCs
S. Dorn, Y. Zhai, G. Bender and R. Rocheleau
- 580 Multilayered and Radient Electrodes for Proton Exchange Membrane Fuel Cells by Reactive Spray Deposition Technology
J. Roller, R. Neagu, Z. Xie and R. Maric
- 581 Highly Porous Electrodes Fabricated at Intermediate Temperatures
E. Koep
- 582 PEFC Gas Diffusion Layer: Effective Properties and Compression Effect
J. Becker, V. Schulz and A. Wiegmann
- 583 Understanding Pt Surface Area Loss in PEMFC Cathodes: Size and Oxidation Effects
E. Holby, Y. Shao-Horn, W. Sheng and D. Morgan
- 584 Development of a Model Electrode System for the Electrocatalytic Evaluation of Nanoparticles for Fuel Cell Applications
H. El-Sayed, T. Trinh and V. Birss
- 585 Porosity and Hydrophilicity of a DMFC Cathode Catalyst Layer
F. Capitanio and A. Tavares
- 586 Hierarchically-Structured Fuel Cell Electrocatalysts Derived by Microemulsion Templating
S. Pylypenko, T. Olson, D. Petsev and P. Atanassov
- 587 Graphene Oxide as a Carbon Support for Direct Methanol Fuel Cell Catalysts
S. Bong, I. Kim, S. Woo, S. Um, J. Lee and H. Kim
- 588 Nitrogen Doped Carbon Nanotubes as Catalyst Support with High Oxygen Reduction Reaction Activity in PEM Fuel Cells
D. Higgins and Z. Chen
- 589 Tungsten/Carbon Nanotube Supported Platinum as Cathode Catalyst for Proton Exchange Membrane Fuel Cell
D. Meza, D. Higgins, L. Salgado and Z. Chen
- 590 Electrochemical Oxygen Reduction Ability of Platinum Nanoparticles Prepared by Ionic Liquid-Sputtering Method
S. Kuwabata, K. Yoshii, T. Tsuda and T. Torimoto
- 591 3-D Design of Electrocatalytic Nanoarchitectures of Relevance for Fuel-Cell Reactions
D. Rolison, J. Wallace, J. Long, C. Chervin and J. Dysart
- 592 Design and Synthesis of Advanced Nanoscale Electrocatalysts
C. Wang, S. Sun, D. Strmcnik, P. Paulikas, D. van der Vliet, N. Markovic and V. Stamenkovic
- 593 Imprinted Carbon Materials for Use as ORR Catalysts
D. Banham, F. Feng, K. Pei and V. Birss
- 594 Nanoscale Phenomena in Catalyst Layers for PEFC: From Fundamental Physics to Benign Design
K. Chan, A. Roudgar, L. Wang and M. Eikerling
- 595 Microstructure-Electrocatalytic Relationships Towards Proper Design of Free-Standing Nanostructured Platinum Electrodes for Fuel Cells
Z. Hamoudi, F. Saidani, M. Elkhakani and M. Mohamedi
- 596 Nanostructured Catalytic Electrodes for Low-Temperature Fuel Cells: Activation of Reactive Sites Through Modification with Ultra-Thin Films of Metal Oxo Species
P. Kulesza, A. Lewera, K. Miecznikowski, B. Dembinska, A. Kolary-Zurowska, A. Zurowski, S. Zoladek and I. Rutkowska

- 597 Synthesis and Electrochemical Study of Pt-Based Nanostructured Materials
A. Chen, J. Wang, R. Assumme, B. Adamas, G. Wu, P. Holt-Hindle and D. Thomas
- 598 Development of Multicomponent PEM Fuel Cell Catalysts for Enhanced Stop-Start Protection
D. Stevens, A. Bonakdarpour, R. Sanderson, S. Wang, R. Atanasoski, M. Debe and J. Dahn
- 599 Microstructure of Low-Platinum Loaded Catalysts Prepared Using a Novel High Temperature Route via the Reactive Spray Deposition Technology Process
R. Maric, B. Schalchi, D. Mitlin, J. Roller and R. Neagu
- 600 Pore-Scale Simulation of Transport and Electrochemical Reactions in the Catalyst Layer of a PEM Fuel Cell
K. Lange, P. Sui and N. Djilali
- 601 Direct Oxidation of Methane to Methanol over Proton Conductor and Metal Mixed Catalysts
B. Lee, Y. Sakamoto, D. Hirabayashi, K. Suzuki and T. Hibino
- 602 Toward an Effective Direct Ethanol Fuel Cell
A. Bocarsly, E. Niangar and M. Lieb
- 603 In Situ Infrared Spectroscopy Study of Ethanol Oxidation on Pt and PtSn-Based Trimetallic Anode Electrocatalysts for Direct Ethanol Fuel Cell
S. Beyhan, F. Kadirgan and J. Léger
- 604 Mechanistic Studies of Ethanol Oxidation in a Direct Ethanol Fuel Cell
D. James, G. Li and P. Pickup
- 605 Electrodeposited Pt-Ir Thin Films as Efficient Anode Materials for Direct Methanol Fuel Cells
E. El Sawy and V. Birss
- 606 Increasing and Decreasing Mass Transport Effects in the Oxidation of Small Organic Molecules
F. Seland, R. Tunold and D. Harrington
- 607 Prototype 2-Propanol Alkaline Fuel Cells and a Synthesis of Ni-Pt Catalysts with Low Pt Loadings Located Primarily at the Surface
M. Markiewicz, L. Menard, S. Francis and S. Bergens
- 608 Anode Catalysis in Direct Formic Acid Fuel Cells
X. Yu and P. Pickup
- 609 Strategies for Improving the Anode Performance in Direct Liquid Fuel Cells with Low Pt Load
T. Cheng, D. Lycke and E. Gyenge
- 610 Dynamic Impedance of Formic Acid Electrooxidation on Polycrystalline Palladium
R. Sacci and D. Harrington
- 611 Broad-Band Sum Frequency Generation Study of Formic Acid Chemisorption on a Pt(100) Electrode
R. Behrens, A. Lagutchev, D. Dlott and A. Wieckowski
- 612 CO and Formic Acid Oxidation on Multiparticle Electrodes
I. Kiss
- 613 Fingerprints of Automotive Fuel Cell Cathode Catalyst Degradation
S. Kundu, D. Bessarabov, M. Cimenti, S. Lee and J. Stumper
- 614 Investigation of Electrode Composition of Polymer Fuel Cells by Electrochemical Impedance Spectroscopy and Conductive AFM
K. Friedrich, N. Wagner, T. Kaz, A. Bauder, R. Hiesgen and I. Wehl
- 615 Use of Patterned Cathodes to Understand Cathode Performance during Fuel Cell Operation
L. Miara, K. Yoon, L. Saraf, U. Pal and S. Gopalan
- 616 Equivalent Weight Influence on Fuel Cell Performance of the Catalyst Layers Prepared by Reactive Spraying Deposition Technology
Z. Xie, M. Haldane, J. Roller, R. Neagu, R. Maric, T. Navessin and S. Holdcroft
- 617 Investigation of Proton Transport in the Catalyst Layer of PEM Fuel Cells by Electrochemical Impedance Spectroscopy
M. Cimenti, D. Bessarabov, M. Tam and J. Stumper

- 618 Model-Based Deconvolution of Potential Losses in a PEM Fuel Cell
M. Baghalha, M. Eikerling and J. Stumper
- 619 Analytical Performance Modeling of Microfluidic Fuel Cells
L. Xiaoye and E. Kjeang
- 620 Correlation Between Electrochemical Properties and Local and/or Electronic Structures of Pt Core-Shell Catalyst for PEFCs
Y. Uchimoto, H. Aoki, S. Urata and T. Fukutsuka
- 621 Study of Spatial PEMFC Performance under CO Poisoning Using Segmented Cell Approach
T. Reshchenko, K. Bethune and R. Rocheleau
- 622 The Impact of sub ppm Carbon Monoxide and ppm Level CO/Toluene and Methylcyclohexane/CO Mixtures on PEMFC Performance and Durability
M. Angelo, K. Bethune and R. Rocheleau
- 623 PEM Fuel Cells Catalyst Layers: Microstructure and Mass Transport Properties
T. Soboleva, X. Zhao, K. Malek, Z. Xie, T. Navessin and S. Holdcroft

B10 - Intercalation Compounds for Energy Conversion and Storage

Energy Technology / Battery

- 624 The Kinetics of Li Incorporation in LiFePO₄
R. Malik, F. Zhou and G. Ceder
- 625 Microwave-Solvothermal Synthesis and Characterization of LiFe_{1-x}(VO)_xPO₄ Cathodes
K. Harrison, A. Murugan and A. Manthiram
- 626 Studies of Ion Mobility in Lithium Vanadium Fluorophosphates Using Multinuclear Solid State NMR
L. Davis, L. Cahill, L. Nazar and G. Goward
- 627 Relative Thermal Stabilities of Olivine Cathodes Investigated Using First Principles Calculations
S. Ong, A. Jain, G. Hautier, B. Kang and G. Ceder
- 628 Crystal Structure-Electrochemistry Correlations of Vanadium Phosphates Using In Situ X-Ray Absorption Spectroscopy
C. Allen, K. Abraham and S. Mukerjee
- 629 Crystal Structure and Electrochemical Study of A(Fe_{1-x}M_x)SO₄F (A = Li/Na; M = Co/Ni/Mn) Fluorosulfates Prepared by Low Temperature Ionothermal Synthesis
P. Barpanda, M. Ati, N. Recham, J. Chotard, W. Walker, M. Armand and J. Tarascon
- 630 Application of Li-Rich Layered Oxide Cathodes for High Capacity Li-Ion Batteries: Some Practical Issues and Approaches
D. Im, J. Kim, J. Yoon, K. Park, Y. Ryu, S. Lee, D. Lee and S. Doo
- 631 Electrochemical Performance of Spinel LiMn₂O₄ Produced in a Two-Stage Flow Reactor
X. Zhang, R. Axelbaum, H. Zheng and V. Battaglia
- 632 Electroactivity and Characterization of Defect Antifluorite Li₅Fe_{1-x}Co_xO₄ and Li₆MnO₄ Electrodes for Lithium-Ion Batteries
C. Johnson and M. Thackeray
- 633 Cation-Deficient Spinel Ferrites as Ion-Insertion Host Materials for Rechargeable Li-Ion Batteries
J. Long, B. Hahn, K. Pettigrew, M. Osofsky and D. Rolison
- 634 Electrochemical Performance of LiF-Coated LiMn₂O₄ Cathode Material for Li-Ion Batteries
J. Li, J. Xie and Y. Zhang
- 635 15 Years R&D at Hydro-Québec on Li-Ion Technologies for Green Transportation
K. Zaghib
- 636 Investigations of the P2-Na_xCoO₂ Phase Diagram Through an Electrochemical Route
R. Berthelot, D. Carlier, M. Pollet and C. Delmas
- 637 Investigation of Vanadium Oxides Prepared by Ion Exchange
E. Takeuchi, C. Lee, A. Subramanian, K. Takeuchi and A. Marschilok

- 638 Hydrothermal Synthesis of TiO₂ Nanowire Electrodes with High-Rate Performance
H. Shim, D. Lee, K. Hong and D. Kim
- 639 Design of the Electronic Conductivity at All Scales of a Composite Electrode for Lithium Batteries
J. Badot, E. Ligneel, B. Lestriez, O. Dubrunfaut and D. Guyomard
- 640 3-Dimensional Characterization of Li-Ion Battery Electrodes
S. Harris, P. Shearing, N. Brandon, L. Howard, P. Jorgensen, J. Wilson, J. Cronin and S. Barnett
- 641 Effect of Electrode Morphology on the Electrochemical Performance of Lithium-Ion Batteries
H. Jannesari, R. Zengerle and C. Ziegler
- 642 The Influence of Nanopores Inside Micron-Sized Electrode on Diffusion and Diffusion-Induced-Stress
S. Harris, Y. Qi, R. Deshpande, Y. Cheng and I. Dutta
- 643 The Synthesis and Electrochemical Analysis of Novel Organic Electrodes for Li-Ion Batteries
W. Walker, S. Grugeon, S. Laruelle, M. Armand, F. Wudl and J. Tarascon
- 644 Micro-Raman Mapping of Cycled Commercial Li_{1-x}Ni_{0.80}Co_{0.15}Al_{0.05}O₂ Electrodes: New Insights
J. Nanda, J. Remillard, A. O'Neil, K. Neitering, T. Ro, D. Bernardi and T. Miller
- 645 SEI Formation or Exfoliation? Insights in the Electrolyte Decomposition Kinetics on Graphite for Lithium-Ion Battery Anodes
W. Mäerle, C. Lu, D. Goers, M. Spahr and P. Novák
- 646 The Role of Carbon Defect Chemistry in Optimizing Performance of Next Generation Lithium-Ion Batteries
I. Perez, V. Khalap and P. Collins
- 647 Effect of Processing Conditions on Physical and Electrochemical Characteristics of Disordered Carbon Li-Ion Negative Electrodes
J. Camardese and A. Timmons
- 648 Three-Fold Increase in the Modulus of Graphite Negative Electrodes during Lithium Intercalation
Y. Qi, L. Hector, A. Timmons and H. Guo
- 649 Effects of Concentration-Dependent Young's Modulus on Diffusion Induced Stress Modeling for Battery Applications
R. Deshpande, Y. Cheng, Y. Qi and M. Verbrugge
- 650 Hollow Carbon Nanosphere Based Lithium-Ion Negative Electrodes High Rate Low Temperature Performance
J. Cox and M. Wagner
- 651 In Situ Observation of Strains during Lithiation of a Graphite Electrode
Y. Qi and S. Harris
- 652 Nanoengineered Sn-TiC-C and Sb-MO_x-C (M = Al, Ti, or Mo) Composite Anodes for Lithium-Ion Batteries
A. Manthiram and S. Yoon
- 653 Electrochemical Characteristics of SnO₂ Nanoparticle Prepared by Liquid Phase Deposition Method as Negative Electrode for Lithium Secondary Batteries
K. Ui, S. Fukuya, S. Kawamura, Y. Kadoma, N. Kumagai, Y. Umekage, R. Kumaresan and M. Mizuhata
- 654 SnO₂ Nanofabrication for Electrode Materials by the Liquid Phase Deposition Method
M. Mizuhata, Y. Umekage, R. Kumaresan and K. Ui
- 655 Stability and Charge Dynamics of Li Electrode Materials: An In Situ Raman Spectroelectrochemistry Investigation
O. Frank, S. Klod, C. Täschner, L. Kavan and L. Dunsch
- 656 ⁶⁷Li and ³¹P Solid State NMR Studies of the Phosphate Family of Cathode Materials for Li-Ion Batteries
L. Davis, M. Scott, I. Heinmaa, B. Ellis, L. Nazar and G. Goward
- 657 Study of a New Lamellar LiCoO₂ Polytype
R. Berthelot, D. Carlier, M. Pollet and C. Delmas

- 658 Structural and Electrochemical Properties of the $\text{LiCo}_{2/3}\text{Ni}_{1/6}\text{Mn}_{1/6}\text{O}_2$ Positive Electrode Material
A. Mahmoud, J. Amarilla and I. Saadouné
- 659 Simulating Microstructure and Mechanical Properties of Mesoporous Manganese Dioxide
P. Ngoepe, T. Sayle and D. Sayle

B11 - Ionic and Mixed Conducting Ceramics 7

High Temperature Materials / Energy Technology

- 660 Interfacial Effects on the Ionic Conductivity of Thin Film Electrolytes for Micro-Solid Oxide Fuel Cells
E. Traversa
- 661 Experimental and Theoretical NMR Spectroscopic Studies of Doped Lanthanum Gallate Anionic Conductors: Ion Mobility and Trapped Defects
F. Blanc, D. Middlemiss and C. P. Grey
- 662 BIMEVOX Solid Solutions as Possible Materials for Membranes of Electrochemical Devices
M. Morozova, E. Buyanova, J. Emelyanova, Z. Mihailovskaya, A. Shatohina, S. Petrova and V. Zhukovskiy
- 663 Plasma Spraying of Lanthanum Silicate Electrolytes for Intermediate Temperature Solid Oxide Fuel Cells
S. Dru, K. Wittmann-Teneze, E. Meillot, M. Saboungi and R. Benoit
- 664 Effects of Nanosized Metal Addition on Mixed Conductivity in Pr_2NiO_4 Based Oxide
T. Ishihara and K. Tominaga
- 665 Oxygen Nonstoichiometry and Charge Transfer in Double Perovskites $\text{GdBaCo}_{2-x}\text{M}_x\text{O}_{6-d}$ ($\text{M} = \text{Mn, Fe, } x = 0, 0.2$)
D. Tsvetkov, V. Sereda, I. Urusov, I. Ivanov and A. Zuev
- 666 Trends in Ab Initio Oxygen Reduction Reaction Energetics of LaBO_3 ($\text{B} = \text{Mn, Fe, Co, and Ni}$) for Solid Oxide Fuel Cells
Y. Lee, D. Morgan, J. Kleis and J. Rossmeisl
- 667 Electrochemical Performance of Nanoscaled $\text{La}_{0.6}\text{Sr}_{0.4}\text{CoO}_{3-\delta}$ as Intermediate Temperature SOFC Cathodes
J. Hayd, U. Guntow and E. Ivers-Tiffée
- 668 Impedance Modeling of Mixed Ionic Electronic Conducting Cathodes for Solid Oxide Fuel Cells
M. Sjøgaard, J. Mortensen and T. Jacobsen
- 669 Simple Infiltrated Microstructure Polarization Loss Estimation Models to Predict Solid Oxide Fuel Cell Cathode Polarization Resistance
J. Nicholas and S. Barnett
- 670 Oxygen Reduction at the Surface and the Hetero-Interface of La-Sr-Co-O-Oxides
A. Unemoto, K. Nagao, T. Tairako, K. Amezawa and T. Kawada
- 671 Cross Validation of Polarization in High Temperature Oxygen Electrodes by Impedance Spectroscopy and Current-Potential Sweep
X. Zhou, J. Huo, J. Templeton and J. Stevenson
- 672 Crystal Structure and Proton Conductivity in $\text{BaSn}_{1-x}\text{Sc}_x\text{O}_{3-\delta}$ ($x = 0-0.5$)
I. Ahmed, F. Kinyanjui, S. Norberg, S. Eriksson, S. Hull and E. Ahlberg
- 673 Identification of the Charge Carriers in Cerium Phosphate Ceramics
H. Ray, N. Adelstein and L. De Jonghe
- 674 Phase Transition Behavior of Proton Conducting Oxides, $\text{Sr}_{1-x}\text{Ba}_x\text{ZrO}_3$
T. Sugimoto, S. Hasegawa and T. Hashimoto
- 675 Effects of A- and B-Sites Doping on Proton Conductivity of the Double Perovskite-Type $\text{Ba}_2\text{CaNb}_2\text{O}_6$
S. Bhella and V. Thangadurai
- 676 Tailoring Y-Doped Barium Zirconate Proton Conductor Electrolytes by Co-Doping with Pr for Intermediate Temperature Solid Oxide Fuel Cells
E. Fabbri, D. Pergolesi, H. Tanaka and E. Traversa

- 677 Solid State NMR Studies of Doped BaSnO₃ and BaZrO₃ Protonic Conductors: Defect Trapping and Ionic Mobility
L. Buannic, F. Blanc and C. Grey
- 678 High-Temperature Protonic Conduction Properties of a Pseudo-Ternary System, LaFeO₃-SrFeO_{3-δ}-SrZrO₃
A. Unemoto, A. Kaimai, K. Sato, K. Yashiro, H. Matsumoto, J. Mizusaki, K. Amezawa and T. Kawada
- 679 Fabrication and Characterization of BaIn_{0.3-x}Y_xCe_{0.7}O_{3-δ} Proton Conductor
F. Zhao, Q. Liu, S. Wang and F. Chen
- 680 Co-Ionic Conductivity in Reaction Sintered BaCe_{0.2}Zr_{0.6}Y_{0.2}O_{3-δ} Protonic Ceramic
G. Coors and R. O'Hayre
- 681 Identification of Proton Hosting Sites in Strontium-Substituted Cerium Metaphosphate Glass-Ceramic Materials
J. Stettler, H. Ray, R. Wang, J. Reimer and L. De Jonghe
- 682 Possibility of Proton Conduction in Nanograin Ytria Stabilized Zirconia
J. Park, J. Shim, Y. Kim, T. Gür and F. Prinz
- 683 Correlated Charge Transport and RedOx Buffer Effect by Hole-Electron Pair via Auto-Ionization in Perovskite Oxide with Multivalent Cation on B-Site
T. Kikuchi, M. Tamaru, S. Miyoshi, T. Higuchi, J. Guo and S. Yamaguchi
- 684 Investigation of Conductivity and Ambipolar Transport of Hydrogen in Ni Doped SrCe_{1-x}Y_xO_{3-δ}
H. Bentzer, N. Bonanos and J. Phair
- 685 Hydrogen Separating Membranes Based on Y/Pr Co-Doped Barium Cerate/Zirconate Mixed Conducting Ceramics
J. Melnik, J. Luo, A. Sanger and K. Chuang
- 686 Oxidative Coupling of Methane in Different Architectures of Mixed Conducting Membrane Reactors
N. Benameur, L. Olivier, C. Gaudillère, D. Farrusseng and C. Mirodatos
- 687 Reforming Natural Gas and Renewable Liquids Using Mixed-Conducting Dense Ceramic Membranes
U. Balachandran, T. Lee, C. Park, Y. Lu, B. Ma and S. Dorris
- 688 Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-δ} for Oxygen Separation Membranes
P. Müller, E. Müller, H. Störmer, D. Gerthsen, C. Niedrig, S. Taufall, S. Wagner and E. Ivers-Tiffée
- 689 Assessment of the Electrochemical Properties of BSCF and Samarium Doped BSCF Perovskites
A. Verma and P. Singh
- 690 Defect Structure and Defect-Induced Expansion of Advanced MIEC Materials
A. Zuev and D. Tsvetkov
- 691 Dehydrogenation of Ethane to Ethylene in a Mixed Conducting Membrane Reactor
D. Farrusseng, N. Benameur, A. van Veen and C. Mirodatos
- 692 Comparative Studies on Properties of Scandia-Doped Zirconia Synthesized by the Polymeric Precursor and the Polyacrylamide Techniques
R. Muccillo and G. Costa
- 693 Nanoparticle Co-Cr₂O₃ Composite Anode Catalysts for Proton Conducting Solid Oxide Fuel Cells
X. Fu, J. Lin, J. Luo, K. Chuang, A. Sanger and R. Chi
- 694 Fundamental Thermodynamic Modifications in Wagner's Equation in Solid State Electrochemistry
T. Miyashita
- 695 Phase Stability and Electrochemical Analysis of Nb Doped BaCe_{0.9}Y_{0.1}O_{3-x} Electrolyte for IT-SOFCs
E. Di Bartolomeo, A. D'Epifanio, M. Zunic and S. Licoccia
- 696 Effect of Processing Methodology on Microstructure and Ionic Conductivity of Ytria-Doped Zirconia
E. Muccillo and R. Muccillo
- 697 Correlation Between Electrochemical Properties and Local and/or Oxygen Defect Structures of Ln₂NiO₄ (Ln = La, Nd)
T. Ina, T. Nakao, Y. Orikasa, T. Fukutsuka, A. Mineshige, K. Amezawa, T. Kawada and Y. Uchimoto

- 698 Electronic and Local Structure Analysis of the Electrolyte / Electrode Interface of IT-SOFC by Depth Resolved XAS
T. Nakao, T. Ina, Y. Orikasa, T. Fukutsuka, Y. Terada, H. Tanida, T. Uruga, M. Takagaki, H. Toyokawa, K. Amezawa, T. Kawada, A. Mineshige and Y. Uchimoto
- 699 Internal Reforming Kinetics in SOFC-Anodes
A. Kromp, A. Leonide, H. Timmermann, A. Weber and E. Ivers-Tiffée
- 700 Kinetic and Thermodynamic Study of Highly Heteroepitaxial, $\text{La}_{0.8}\text{Sr}_{0.2}\text{CoO}_{3-\delta}$ Electrodes Through Non Linear Electrochemical Impedance Spectroscopy
T. McDonald, C. Kreller, S. Adler, H. Christen, G. la O', E. Crumlin and Y. Shao-Horn
- 701 Low p_{O_2} Coulometric Titration of the Perovskite $\text{La}_{0.9}\text{Ca}_{0.1}\text{FeO}_{3-\delta}$ for Use in Ionic Transport Membranes
T. Geary, S. Adler, R. Gustafson and G. Cao
- 702 Chemical Anchoring of Nickel Metal Catalysts for Improved Stability at High Temperature
C. Law and S. Sofie
- 703 Stability of Oxides Studied with Standard Density Functional Theory
J. Rossmeisl and F. Calle-Vallejo
- 704 Oxygen Surface Exchange and Bulk Diffusion Coefficients Evaluated from Porous Mixed Ionic-Electronic Conducting Cathodes
C. Endler, A. Leonide, B. Rüger, A. Weber and E. Ivers-Tiffée
- 705 Finite Size Effect in Mixed Conducting LSCF and BSCF Ultra-Thin Films and Their Implications for Micro-Solid Oxide Fuel Cells
B. Lai, K. Kerman and S. Ramanathan
- 706 Electrode Reconstruction by FIB/SEM and Microstructure Modeling
J. Joos, B. Rüger, T. Carraro, A. Weber and E. Ivers-Tiffée
- 707 Preparation of $\text{LaNi}_{1-x}\text{Fe}_x\text{O}_3$ Single Phase and Analysis of Their Phase Transition and Chemical State of Fe
T. Hashimoto, T. Ohzeki, E. Miyashita, K. Shozukawa and M. Matsuo
- 708 Microstructure-Electrical Properties of Original LSCF Films Deposited by ESD for IT-SOFCs
D. Marinha and E. Djurado
- 709 Investigating Catalytic Properties of Cathode Materials Using Patterned Electrodes
X. Li, M. Lynch, M. Liu, X. Lou and M. Liu
- 710 Role of Electrode Morphology in Rate Limiting Mechanisms Governing SOFC Cathode Performance
C. Kreller, M. Drake and S. Adler
- 711 Impact of Initial Reduction and $\text{H}_2/\text{H}_2\text{O}$ Contents on the Performance and Microstructure of Ni Cermets
T. Ramos, K. Thydén and M. Mogensen
- 712 Increase of Anode Performance of SOFC by Reverse Current Treatment
D. Klotz, A. Leonide and E. Ivers-Tiffée
- 713 Effect of AFL Composition on IT-SOFC Electrochemical Performance and Quantitative Microstructural Analysis Using FIB/SEM
K. Lee, N. Vito, M. Camaratta, H. Yoon and E. Wachsman
- 714 Thermodynamic Reconsiderations on Electronic Properties of Pure- and Doped-Ceria
H. Yokokawa, Y. Xiong, H. Kishimoto, K. Yamaji, M. Brito and T. Horita
- 715 Molybdenum Based Perovskite Electrodes for Solid Oxide Cells
C. Graves, B. Sudireddy and M. Mogensen
- 716 Continuum and Kinetic Monte Carlo Modeling of Oxide Ion Diffusion under Reducing Conditions at Platinum/Yttria-Stabilized Zirconia Interface
X. Tian, J. Shim, J. Park, T. Gür and F. Prinz
- 717 Development of a High-Performance Composite Cathode, $\text{Bi}_2\text{Ru}_2\text{O}_7\text{-Er}_{0.4}\text{Bi}_{1.6}\text{O}_3$, for IT-SOFC Using Glycine-Nitrate Combustion and Investigation on Its Catalytic Activity Towards Oxygen Reduction
B. Lee, E. Armstrong, M. Camaratta and E. Wachsman
- 718 Preparation and Performance of Oxygen Electrode for Solid Oxide Electrolysis Cells
C. Yang, A. Coffin and F. Chen

- 719 Development of Cathodes for Low Temperature Solid Oxide Fuel Cells
A. Lassman, A. Verma and P. Singh
- 720 Electrochemical Removal of NO_x-Gasses by Use of LSM and LSF Cathodes Impregnated with NO_x-Storage Compounds
M. Traulsen and K. Kammer Hansen
- 721 Electrochemical Reduction of NO_x Gases on Spinel-Type Electrode Materials
F. Bræstrup and K. Kammer Hansen
- 722 Ionic and Electronic Conductivity of Nanometer Sized Samaria-Doped Ceria Ceramics
E. Souza, W. Chueh, E. Muccillo and S. Haile
- 723 Significantly Enhanced Performance of the GdBaCo₂O_{5+δ} Cathodes with Active Ce_{0.8}Sm_{0.2}O_{1.9} Nanoparticles
B. Wei, Z. Lü, D. Jia, T. Wei, X. Huang, Y. Zhang and W. Su
- 724 Local Charge Distribution Near Grain Boundaries of Nanocrystalline GDC
W. Lee, M. Lee, H. Jung and F. Prinz
- 725 Mixed Conductivity and Surface Reaction Kinetics of Pr-Sr-Fe-Based Perovskite-Type Oxides
Y. Nakashima and H. Takamura
- 726 Multidimensional Modeling of Thin Film Mixed Conductors: The Case of Ceria
F. Ciucci, Y. Hao and W. Chueh
- 727 Opportunities and Limitations of Perovskite-Fluorite Composite Ceramic Electrodes
M. Mogensen
- 728 Improvements in Atom Probe Tomography for Solid Oxide Fuel Cell Materials
N. Vito, E. Wachsman and K. Jones
- 729 Structural, Chemical and Electronic Inhomogeneities on La_{0.8}Sr_{0.2}MnO₃ Dense Thin-Film Surfaces
K. Katsiev, B. Yildiz, S. Krause, C. Heske, H. Du and P. Salvador
- 730 Electronic and Local Structures of Nd₂NiO_{4+δ} Epitaxial Thin Films Investigated by Depth-Resolved In Situ XAS
K. Amezawa, T. Ina, Y. Orikasa, A. Yamada, T. Fukutsuka, A. Unemoto, M. Takagaki, T. Uruga, H. Tanida, H. Toyokawa, Y. Terada, T. Kawada and Y. Uchimoto
- 731 Conductivity and Defect Chemistry Modeling of Oxygen Nonstoichiometry in Cr_{1+ε}Mn_{2-ε}O₄ Spinel
J. Ostby, F. Poulsen and T. Jacobsen
- 732 Defects and Ionic Conductivity in Single Crystal TlBr
S. Bishop, H. Tuller, W. Higgins, A. Churilov, G. Ciampi, L. Cirignano, H. Kim, F. Olschner, J. Tower and K. Shah
- 733 Synthesis and Li-Ion Transport Mechanism of Li_{1.4}[M_{0.4}N_{1.6}](PO₄)₃ (M= Al, Ga,) (N= Ti, Ge,) Electrolyte
P. Rayavarapu and S. Adams
- 734 Ultrafast Lithium Migration by Heterogeneous Doping in Surface Modified Li_xFePO₄
S. Adams and H. Choo
- 735 Preparation and Characterization of Fast Ion Conducting Lithium Thio-Germanate Thin-Films Grown by RF Magnetron Sputtering
S. Martin and I. Seo
- 736 Spray-Drying Synthesis of Lithium-Excess Li_{4+x}Ti_{5-x-y}Nb_yO₁₂ and Electrode Properties for Li-Ion Batteries
N. Kumagai, D. Yoshikawa, Y. Kadoma and K. Ui
- 737 Interaction of Intercalated Li with Oxygen Vacancies in TiO₂ and Its Effect on the Mobility of Li⁺ and e⁻ Species
P. Sushko and K. Rosso
- 738 Fabrication of Thin-Walled β"-Alumina Electrolyte for Use in Na/NiCl₂ Cells
A. Mali and A. Petric
- 739 A 0-Dimensional Stationary Model for Anode-Supported Solid Oxide Fuel Cells
A. Leonide, S. Hansmann and E. Ivers-Tiffée

- 740 Evaluating H₂O Electrolysis on Ceria with Thin-Film Electrodes
S. DeCaluwe, C. Zhang and G. Jackson
- 741 Reversible Solid Oxide Fuel Cells for Coproduction of Electricity and Hydrogen
N. Minh
- 742 Long Term Testing of Solid Oxide Fuel Cells and Cell Stacks with Ytria Stabilized Zirconia Electrolyte in the H₂O Electrolysis Mode
J. Schefold, A. Brisse and M. Zahid
- 743 Anomalous Transport of a Thermal Disturbance in a Planar SOFC Stack
A. Kulikovskiy
- 744 A First-Principles-Based Comparison Between Ruthenium- and Neobium-Doped Titanium Dioxide as Catalyst Support for High-Temperature Polymer Electrolyte Membrane Fuel Cells
E. Dy, Z. Shi, R. Hui, J. Zhang, Z. Liu and D. Jones

B12 - Metal/Air and Metal/Water Batteries

Energy Technology / Battery

- 745 Chemical and Electrochemical Processes in the Rechargeable Lithium Air Battery
K. Abraham, C. O'Laoire, M. Trahan and S. Mukerjee
- 746 Development of an Aqueous, Rechargeable Lithium-Air Battery Operating with Untreated Air
P. Stevens, G. Toussaint, G. Caillon, P. Viaud, P. Vinatier, C. Cantau, O. Fichet, C. Sarrazin and M. Mallouki
- 747 Li-Air Rechargeable Batteries Using Mesoporous α -MnO₂-Pd for Air Electrode
A. Thapa and T. Ishihara
- 748 Water-Stable Lithium Electrode with a Water-Stable Lithium Conducting Solid and a Composite Polymer Buffer Layer for Lithium-Air Batteries
N. Imanishi, T. Zhang, Y. Shimonishi, A. Hirano, Y. Takeda and O. Yamamoto
- 749 A Radical New Cell Design for Lithium-Air Technology
A. Doble, C. Morein, R. Roark and T. Dillon
- 750 The Rechargeable Lithium/Oxygen Battery
V. Giordani, D. Larcher, L. Laffont, J. Tarascon and P. Bruce
- 751 Li-Air Batteries Using Buckypapers as Air Electrodes
G. Zhang, J. Zheng, R. Liang, M. Hendrickson and E. Plichta
- 752 Functionalized Carbon Nanofoam Electrode Architectures as Cathodes for Metal-Air Batteries
C. Chervin, J. Long, J. Wallace, J. Dysart and D. Rolison
- 753 Stability of Li Air Batteries in Open Environment
J. Zhang, W. Xu, J. Xiao, D. Wang and R. Williford
- 754 A First-Principles Study of the Nucleation of Lithium Oxides on Various Catalytic Materials
Y. Xu and W. Shelton
- 755 Silver-Polymer-Carbon Composite Air Electrodes for Metal-Air Batteries
A. Marschilok, S. Lee, P. Chen, C. Milleville, A. Subramanian, K. Takeuchi and E. Takeuchi
- 756 Development of a Rechargeable Zinc/Air Fuel Cell with a Zinc Foam Anode and a Polymer Membrane Electrolyte
J. Drillet, M. Adam, S. Barg, A. Herter, D. Koch, V. Schmidt and M. Wilhelm
- 757 Development of a Rechargeable Zinc-Air Battery
G. Toussaint, P. Stevens, F. Moureau, R. Rouget and F. Fourgeot
- 758 Morphology Control of Electrodeposited Zinc from Alkaline Zincate Solutions for Rechargeable Zinc Air Batteries
N. Shaigan, W. Qu and T. Takeda
- 759 Zinc as an Energy Carrier Material: Form and Property
G. Zhang

- 760 Low Temperature Pyrolysed CoTMPP/C and Its Applications as an Improved Catalyst for Metal-Air Batteries/Fuel Cells
A. Li, H. Wang, W. Qu, X. Li, Z. Jong and H. Li
- 761 Low Temperature Oxygen Reduction on Nasicon Glass-Ceramics Surfaces
B. Kumar, J. Kumar, S. Rodrigues and J. Fellner
- 762 Development of Carbon-Supported $\text{La}_{0.5}\text{Ca}_{0.5}\text{CoO}_3$ Material for ORR in Strong Alkaline Electrolytes and Its Implication in Rechargeable Metal-Air Alkaline Batteries
X. Li, A. Li, W. Qu, H. Wang, R. Hui and J. Zhang
- 763 Water Management Diagnosis and Auto-Recovery Methods for PEM Fuel Cell Stacks
P. Pei, X. Yuan and P. Chao
- 764 Microwave Synthesis of Metal Phthalocyanines on Carbon Substrates and its Effect on Li-Air Cell Performance
T. Hirai and E. Yamashita
- 765 Understanding Electrocatalysts for Rechargeable Lithium-Air Batteries
G. Veith, Y. Xu, W. Shelton, J. Hodges, J. Howe and N. Dudney
- 766 Influence of Solid Solution Elements on Electrochemical Corrosion Behavior of Mg Anodes
Y. Feng, R. Wang, C. Peng, N. Wang and K. Qiu

C1 - Electrochemistry in Medicine and Biomedical Applications

Organic and Biological Electrochemistry / Sensor / Physical and Analytical Electrochemistry

- 767 Electrochemical Sensors in Medicine: Meeting Needs for the 21st Century
M. Meyerhoff
- 768 The Need for Assaying Nitric Oxide in Cancer and Inflammation and Its Selective Assay Through Capture by Emeraldine Acid Polyradical
A. Murthy and A. Heller
- 769 Fluorescence Spectroelectrochemical Sensor for 1-Hydroxypyrene, a Biomarker for PAH Exposure
W. Heineman, T. Pinyayev and C. Seliskar
- 770 Single Cell Measurements of Genomic and Protein Biomarkers Using Microimmuno Sensors
S. Prabhulkar and C. Li
- 771 Electrochemiluminescent Array for Protein Cancer Biomarkers Using Single-Wall Carbon Nanotube Forests and $[\text{Ru}(\text{bpy})_3]^{2+}$ -Doped Silica Nanoparticles
N. Sardesai, S. Pan and J. Rusling
- 772 Electrochemical Behavior of α -Lipoic Acid
C. Krishnan and M. Garnett
- 773 DNA Conformational Switches as Sensitive Electronic Biosensors for the Detection of Plasma Proteins
H. Yu
- 774 Spin Coupled DNA
M. Garnett, C. Krishnan and B. Jones
- 775 Scanning Electrochemical Microscopy of Individual Pancreatic Islets
J. Wilburn, M. Ciobanu and D. Cliffel
- 776 Electrochemistry-Based Dynamic Control of Cellular Adhesion and Functions
K. Nagamine and M. Nisizawa
- 777 Combined Chitosan Nano-Bead with Microfluidic-Microelectric Traps of Lead (II) Chelation in Continuous Bloodstream Flow
M. Wang
- 778 Silver Nanocrystal Synthesis under Controlled Microfluidic Mixing and in the Presence of Silver-Binding Proteins
C. Grosh, F. Baneyx and D. Schwartz

- 779 Synthesis, Characterization and Electrocatalytic Activity of Polymer-Stabilized Metal Nanoparticles
E. Kalu, M. Daniel and M. Bockstaller
- 780 Electrochemical Analysis of Diamond and Platinum Electrodes for Neural Stimulation
E. Hudak, J. Mortimer and H. Martin
- 781 In Situ Characterization of Stimulating Microelectrode Arrays: Study of an Idealized Structure Based on Argus II Retinal Implants
V. Kandagor, C. Cela, C. Sanders, E. Greenbaum, G. Lazzi, D. Zhou, R. Castro, S. Gaikwad and J. Little
- 782 Titrating the Activity of Cholesterol at the Surface of Living Cells
J. Burgess, R. West and S. Yuan
- 783 Perspectives on Lithium Batteries for Biomedical Applications
E. Takeuchi, K. Takeuchi and A. Marschilok
- 784 Third Generation Glucose Biosensor Based on the Electrical Wiring of Cellobiose Dehydrogenase from *Corynascus Thermophilus*
F. Tasca, M. Zafar, W. Harreither, R. Ludwig, G. Nöll and L. Gorton
- 785 Cyclic Biamperometry and Its Applications
M. Rahimi and S. Mikkelsen
- 786 Solubilization and Neutralization of Chemical and Biological Warfare Agents Using Ionic Liquids
T. Sutto, T. Wong, J. Taft and T. Duncan
- 787 Nanopore-Based Chemical Analyses
H. White
- 788 Addressable Delivery Systems Based on Ion Bipolar Junction Transistors
K. Tybrandt, K. Larsson, E. Gabrielsson, E. Jager, A. Richter-Dahlfors and M. Berggren
- 789 Electrically Triggered Drug Delivery Using Nanoporous Electrodes
D. Robinson, S. Gittard, C. Ha, C. Wu and R. Narayan
- 790 Impedance Spectroscopic Characterization of Tissue for Electrically Mediated Gene Delivery
J. Llewellyn, J. Rey, R. Connolly, Y. Cruz, L. Heller, R. Gilbert and A. Hoff
- 791 Optical Molecular Imaging for Translational Surgery
D. Farkas
- 792 Electrochemical Properties of TiO₂ Coatings Grown on Beta-Ti Substrates by Micro Arc Oxidation
K. Chiu, C. Chung, W. Lin and H. Tsou
- 793 Electrochemical Behavior and In Vitro Biocompatibility of an Implant Alloy
E. Vasilescu, P. Drob, D. Iordachescu, A. Cimpean, C. Vasilescu and S. Drob
- 794 Electrochemical Testing of Some Materials for Biomedical Applications
P. Drob, E. Vasilescu, M. Popa, C. Vasilescu, S. Drob and J. Mirza Rosca
- 795 Growth and Characterization of Zirconia Ceramic Film Formed by Plasma Electrolytic Oxidation on Biomedical ZrTa Alloy
I. Branzoi, M. Iordoc, F. Branzoi, G. Sbarcea and V. Marinescu
- 796 Brain Cells Preservation by Thermoelectric Cooling
K. Ananthmakula, A. Kola, T. John, B. Mathew, M. DeCoster, H. Hegab and D. Davis
- 797 Electro-Organic Synthesis of 3-Hydroxy Oxindoles
S. Makarem, A. Fakhari and A. Mohammadi
- 798 The Biological Compatibility of Porous Surface of Titanium Oxide
P. Hsieh, Y. Lin and M. Chen
- 799 Bone-Like Apatite Formed on the Surface of Titanium via a Simulated Body Fluid by the Electro-Chemical Deposit Processing
T. Kuo and M. Chen
- 800 In Vitro Evaluation of Osteoblast-Like Cell Adhesion and Proliferation on Titanium Oxide Film Formed by Sand-Blasted Titanium Anode Treatment Process
Y. Lin and P. Hsieh

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

C2 - Manuel M. Baizer Award Symposium on Organic Electrochemistry

Organic and Biological Electrochemistry

- 802 Electrosynthesis of Organofluorine Compounds Toward Green Sustainable Chemistry
T. Fuchigami
- 803 Competition Studies and Nitrogen-Trapping Groups: New Insights into the Anodic Olefin Coupling Reaction
H. Xu and K. Moeller
- 804 Amphiphilic Viologen in Water: Electro-Generation of Organic Reductants in Water and Application to Reductive Coupling of Ar-X
T. Yamamoto, M. Kuroboshi and H. Tanaka
- 805 Stability of and Electron Transfer Through Self-Assembled Monolayers of Conformationally Constrained Peptides
S. Antonello, P. Gobbo, I. Guryanov, M. Hesari, M. Zamuner and F. Maran
- 806 Iron Salt-Catalyzed One Pot Nazarov/Michael Reaction in an Ionic Liquid Solvent System
T. Itoh, C. Ibara, M. Fujiwara, S. Hayase, M. Kawatsura and M. Nanjo
- 807 Boron-Doped Diamond Electrodes as Novel Tools for Electroorganic Synthesis
S. Waldvogel
- 808 Electroreduction of Nitrocyclopropanes
F. Couture-Martin, C. Cristea, A. Sardashti, J. Chapuzet and J. Lessard
- 809 Synthesis of Epoxyquinols via Anodic Oxidation and Evaluation of NF- κ B Inhibitory Activity
T. Saitoh, E. Suzuki, A. Takasugi, R. Obata, Y. Ishikawa, K. Umezawa and S. Nishiyama
- 810 ArS⁺ Initiated Addition of ArSSAr to Dienes via Intramolecular C-C Bond Formation
J. Yoshida, K. Matsumoto, S. Fujie, S. Suga and T. Nokami
- 811 Bithiophene Electropolymerization: Comparing the Effect of the Medium Acidity Level in Acetonitrile
P. Espinoza-Montero and B. Frontana-Uribe
- 812 Electrochemical Transformation of α -Silylcarboxylic Acids into Novel Disilylalkanes
A. Shtelman and J. Becker
- 813 Development of a Chemoselective Cross-Coupling Reaction System Using a Micro-Flow Reactor
F. Amemiya, T. Fuchigami and M. Atobe
- 814 Further Exploration of the Redox Chemistry of Strained Hydrocarbons and the Pseudopterins
S. Yoo, W. Zhong, J. Mallory, D. Day, R. Jacobs and D. Little
- 815 Synthesis of 2-Aryl-3,3,3-Trifluoropropanoic Acids, β,β,β -Trifluorinated Analogues of Non-Steroidal Anti-Inflammatory Drugs, by Electrochemical Carboxylation of (1-Bromotrifluoroethyl)arenes
H. Senboku, Y. Yamauchi and S. Hara
- 816 Electrochemical Reduction of 1-(2-Chloroethyl)-2-Nitrobenzene at Carbon Electrodes in Dimethylformamide
P. Du and D. Peters
- 817 Catalytic Function of Polymer-Supported B₁₂ Complex Utilizing Electron Transfer
H. Shimaoshi, M. Nishi, A. Tanaka and Y. Hisaeda
- 818 Scope and Mechanistic Study of Electroreductive Intramolecular Cyclization of Haloaryl Ethers
K. Mitsudo, Y. Nakagawa, J. Mizukawa, S. Suga, R. Akaba and H. Tanaka
- 819 Pd/TEMPO-Catalyzed Electrooxidative Coupling of Arylboronic Acids and Terminal Alkynes
K. Mitsudo, T. Shiraga, J. Mizukawa and H. Tanaka
- 820 Long-Range Electron Transfer Mediated by Carbon-Carbon Bond Formation
R. Akaba, Y. Okada and K. Chiba

- 821 Progress Toward a General Correlation of Structure with Redox Potential
A. Davis and A. Fry
- 822 Preparation of Pt-Pd Bimetal Material by Hydrogen Reduction and Electron Transfer Method
S. Maki, T. Saitoh and S. Nishiyama
- 823 Anodic Fluorination of Conjugated Polymers: Main-Chain and Side-Chain Modifications
S. Inagi, S. Hayashi and T. Fuchigami
- 824 Electrochemical Oxidation and Cation Radicals of All-Five and All-Six 1-Substituted Atranes (M = Si, Ge): Spectroelectrochemical Study
V. Jouikov
- 825 Voltammetric Investigations of Ketone Complexation by Lewis Acids
G. Cheek
- 826 Environmental-Friendly Emulsion Electrosyntheses Using Acoustic Emulsification
M. Atobe, S. Ikari, F. Amemiya, R. Asami and T. Fuchigami
- 827 Photo-Induced Dehalogenation Reactions Mediated by Hydrophobic Vitamin B₁₂
Y. Hisaeda, K. Tahara and H. Shimakoshi
- 828 Electrochemical Reduction of Molecules with More Redox Centers: Mono-, Di-, Tri- and Tetranitrocalix-[4]-arenes and Their Models
J. Ludvik and A. Liska
- 829 Novel Synthesis of 1,4-Dialkoxy-5,6,7,8-Substituted-2,3-Dicyanonaphthalenes Through Electron-Transfer from Mg-Metal and Development of New Naphthalocyanines
I. Nishiguchi, T. Miyazaki, A. Harada and H. Maekawa
- 830 Chemistry on Microelectrode Arrays: Developing New, Stable Porous Reaction Layers
L. Hu and K. Moeller
- 831 Trialkylammonium Thiocyanate Molten Salts Bearing Hydroxyl Group and Its Application to the Solid-State Dye-Sensitized Photovoltaic Cells
A. Konno
- 832 Electroreductive Block Copolymerization of Dichlorosilanes in the Presence of Disilane Additives
M. Ishifune, C. Sana and S. Kashimura
- 833 Electrochemical Bond Generation Between Fe, Ru and Group (XIV) Elements
S. Neuhold, J. Albering, M. Flock and C. Grogger
- 834 Electrochemical Determination of Bromoform in Water by Stripping Analysis
A. Peverly and D. Peters
- 835 Intramolecular Electron Transfer Through Non Conjugated Network: Probing by the Formation of Cyclobutane Ring
Y. Okada, R. Akaba and K. Chiba

C3 - Organic and Biological Electrochemistry General Poster Session

Organic and Biological Electrochemistry

- 836 Electrochemical Copolymerization of Azulene and 3-Thiophene Acetic Acid
C. Lete, F. Teodorescu, M. Marin and N. Totir
- 837 Selective Permeation of Redox Probes in DMPC Supported Bilayers on Gold
M. Daza Millone, M. Vela, N. Tognalli, A. Fainstein and R. Salvarezza
- 838 Electropolymerization of Ferrocene-Modified Polypyrrole in Aqueous Micellar Solutions
D. Hickey, M. Meredith and D. Glatzhofer
- 839 Antioxidative Activity of Wines and Individual Phenolics Determined Using a Recently Developed Assay Based on DC Polarography
S. Gorjanović, N. Potkonjak, M. Novaković and D. Sužnjević
- 840 Effect of Electrical-Discharging on Surface Properties and Biocompatibility of Ti⁶Al⁴V Alloy
Y. Pan, P. Peng, H. Lin and K. Ou

- 841 Study on Real Time Monitoring of TDMAT for TiN Metal Organic Chemical Vapor Deposition
J. Yun, S. Kang, J. Kim and Y. Shin
- 842 The Electrolytic Dissociation of 1,1-Cyclopropanedicarboxylic and 1,1-Cyclobutanedicarboxylic Acids
E. Kvaratskhelia and R. Kvaratskhelia
- 843 Carbazole-Tripheylamine-Based Dye-Sensitized Solar Cells
C. Yang and S. Liao

D1 - Corrosion General Session

Corrosion

- 844 A Green Pathways: Investigation of Corrosion Inhibitors and Inhibitive Effect of Some Novel Organic Dyes on the Corrosion of 2S Aluminum in Alkaline Media
P. Patel
- 845 The Explaining and Analysis of Metal Passivation with Electron Theory
L. Li
- 846 Study of Corrosion Behavior of Ni-Cu-P- Nano Al₂O₃ Electroless Composite Coatings by EN Method and Comparison with EIS and Polarization Results
H. Ashassi-Sorkhabi and H. Aminikia
- 847 Corrosion Inhibitory Effects of a New Synthetic Symmetrical Schiff-Base on Mild Steel In 1.0M HCl And 0.5M H₂SO₄ Media
A. Dadgarinezhad and F. Baghaei Ravari
- 848 Inhibition of Aluminum Corrosion in 0.5 MH₂SO₄ Using the Propargyl Alcohol
F. Baghaei Ravari and A. Dadgarinezhad
- 849 Synergistic Effect of Different Salts on the Inhibition Efficiency of a Cationic Surfactant on Steel Corrosion in Acid Medium
D. Asefi, M. Arami and N. Mahmoodi
- 850 Corrosion Inhibition of Titanium in Acidic Media Containing Fluoride with Bixin
J. Chauhan and D. Gupta
- 851 Decision of Corrosion Protection Potential for FSWed Dissimilar Aluminum Alloy via Slow Strain Rate Test
S. Kim, J. Park, M. Han and S. Jang
- 852 Anodic Behavior of Iron in Hydrocarbonate Media with Addition of Nitrate- and Sulphate-Ions in Different Thermal Conditions
S. Kaluzhina, N. Nafikova and N. Lapunina
- 853 Compute of the Diffusion Coefficient to the Alloy Fe - Ni, Using the Radless-Sevsik Correlation, in Basic NaOH Solutions Environment
B. Martínez, A. Oropeza and C. Martínez
- 854 Formation of Anodic Oxidation Films on As-Cast Surface of AC2A Casting Al Alloy
S. Moon, C. Yang and Y. Jeong
- 855 Modeling of Corrosion Resistance of Some Titanium Base Alloy in Aggressive Environments
M. Popa, E. Vasilescu, P. Drob, C. Vasilescu, S. Drob and J. Mirza Rosca
- 856 Corrosion Resistance of a New Bioalloy in Physiological Fluids
M. Popa, E. Vasilescu, P. Drob, C. Vasilescu, S. Drob and M. Popa
- 857 Studies on the Stability of Zn and Zn-TiO₂ Nanocomposite Coatings Prepared by Pulse Reverse Current
A. Gomes, T. Frade and M. da Silva Pereira
- 858 High Temperature Corrosion Study for T22 Alloy Applying Electrochemical Techniques
C. Cuevas-Arteaga
- 859 Deposition and Characterization of Corrosion-Resistant Amorphous Chromium Carbide Thin Films
J. Högström, M. Hanson, S. Urbonaite, A. Furlan, W. Fredriksson, S. Franson, K. Edström, U. Jansson and L. Nyholm

- 860 Improved Boundary Effects in P-Type Macroporous Silicon
S. Zhang, J. Jiao, D. Ge and Y. Wang
- 861 Potentiodynamic Study of Titanium in Manganese-Containing Sulphuric Acid Solution
W. Utomo and S. Donne
- 862 The Synthesis and CMP Application of Ceria Powder
C. Hsu, S. Chen, M. Tsai and M. Tsai
- 863 Electronoptical Observations of Reanodized Film of Initial Porous Film Growth in 0.4 M Phosphoric Acid Electrolyte after Anodizing in Molten Melts
S. Han, H. Kim, Y. Heo, G. Yoon, J. Lee and G. Thompson
- 864 Electronoptical Observations of Reanodized Film in 0.1 M Ammonium Pentaborate Electrolyte after Anodizing in Molten Melts
S. Han, Y. Heo, G. Yoon, H. Kim and G. Thompson
- 865 Corrosion Inhibition of Aluminum by Organic Coatings Formulated with Hydrotalcite-Vanadate Pigments
J. Vega, D. de la Fuente and R. Buchheit
- 866 The Electrochemical Corrosion of Nickel in Sodium Chloride-Sulfuric Acid Solutions at Different Concentration Ratios Using an Electrochemical Method
B. Martínez, A. Oropeza and C. Martínez
- 867 Potential Distribution Study in a Metal/Coating System by SKP and FEM
J. Vega, R. Montoya, V. Barranco and D. de la Fuente
- 868 Step Polarization Test of Implant Biomedical Alloy in Physiologic Solutions
A. Igual Muñoz and C. Valero Vidal
- 869 Effects of Pre-Electrodeposition with Fe and Cu Before Annealing in Reducing Atmosphere on the Corrosion of Hot-Dip Galvanized and Galvannealed Steels
Y. Choi, M. Cho and C. Park
- 870 The Inhibitive Action of Some Polymeric Compounds on Mild Steels Corrosion in Cooling Waters Systems
V. Branzoi, F. Branzoi and L. Pilan
- 871 Characteristics on Hydrogen Embrittlement and Stress Corrosion Cracking with SSRT for STS 304
M. Han, S. Jang and S. Kim
- 872 Investigation on Corrosion Protection Potential by Electrochemical Experiment in Sea Water of 5052-O Al Alloy for Leisure Ship
S. Kim, J. Park and S. Chong
- 873 Evaluation of Electrochemical Characteristics for FSWed Dissimilar Al Alloy (5052-O : 6061-T6)
J. Park, M. Han and S. Kim
- 874 Spontaneous Grafting of Benzylphosphonic Acid on Steel Surface Through the Aryldiazonium Salt for Application in Corrosion Protection
X. Le and D. Bélanger
- 875 Corrosion Studies of Sump Operation for the Nuclear Power Plant Safety
P. Mast, R. Choromokos and J. Park
- 876 The Atmospheric Corrosion of Zinc: The Effects of Concentration, Droplet Size and Droplet Shape
T. Muster, A. Bradbury, A. Trinchi, T. Markley, D. Lau, S. Dligatch, A. Bendavid and P. Martin
- 877 Influence of Al and Hf Addition on the Oxidation Resistance of Nb-20Si-20Cr-5(Al, Hf) Alloys
A. Vasquez, D. Alvarez and S. Varma
- 878 Influence Of Environmental Factors on the Susceptibility to Stress Corrosion Cracking Of High-Strength Al-Zn-Mg Alloys
H. Ali Jawan
- 879 Acoustic Emission During Stress Corrosion Cracking of Aluminum Metal Matrix Composites
Z. Gasem
- 880 Performance of Alloy 625 under Combustion Gas Environments and Others Applications: A Review
C. Cuevas-Arteaga, D. Verhelst and A. Alfantazi

- 881 Assessment of Corrosion Resistance and Biocompatibility of Ti-Ta and Ti-Ta-Cr Alloys
P. Gill, N. Munroe, W. Haider, C. Pulletikurthi, S. Pandya and V. Tek
- 882 The Coefficient γ is the Quantitative Characteristic of the Activating or Inhibiting Properties of Inorganic Oxidizing Agent
M. Reda
- 883 Effect of Current Density and Time on AC/DC Spark Anodization of Al-Cu Alloys
E. Alsayheen, R. Rateick and V. Birss
- 884 On Time-Constant Distributions Associated with the Constant-Phase Element
B. Hirschorn, M. Orazem, B. Tribollet, V. Vivier, I. Frateur and M. Musiani
- 885 EIS Study on the Corrosion Behavior of CuFeS₂ Thin Film
A. Ghahremaninezhad, E. Asselin and D. Dixon
- 886 The Impact of Core-Shell Micelles on Steel Properties and Microstructural Characteristics in Reinforced Mortar after Corrosion and Cathodic Prevention
D. Koleva, J. Hu, K. van Breugel and N. Boshkov
- 887 Hybrid Composite Aggregates for Superior Corrosion Performance of Low-Carbon Steel in Model Solutions
D. Koleva, J. Hu, K. van Breugel, N. Boshkov, T. Radeva and V. Milkova
- 888 Preliminary Study on the Self-Healing of Steel, Resulting from the Presence of Nano-Aggregates in Cement Extract
J. Hu, D. Koleva, K. van Breugel and P. Petrov
- 889 The Bi-Layer Point Defect Model for Passive Films
D. Macdonald and G. Englehardt
- 890 Location and Estimation of Oxygen Reduction Reaction on a Corroding Metal Surface Covered with Metal Oxide: A Porous Electrode Model
M. Venkatraman, I. Cole and B. Emmanuel
- 891 New Scientific Definition of the Phenomenon of Passivity
M. Reda
- 892 The Role of Alumina in Aluminum Corrosion and Passivation
J. Skrovan, A. Alfantazi and T. Troczynski
- 893 Influence of Microstructure on Corrosion Performance of Cu-Lean 7003 Aluminum Alloy Extrusions
C. Krishnan and J. Kish
- 894 Ferromagnetic CoPt₃ Nanowires Using a Porous Anodic Alumina Template
R. Liu
- 895 High Temperature Corrosion of 625 Superalloy under Iron-Zinc Oxide/Lead Sulfate Salt Mixture
E. Mohammadi Zahrani, A. Alfantazi and D. Verhelst
- 896 Effect of Particle Angular Velocity on Erosion Enhanced Corrosion of 304 Stainless Steel
F. Mohammadi and J. Luo
- 897 Corrosion Protection Mechanisms of Cerium-Based Conversion Coatings on Aluminum Alloys
W. Pinc, S. Maddela, W. Fahrenholtz and M. O'Keefe
- 898 Acid Pickling Treatments to Enhance the Performance of Cerium Conversion Coating on AZ31 Magnesium Alloys
H. Su, Y. Huang, W. Li and C. Lin
- 899 Directly Deposited CePO₄ Coatings for the Corrosion Protection of Al 2024-T3
D. Heller, W. Fahrenholtz, M. O'Keefe and G. Fair
- 900 Effect of Humidity on Cerium Based Conversion Coatings
S. Joshi, W. Fahrenholtz and M. O'Keefe
- 901 Characterization of Transport Processes in a Praseodymium-Based Coating
B. Treu, W. Pinc, W. Fahrenholtz, M. O'Keefe, E. Morris and R. Albers

- 902 Electrochemical Analysis of a Polypyrrole/Aluminum Flake Composite Pigment: The Influence of the Dopant
C. Vetter, M. Yan, S. Hoge and V. Gelling
- 903 Coatings for Early Corrosion Detection
H. Wheat and G. Liu
- 904 The Electrochemical Polarization and Galvanic Couple Behavior of the Primary Phase of 55% Al-Zn Coating
T. Lowe, G. Wallace and A. Neufeld
- 905 Investigation of the Corrosion Barrier Properties of Multilayer Oxides by High Throughput Electrochemical Screening
T. Muster, S. Dligatch, T. Markley, P. Martin, A. Bendavid, D. Lau, A. Trinchi and A. Bradbury
- 906 Corrosion Protection for 316 Stainless Steel Using Nanoporous, Nanoparticulate Thin-Films Oxide Coatings
M. Tejedor and M. Anderson
- 907 Electrodeposited Ni-Al₂O₃ Composite Coatings from Supercritical Carbon Dioxide Fluid
S. Chung, S. Chiu and W. Tsai
- 908 Microstructures and Corrosion Properties of Multilayered TiAlN/SiN_x Coatings
Y. Chan and J. Duh
- 909 Review of Studies on Corrosion of Electrodeposited Nanocrystalline Metals and Alloys
N. Nik Masdek and A. Alfantazi
- 910 Corrosion Protection of Steel by Al-Mg Plasma Spray Coating
Y. Takeyoshi, S. Takase, Y. Shimizu, M. Sueyoshi and Y. Uchida
- 911 The Effect of Copper Undercoat on the Corrosion and Wear Resistance of a Cr-C Deposit Electroplated from a Trivalent Chromium-Based Bath
Y. Liu, S. Hsu, C. Chuang and C. Huang
- 912 Improvement of Electrochemical Migration Resistance by Sn Coating on Cu Electrode in Printed Circuit Board
M. Jung, S. Lee, H. Lee, C. Ryu, Y. Ko, H. Min and Y. Joo

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

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

- 913 More after Moore to Get More from Moore
C. Smith, M. Hussain, W. Loh, C. Kang, D. Gilmer, G. Bersuker, P. Majhi, P. Kirsch and R. Jammy
- 914 Silicon Photonics Technologies for Monolithic Electronic-Photonic Integrated Circuit
G. Lo, K. Ang, T. Liow, Q. Fang, J. Zhang, M. Yu and D. Kwong
- 915 Scaling FETs to 10 nm: Coulomb Effects, Source Starvation, and Virtual Source
M. Fischetti, S. Jin, T. Tang, P. Asbeck, Y. Taur, S. Laux, N. Sano and M. Rodwell
- 916 Cross-Sectional UV-Raman Measurement for Two-Dimensional Channel-Stress Profile in Extremely High-Performance pMOSFET
H. Akamatsu, M. Takei, D. Kosemura, K. Nagata, S. Mayuzumi, S. Yamakawa, H. Wakabayashi and A. Ogura
- 917 Novel Noncontact Approach to Characterization of Mobility in Inversion Layers Using Corona Charging of Dielectric and SPV Monitoring of Sheet Resistance
J. Everaert, E. Rosseel, A. Meszaros, K. Kis-Szabo, P. Tutto, A. Pap, T. Pavelka, M. Wilson, A. Findlay, L. Jastrzebski and J. Lagowski
- 918 Effect of Carrier Scattering Phenomena on Drain Current Variability in Si MOSFETs
K. Ohmori, T. Matsuki, Y. Ohkura, J. Yugami, K. Ikeda, Y. Ohji, Y. Yasuda, T. Endoh, K. Shiraishi and K. Yamada

- 919 Carrier Mobility Variations in Self-Aligned Germanium MOS Transistors
Y. Low, D. Tantraviwat, P. Rainey, P. Baine, D. William, N. Mitchell, B. Armstrong and H. Gamble
- 920 Strained Si:C Using ClusterCarbon Implant
K. Sekar and W. Krull
- 921 Epitaxial Growth of Si:C Alloys: Process Development and Challenges
A. Dube
- 922 Electrical and Materials Analysis of III-V Semiconductors for MOSFETs with Gate Lengths below 20nm
D. Barlage, M. Veety, M. Vaidyanathan and M. Johnson
- 923 Investigation of the New Physical Model of Ohmic Contact for Future Nanoscale Contacts
Y. Takada, M. Muraguchi, T. Endoh, S. Nomura and K. Shiraishi
- 924 Advanced (Millisecond) Annealing in Silicon-Based Semiconductor Manufacturing
S. Govindaraju, C. Shih and R. Panchapakesan
- 925 Advanced Source/Drain Engineering for MOSFETs: Schottky Barrier Height Tuning for Contact Resistance Reduction
Y. Yeo
- 926 Oxygen Transport in High-k Metal Gate Stacks and Physical Characterization by SIMS Using Isotopic Labeled Oxygen
M. Hopstaken, J. Bruley, D. Pfeiffer, M. Copel, M. Frank, E. Cartier, T. Ando and V. Narayanan
- 927 Ultimate EOT Scaling ($< 5\text{\AA}$) Using Hf-Based High- κ Gate Dielectrics and Impact on Carrier Mobility
T. Ando, M. Frank, K. Choi, C. Choi, J. Bruley, M. Hopstaken, M. Copel, R. Haight, H. Arimura, H. Watanabe and V. Narayanan
- 928 Physical and Electrical Properties of MOCVD Grown HfZrO₄ High-k Thin Films Deposited in a Production-Worthy 300 mm Deposition System
S. Consiglio, C. Wajda, G. Nakamura, R. Clark, S. Aoyama and G. Leusink
- 929 Atomic Vapor Deposition and Atomic Layer Deposition of High-k and Electrode Materials
M. Heuken, U. Weber, P. Lehnen, P. Baumann, Y. Senzaki, J. Lindner, B. Lu and Z. Karim
- 930 Transformation of Crystalline Structure of HfO₂ by La- or Y-Oxide Capping and Annealing
T. Suzuki, T. Matsuki, T. Morooka, M. Sato, J. Yugami, K. Ikeda and Y. Ohji
- 931 Rare Earth Materials for Semiconductor Applications
S. Van Elshocht, C. Adelman, M. Popovici, J. Swerts, A. Delabie, L. Nyns, X. Shi, H. Tielens, G. Pourtois, T. Schram, D. Pierreux, J. Maes, A. Hardy, M. Van Bael and J. Kittl
- 932 Impact of the Metal Gate on Carrier Transport in HK/MG Transistors
M. Cassé, X. Garros, L. Bruent and G. Reimbold
- 933 High Performance and Highly Uniform Metal Hi-K Gate-All-Around Silicon Nanowire MOSFETs
J. Sleight, S. Bangsaruntip, G. Cohen, A. Majumdar, Y. Zhang, S. Engelmann, N. Fuller, L. Gignac, S. Mittal, J. Newbury, T. Barwicz, M. Frank and M. Guillorn
- 934 Determination of Band Offsets, Chemical Bonding and Microstructure of the (Tb_xSc_{1-x})₂O₃/Si System
I. Geppert, M. Eizenberg, N. Bojarczuk, L. Edge, M. Copel and S. Guha
- 935 Electrical Characteristics of Metal-Ferroelectric (BiFeO₃) - High-k Insulator (LaGdO₃) -Semiconductor Capacitors and Field-Effect Transistors
R. Thomas, T. Kalkur, S. Pavunny, N. Murari and R. Katiyar
- 936 Electrical Characterization of ALD Al₂O₃ and HfO₂ Films on Germanium
D. Tantraviwat, Y. Low, P. Baine, N. Mitchell, D. McNeill, B. Armstrong and H. Gamble
- 937 Electrical and Physical Properties of High-k Gate Dielectrics on In_xGa_{1-x}As
E. Vogel, A. Sonnet, R. Galatage, M. Milojevic, C. Hinkle and R. Wallace
- 938 Effect of Ozone Concentration on Atomic Layer Deposited High-k Dielectric on Si and GaAs
K. Chung, T. Park, P. Sivasubramani, J. Kim and J. Ahn
- 939 Investigation of High-K Dielectrics on Compound Semiconductors for Applications in RF, Mixed Signal and Power Electronics
V. Misra, R. Suri, D. Lichtenwalner and C. Kirkpatrick

- 940 (NH₄)₂S Passivation of High-k/In_{0.53}Ga_{0.47}As Interfaces: A Systematic Study of (NH₄)₂S Concentration
E. O'Connor, B. Brennan, R. Contreras, M. Milojevic, K. Cherkaoui, S. Monaghan, G. Hughes,
M. Pemble, R. Wallace and P. Hurley
- 941 SiO Emission and Incorporation in Silicon Oxidation Process Using Molecular Dynamics Method
N. Takahashi, T. Yamasaki and C. Kaneta
- 942 Analytical Characterization of ALD Thin Film Precursors
L. Milstein, P. Clancy and H. Gotts
- 943 Atomic Layer Deposition of Boron Oxide as Dopant Source for Shallow Doping of Silicon
B. Kalkofen and E. Burte
- 944 Effective Mass, Mobility, On-Current and Transconductance of FETs on SSOI and SOI
S. Feste, T. Schäpers, D. Buca, Q. Zhao, J. Knoch, M. Bouhassoune, A. Schindlmayr and S. Mantl
- 945 Low Temperature Epitaxy of Si and SiGe Using Disilane Based Chemistry for Electronic Purposes
J. Damlencourt
- 946 Dopant Transport in Tungsten Silicide Buried Layers for Application in SSOI
S. Liao, M. Bain, P. Baine, J. Montgomery, D. McNeill, B. Armstrong and H. Gamble
- 947 Dependence of SOI Property on Memory Characteristic in a Cap-Less Memory Cell
T. Shim, S. Kim, T. Kim and J. Park
- 948 Niobium Precursors for Atomic Layer Deposition of Nb₂O₅
A. Zauner, M. Karakachian, C. Lachaud, V. Lahootun and A. Pinchart
- 949 Impact of Work Function Optimized S/D Silicide Contact for High Current Drivability CMOS
Y. Nakao, R. Kuroda, H. Tanaka, T. Isogai, A. Teramoto, S. Sugawa and T. Ohmi
- 950 The Investigation of Interface Oxide of HfO₂ and Al₂O₃ Stacks on GaAs(100) Surfaces
Y. Cho, D. Suh, D. Ko and M. Cho
- 951 Atomically Flattening Technology at 850 °C for Si(100) Surface
X. Li, A. Teramoto, T. Suwa, R. Kuroda, S. Sugawa and T. Ohmi
- 952 Improvement of Electrical Performances of Tungsten Dual-Work Function Gate Electrode Using
WSiN/WN/Ti Stacks as a Diffusion Barrier Metal
H. Kim, I. Rho, C. Kim, M. Gil and H. Kang
- 953 Quasistatic Capacitance-Voltage Characterization of Thin Ta₂O₅ Films
L. Sanchez, N. Nedev, R. Zlatev, M. Curiel and B. Valdez
- 954 Electrical Characterization of High-Pressure Reactive Sputtered Sc₂O₃ Films on Silicon
H. Castán, S. Dueñas, A. Gómez, H. García, L. Bailón, P. Feijoo, E. San Andrés, I. Mártil and
G. González-Díaz
- 955 Selective Epitaxial Growth of Silicon Layer Using Batch-Type Equipment for Vertical Diode Application
to Next Generation Memories
K. Lee, D. Yoo, Y. Yoo, J. Han, S. Kim, H. Jeong, C. Kang, J. Moon, H. Park, H. Jeong, G. Kim and
B. Choi
- 956 Electrical Extraction of One Dimensional MOSFET Transistor Channel Doping Profiles by Threshold
Voltage Measurement
H. Park, K. Lee, H. Jeong, G. Kim and B. Choi
- 957 Studies on Hole Trapping and SILC of Dual Layer nc-ITO Embedded ZrHfO Memories
C. Lin, C. Yang and Y. Kuo
- 958 Optical Characterization of Surface Profile of Various Si_{1-x}Ge_x/Si Wafers Before and After Annealing Step
W. Yoo, T. Ueda, T. Ishigaki and K. Kang
- 959 Nondestructive Characterization of Ge Content and Ge Depth Profile Variations in Si_{1-x}Ge_x/Si by
Multiwavelength Raman Spectroscopy
W. Yoo, T. Ueda, T. Ishigaki and K. Kang
- 960 Influence of Postdeposition Annealing on Physical and Electrical Properties of High-k Yb₂TiO₅ Gate
Dielectrics
T. Pan, L. Yen, M. Tsai and T. Chao

- 961 Structural and Electrical Properties of High-k HoTiO₃ Gate Dielectrics
T. Pan, L. Yen, C. Hu and T. Chao
- 962 Electron Tunneling Between Si Quantum Dots and Two Dimensional Electron Gas under Optical Excitation at Low Temperatures
Y. Sakurai, S. Nomura, Y. Takada, K. Shiraishi, M. Muraguchi, T. Endoh, M. Ikeda, K. Makihara and S. Miyazaki
- 963 Hydrogen Implantation in Germanium
Y. Low, P. Rainey, R. Hurley, P. Baine, D. McNeill, N. Mitchell, H. Gamble and B. Armstrong
- 964 Analysis of the Homogeneous Thermal Decomposition of the Tungsten Dimethylhydrazido Complex Cl₄(CH₃CN)W(NNMeM₂) Using In Situ Raman Spectroscopy and DFT Calculations
J. Lee, D. Kim, O. Kim, T. Anderson, J. Koller and L. McElwee-White
- 965 Improved Performance of MIC Poly-Si TFTs Using Driven-In Nickel Induced Crystallization with Cap SiO₂ by F Implantation
M. Lai, Y. Wu, T. Tung and H. Wu
- 966 Fabrication of High Electrical Performance NILC-TFTs Using FSG Buffer Layer
C. Chen, Y. Wu, T. Tung and H. Wu
- 967 Effect of In Situ Hydrogen Annealing on Dielectric Property of a Low Temperature Silicon Nitride Layer in a Bottom-Gate Nanocrystalline Silicon TFT by Catalytic CVD
Y. Lee, K. Lee, J. Hwang, K. No and W. Hong
- 968 CMP Chemistry and Process for Cu Interconnection with Co and Ru Barrier
Y. Wang, M. Gage, W. Tu, Y. Wang, L. Karuppiah, K. Xu and Y. Chen
- 969 Application of Atmospheric Plasma for Low Temperature Wafer Bonding
Y. Low, P. Rainey, P. Baine, J. Montgomery, D. McNeill, N. Mitchell, H. Gamble and B. Armstrong
- 970 Decomposition Characteristics of Metal-Organic Materials of Ga Doped Zinc Oxide for Evaluation as MOCVD Precursor
S. Yamashita, K. Watanuki, H. Ishii, M. Kitano, Y. Shirai and T. Ohmi

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

Dielectric Science and Technology

- 971 Changing Front-End Dielectric Requirements for End-of-the-Roadmap CMOS and Beyond
L. Register, N. Shi, M. Hasan, D. Basu, D. Reddy and S. Banerjee
- 972 A Brain-Inspired VLSI Architecture for Nano Devices and Circuits
T. Shibata
- 973 High-k Gate Dielectrics for Nanoscale CMOS Devices: Status, Challenges, and Future
D. Park
- 974 (Invited) ALD High-k as a Common Gate Stack Solution for Nanoelectronics
P. Ye and J. Gu
- 975 Towards the Ultimate Scaling of MOSFET Gate Dielectrics: Direct Contact of High-k and Silicon
P. Ahmet, K. Kakushima and H. Iwai
- 976 Quantitative Correlation Between Low-Field Mobility and High-Field Carrier Velocity in Quasi-Ballistic-Transport MISFETs with High-*k* Gate Dielectrics
K. Tatsumura, M. Goto, S. Kawanaka and A. Kinoshita
- 977 Effect of the Chemical Oxide Layer Thickness on the Interfacial Quality of ALD-grown HfO₂ on Silicon
S. Li and Z. Chen
- 978 A Comparison of O₃ and H₂O as Oxygen Sources for Atomic Layer Deposition Processing of HfAlO_x Thin Films for High-k Dielectric Nanocapacitor Applications
R. Phillips and E. Eisenbraun

- 979 Improved Resistive Switching Performance of Gd_2O_3 Films by Fluorine Incorporation and Gd/O Ratio Adjustment
Y. Ye, J. Wang and C. Lai
- 980 Design of a Novel Wet-Etch Reactor and Etch Chemistries: Simulations and Experimental Verification
A. Pande, G. Levitin, D. Mui and D. Hess
- 981 Atomic Layer Deposition of Hafnium Silicate Film and Its Application to OTFTs
S. Lee and K. Yong
- 982 Resistive Switching Characteristics of HfO_x Thin Film
K. Chang, W. Tzeng, K. Liu and T. Wu
- 983 Suppression Mechanism of Volume Shrinkage for SOG Film by Plasma Treatment
K. Nagata, D. Kosemura, M. Takei, H. Akamatsu, M. Hattori, T. Koganezawa, M. Machida, J. Son, I. Hirozawa, T. Nishita, T. Shiozawa, D. Katayama, Y. Sato, Y. Hirota and A. Ogura
- 984 How to Evaluate Surface Free Energies of Dense and Ultra Low- κ Dielectrics in Pattern Structure
T. Oszinda, M. Schaller and S. Schulz
- 985 XPS Study on Chemical Bonding States of High-k Gate Stacks for Advanced CMOS
H. Nohira
- 986 Electrical Scanning Probe Microscopy Techniques for the Detailed Characterization of High-k Dielectric Layers
M. Rommel, V. Yanev, A. Paskaleva, T. Erlbacher, M. Lemberger, A. Bauer and L. Frey
- 987 Electrical Characterization of Si Capped HfO_2 /Metal Gate Ge-pFETs: Physical Insight into Critical Parameters
J. Mitard, B. Vincent, B. Dejaeger, K. Martens, R. Krom, R. Loo, G. Eneman, K. DeMeyer, M. Meuris, M. Heyns, W. Vandervorst, M. Caymax and T. Hoffmann
- 988 Oxidation, Diffusion and Desorption in Ge/ GeO_2 System
A. Toriumi, S. Wang, C. Lee, M. Yoshida, K. Kita, T. Nishimura and K. Nagashio
- 989 Investigation of High- κ Dielectric/ $In_xGa_{1-x}As$ Interfaces
K. Cherkaoui, E. O'Connor, S. Monaghan, R. Long, V. Djara and P. Hurley
- 990 Dielectric Properties and Flat-Band Voltages of Doped HfO_2
F. Ducroquet, E. Rauwel and C. Dubourdieu
- 991 Experimental Demonstration of Higher-k Phase HfO_2 Through Non-Equilibrium Thermal Treatment
Y. Nakajima, K. Kita, T. Nishimura, K. Nagashio and A. Toriumi
- 992 Variability and Reliability in Ultra-Scaled MOS Devices: How Should They Be Evaluated from Nanoscale to Circuit Level?
M. Nafria, R. Rodríguez, M. Porti, J. Martín-Martínez, M. Lanza and X. Aymerich
- 993 Negatively Charged Defects Generated by Rare-Earth Materials Incorporation into HfO_2 and the Impact on the Gate Dielectrics Reliability
M. Sato, S. Kamiyama, Y. Sugita, T. Matsuki, T. Morooka, T. Suzuki, K. Shiraishi, K. Yamabe, J. Yugami, K. Ikeda, Y. Ohji, K. Ohmori and K. Yamada
- 994 Charges Pumping and Si- SiO_2 Interface Traps Electrical Characterization
D. Bauza
- 995 Degradation in $HfSiON$ Film Induced by Electrical Stress Application
R. Hasunuma, C. Tamura, T. Nomura, Y. Kikuchi, K. Ohmori, M. Sato, A. Uedono, T. Chikyow, K. Shiraishi, K. Yamada and K. Yamabe
- 996 Degradation in MOSFET Multistack High-k Gate Dielectrics Due to Hot Carrier and Constant Voltage Stress
Z. Celik-Butler and S. Rahman
- 997 An Electron-Beam-Induced Current Investigation of Electrical Defects in High-k Gate Stacks
J. Chen, T. Sekiguchi, N. Fukata, M. Takase, Y. Nemoto, R. Hasunuma, K. Yamabe, M. Sato, K. Yamada and T. Chikyo

- 998 Statistical Analysis of Factors Affecting the Performance of MIM Tunnel Junctions
R. Ratnadurai, S. Krishnan, S. Bhansali, E. Stefanakos and Y. Goswami
- 999 Resistive Switching Behaviors of NiO Bilayer Films with Different Crystallinity Layers
K. Kita, A. Eika, T. Nishimura, K. Nagashio and A. Toriumi
- 1000 Correlation of Negative Bias Temperature Instability and Breakdown in HfO₂/TiN Gate Stacks
N. Rahim and D. Misra
- 1001 Reliability Characteristics of D₂O-Radical Annealed ALD HfO₂ Dielectric
C. Tu, F. Chiu, C. Chen, C. Hou, Z. Lee, H. Chen, S. Chen, H. Huang, T. Wu and H. Hwang
- 1002 Temperature and Thickness Dependence of Cerium Oxide Dielectric Breakdown
C. Chen, W. Shih, H. Huang and F. Chiu
- 1003 The Degradation of Thin Silicon Dioxide Film Subjected to Pulse Voltage Stresses at Nanoscale
Y. Wu, J. Lin, S. Chang and C. Huang
- 1004 Dielectric Anomaly in Mg Doped ZnO Thin Film Deposited by Sol-Gel Method
A. Singh, P. Khanna, A. Kumar, M. Kumar and D. Kumar
- 1005 Effect of Processing Conditions on the Electrical Characteristics of Atomic Layer Deposited Al₂O₃ and HfO₂ Films
J. Raffi, M. Zabala, O. Beldarrain and F. Campabadal
- 1006 Relaxation of Photoexcitations in Optically Excited Systems Formed by 'Weakly Amorphous' or Crystalline Si Nanoparticles Embedded Within a Wide-Gap Dielectric Matrix
V. Stuchinsky, T. Korchagina and V. Volodin
- 1007 A Model for the Hump Feature Observed in the Capacitance-Voltage Characteristics of MOS Structures with Oxide-Hosted Si Nanoparticles
V. Stuchinsky
- 1008 Annealing Effect on the Resistance Switching Properties of TiN/SiO₂/FeO_x/Fe-Contented Electrode Structures
L. Feng, C. Chang, Y. Chang, W. Chen, S. Wang, P. Chiang and T. Chang
- 1009 Bulk Matter Resistivity of Ti Based TiAlN Dielectric Thin Films
A. Razeghi and M. Hantehzadeh
- 1010 A Mechanism for Increasing Growth Rate of Undoped SACVD Film
Y. Sokolov, J. Harrison and B. Harward
- 1011 Ultra-Thin (AlCrTaTiZr)_{N_x}/AlCrTaTiZr Bilayer Structures of High Diffusion Resistance to Cu Metallization
S. Chang and D. Chen
- 1012 CeO₂ Optical Properties and Electrical Characteristics
W. Shih, C. Chen, F. Chiu, C. Lai and H. Hwang
- 1013 New Metal-High-k-High-k-Oxide-Semiconductor Capacitors and Field Effect Transistors Using Al/Y₂O₃/Ta₂O₅/SiO₂/Si Structure for Nonvolatile Memory Applications
W. Shih, F. Chiu and H. Hwang
- 1015 Advanced FinFET Technologies: Extension Doping, V_{th} Controllable CMOS Inverters and SRAM
Y. Liu, K. Endo, S. O'uchi, T. Matsukawa, K. Sakamoto and M. Masahara
- 1016 Flexible Titanium Dioxide Memory
N. Gergel-Hackett, L. Stephey, B. Dunlap, B. Hamadani, D. Gundlach and C. Richter
- 1017 Atomistic Guideline for MONOS-Type Memories with High Program/Erase Cycle Endurance
K. Shiraishi, K. Yamaguchi, A. Otake and K. Kobayashi
- 1018 Highly Stable SrZrO₃ Bipolar Resistive Switching Memory by Ti Modulation Layer
M. Wu, M. Lin, Y. Yeh, C. Lin and T. Tseng
- 1019 Nanocrystalline Materials: Optimization of Thin Film Properties
J. Heitmann
- 1020 The Direct Patterning of Organosilicate Interconnect Materials by Nanoimprint Lithography
C. Soles

- 1021 MgO Tunnel Barriers in Magnetic Nanostructures and Devices
R. Heindl, W. Rippard and M. Pufall
- 1022 PE-TEOS Wafer Bonding Enhancement at Low Temperature with a High- κ Dielectric Capping Layer
C. Tan and G. Chong
- 1023 Whisker Formation in Pb-Free Surface Finishes
G. Stafford, J. Shin, M. Williams, K. Moon and W. Boettinger
- 1024 (Invited) Surface Passivation of High-Voltage and High-Power Semiconductor Devices
K. Shenai
- 1025 Fabrication and Properties of Three-Dimensionally Structured Back-Contact Thin Film Photovoltaic Devices
D. Josell, C. Beauchamp, C. Hangarter, S. Jung, B. Hamadani, N. Zhitenev, T. Moffat and J. Guyer
- 1026 Statistical Low-Frequency Noise Model for MOSFETs under Large Signal Cyclo-Stationary Excitation
G. Wirth, R. da Silva, P. Srinivasan and R. Brederlow
- 1027 Temperature Dependence of Flicker (1/f) Noise in Analog and Digital 45 nm n-MOSFET Devices
P. Srinivasan, K. Benaissa, F. Hou, D. Studdard, S. Martin, A. Marshall and J. McKee
- 1028 Microfabricated Nanocomposite Polymers and Thin Films for Flexible Substrate Microfluidics and MEMS
B. Gray
- 1029 Metrology of Molecular Devices Made by Flip Chip Lamination
C. Hacker, M. Coll and C. Richter
- 1030 Using Interfacial Chemistry to Improve the Performance of Organic Semiconductor Devices
D. Gundlach
- 1031 Incorporation of BCB into Wafer-Scale Assembly MMIC's
D. Eaves, P. Chang-Chien, W. Luo, D. Farkas, X. Zeng, R. Elmadjian, D. Li, L. Dang, K. Hennig, C. Cheung, X. Lan, M. Battung, W. Lee, M. Parlee, J. Uyeda and M. Barsky

E3 - Integrated Optoelectronics 5

Electronics and Photonics / Dielectric Science and Technology

- 1032 The Impact of Optoelectronics on Health, Communications and Entertainment
W. Ishak
- 1033 Gastrointestinal Imaging Technologies: Can We Turn the Gut Inside Out?
L. Liu
- 1034 Endoscopic Ultrasound: Imaging and Beyond
F. Tse
- 1035 In Vivo Characterization of Lung Cancers Using Endoscopic Raman Spectroscopy: A Pilot Study
M. Short, S. Lam, A. McWilliams and H. Zeng
- 1036 Time-Resolved Fluorescence Spectra of Upper GI Tract: An Ex-Vivo Study
M. LePalud, F. Tse, J. Jo, M. Krishnamoorthy, R. Leung, D. Cappon, Z. Nie and Q. Fang
- 1037 Fluorescence Excitation Emission Matrix Spectroscopy for Endogenous Skin Fluorescence Characterization
J. Zhao, F. Feng, M. Tsai, H. Zeng, D. McLean, E. Ruvolo, N. Kollias and H. Lui
- 1038 In Vivo Near-Infrared Auto-Fluorescence Imaging of Pigmented Skin Lesions: Methods and Preliminary Clinical Results
S. Wang, S. Siow, J. Zhao, H. Lui, D. McLean, Q. He and H. Zeng
- 1039 Optical Molecular Imaging for Translational Surgery
D. Farkas
- 1040 Confocal Laser Endomicroscopy in Gastroenterology: Initial Clinical Experiences and Comments
D. Armstrong

- 1041 In Vivo Optical Imaging in Neuroscience: Video Rate Microscopy and Miniature Probes
D. Côté
- 1042 Combining Multiphoton Microscopy with Optical Coherence Tomography Using Femtosecond Lasers
S. Tang
- 1043 New Exciting Transdisciplinary Frontiers: Femtobiology and Femtomedicine
Q. Lu
- 1044 Single-Wall Carbon Nanotubes Assisted Photothermal Cancer Therapy: Animal Study with a Murine Model of Squamous Cell Carcinoma
N. Huang, H. Wang, J. Zhao, H. Lui, M. Korbelik and H. Zeng
- 1045 Mobile Micro- and Nano-Instruments: Small, Cheap and under Wireless Control
V. Karanassios
- 1046 Microfluidics for Integrated Optoelectronics
P. Selvaganapathy
- 1047 Photonic-Integrated Microcytometers: Design, Simulation, Fabrication and Characterization
C. Xu, B. Watts, T. Kowpak, S. Zhu and Z. Zhang
- 1048 Ultraviolet Optical Flow Cell for Point-of-Use Water Disinfection
E. Stokes, J. Oliver, A. Giles, C. Monroe, C. Cilip, H. McEntyre, J. Pagan and P. Batoni
- 1049 Wide Field Catadioptric System Design for Endoscopic Auto-Fluorescence Imaging
R. Wang, J. Deen and Q. Fang
- 1050 Applications of Flexible Conformable Ultrasound Arrays for Real-Time Imaging During Neurosurgery
W. Grundfest, M. Culjat, R. Singh and E. Brown
- 1051 Magnetically Driven Scanning Microlens for Out-of-Plane In Vivo Medical Imaging
H. Mansoor, H. Zeng and M. Chiao
- 1052 Applying Biophotonics in Molecular Medicine
F. Chuang, T. Huser and D. Matthews
- 1053 Miniaturized Multifunction Electronic Medical Solution
H. Zhang
- 1054 Planar Fluorescence Imaging
C. Salthouse
- 1055 High-Speed Ultra-Sensitive Biomedical CMOS Imagers
D. Palubiak and M. Deen
- 1056 A Novel CMOS Image Sensor Using Time-Domain Single-Photon Counting
M. El-Desouki, D. Palubiak, M. Deen and Q. Fang
- 1057 Using Fluorescence Lifetime Imaging Microscopy to Monitor Photofrin Uptake, Redistribution, and Intracellular Microenvironment
S. Yeh, T. Collins, R. Leung, J. Jo, K. Diamond and Q. Fang
- 1058 In Vivo Micro-Raman Spectroscopy of the Skin with Reflectance Confocal Imaging Guidance
H. Wang, N. Huang, J. Zhao, H. Lui, M. Korbelik and H. Zeng
- 1059 New Multimodal Multiphoton Imaging and Spectroscopy Apparatus for Dermatology
A. Lee, H. Wang, Y. Yu, J. Zhao, S. Tang, H. Lui, D. McLean and H. Zeng
- 1060 Low-Electrical-Interference MEMS Mirror Array for Wavelength-Selective Switches
T. Sakata, M. Usui, S. Uchiyama, N. Shimoyama, J. Kodate, H. Ishii, T. Matsuura, F. Shimokawa and Y. Sato
- 1061 Broadband InAs/InP Quantum Dash Lasers
B. Ooi, C. Tan, C. Chen and J. Hwang
- 1062 Photodiodes with Monolithically Integrated RF Circuits
Y. Fu, H. Pan and J. Campbell
- 1063 Photodetectors and Receivers for 100 GbE Applications
H. Bach

- 1064 Photocurrent Modeling of Resonant Tunneling Quantum Dot Infrared Photodetectors
M. Naser, M. Deen and D. Thompson
- 1065 Fabrication of Silicon Photomultipliers for the Readout of Scintillation Radiation Detectors
P. Barton and D. Wehe
- 1066 Random Telegraph Signal Noise in CMOS Imagers and Its Impact on Image Quality
S. Majumder, M. M. El-Desouki, O. Marinov and M. Deen
- 1067 Electrochemically Prepared Photo-Sensitive Metal-Insulator-Semiconductor Devices with Stepped Insulating Layer
K. Stella, D. Kovacs, W. Brezna, J. Smoliner and D. Diesing
- 1068 Ultraviolet to Visible Detection by Silicon Nanostructures
S. Hu, C. Li and T. Li
- 1069 Polymer and Silicon Optical Wires and Devices for VLSI Photonic Circuit Application
E. Lee
- 1070 Analysis of InAs Self-Assembled Quantum Wires in an $\text{In}_x\text{Ga}_y\text{Al}_{1-x-y}\text{As}$ Matrix Grown Lattice Matched to InP
D. Thompson, K. Cui and G. Botton
- 1071 Fabrication and Electrical Characterization of Conducting Polymer Nanopillars by Current Sensing Atomic Force Microscopy
L. Marsal, A. Santos, R. Palacios, P. Formentin, J. Ferré-Borrull and J. Pallarès
- 1072 Fabrication of Magneto-Optical Microstructure by Using Femtosecond Laser Direct Writing
Y. Li, B. Liu, Y. Li, W. Shi, J. Tian and Q. Sun
- 1073 Formation of Optically Transparent, Electrically Conductive Ga-Doped ZnO Fine Patterns by Wet-Chemical Etching Technique
N. Yamamoto, S. Osone, H. Makino, T. Yamada and T. Yamamoto
- 1074 Photoluminescence of GaN/Quantum Dots/GaN Wafer Bonded Structure
Y. Li and E. Stokes
- 1075 Beam Propagation in Nano-Waveguide and Its Applications
Y. Li, L. Zhao, J. Qi, J. Xu and Q. Sun
- 1076 Experimental Study on Low-Frequency Noise in Optical Coupling Devices
Y. Zhuang, J. Bao and D. Lei
- 1077 Effect of Rear Surface Texture on Laser Irradiation Induced Group-III Interdiffusion in InAs/InAlGaAs Quantum Dash Structure
Y. Ding, H. Sun, C. Tan, V. Hongpinyo, C. Dimas, Y. Ding and B. Ooi
- 1078 Enhancing the Performance of Photovoltaic Cells by Using Gold Nanoparticles and Periodic Arrays of Nanoholes on Gold Films
P. Wang, M. Rahman and A. Brolo

E4 - Nanoscale Luminescent Materials

Luminescence and Display Materials / Dielectric Science and Technology

- 1079 Novel Processing for Si-Nanocrystal Based Photonic Materials
M. Halsall, I. Crowe, N. Hylton, O. Hulko, R. Jalili-Kashtiban, U. Bangert, A. Knights and R. Gwilliam
- 1080 Photoluminescent Group IV Nanostructures Synthesized by Reactive Pulsed Laser Deposition
F. Rosei
- 1081 Photoluminescence from Si^+ Ion Implanted Silicon Nitride Films Deposited via PECVD
J. Anstey, A. Knights and P. Mascher
- 1082 Photoluminescence Efficiency of Ge Dots Self-Assembled on SiO_2 and TiO_2 Films
D. Lockwood, N. Rowell, I. Berbezier, G. Amiard, A. Ronda and D. Grosso

- 1083 Effect of Annealing Time on the Growth, Structure, and Luminescence of Nitride-Passivated Silicon Nanoclusters
P. Wilson, T. Roschuk, K. Dunn, E. Chelomentsev, J. Wojcik and P. Mascher
- 1084 Electrical Properties of Silicon-Rich Silicon Carbide Films Prepared by Using Catalytic Chemical Vapor Deposition
K. Lee, J. Hwang, Y. Lee, K. No and W. Hong
- 1085 Photoluminescence Properties of Alkaline-Earth Oxide Nanoparticles
P. Sushko, K. McKenna, A. Sternig, S. Stankic, M. Muller and O. Diwald
- 1086 Excitation Mechanisms of Green Emission from Terbium Ions Embedded Inside the Sol-Gel Films Deposited onto Nanoporous Substrates
A. Podhorodecki, M. Bański, J. Misiewicz and N. Gaponenko
- 1087 Electropolymerized Poly(para-phenylene)vinylene Films onto and Inside Porous Si
B. Gelloz, T. Djenizian, R. Mentek, L. Jin and N. Koshida
- 1088 Synthesis and Characterization of Photoluminescence Polymer Nanopillar Arrays
L. Marsal, R. Palacios, P. Formentin, E. Martinez-Ferrero, A. Santos, J. Ferré-Borrull and J. Pallarès
- 1089 Synthesis and Photoluminescence Characteristics of $\text{Sr}_3\text{Y}_{1-x}(\text{PO}_4)_3:\text{xTb}^{3+}$ Nanoparticles
S. Khatkar, S. Han and M. Kumar
- 1090 Co-Doping Effects of Zn^{2+} on Upconversion Luminescence of $\text{Gd}_2\text{O}_3:\text{Er}$ Nanophosphors
L. Xu, Y. Sheng, J. Liu, D. Zhai and Z. Zhang
- 1091 New Electrochromic Systems for the Color e-Paper
C. Noh, S. Jeon, R. Das, D. Chung and Y. Jin
- 1092 Luminescent Metal-Organic Frameworks: A Nanolaboratory for Probing Energy Transfer via Interchromophore Interactions
M. Allendorf, P. Doty, S. Meek and R. Houk
- 1093 Optical Response of II-VI Semiconductor Nanowires
H. Ruda, J. Salfi, U. Philipose, C. de Souza, S. Nair, A. Saxena and C. Fernandes
- 1094 Surface and Size Manipulation of the Magnetic Properties of CdSe Quantum Dots
R. Meulenberg, J. Lee, S. McCall, K. Hanif, D. Haskel, J. Lang, L. Terminello and T. van Buuren
- 1095 Doped Nanoparticles for Optoelectronics Applications
M. Godlewski
- 1096 Nanostructuring the Er^{3+} and Si Nanoparticle Distributions to Enhance the 1.5 μm Emission in Codoped Al_2O_3 Thin Films
R. Serna, S. Núñez-Sánchez and P. Roque
- 1097 Excitation Mechanism of Europium Ions Embedded into TiO_2 Nanocrystalline Thin Films
A. Podhorodecki, D. Kaczmarek, J. Domaradzki, E. Prociow, D. Wojcieszak, P. Sitarek, G. Zatoryb and J. Misiewicz
- 1098 Investigation into the Photophysics of Water Soluble Quantum Dots Using Fluorescence Correlation Spectroscopy
R. Peters, S. Shehata and C. Fradin
- 1099 Emission Quenching of Semiconductor Quantum Dots and its Application to Biosensing
S. Kuwabata, T. Uematsu and T. Torimoto
- 1100 Synthesis and Photoluminescence Properties of $\text{InVO}_4:\text{Eu}^{3+}$ Phosphors Synthesized Using Sol-Gel Method
Z. Shi, H. Chen, Y. Tsai, S. Wu and Y. Chang
- 1101 Combustion Synthesis and Photoluminescence Characteristics of $\text{Y}_{1-x}\text{CaAl}_3\text{O}_7:\text{xEu}^{3+}$ Nanophosphor
S. Khatkar, S. Han and M. Kumar
- 1102 Tartaric Acid Assisted Sol-Gel Synthesis and Photoluminescence Characteristics of $\text{SrY}_{2(1-x)}\text{O}_4:\text{xTb}$ Nanoparticles
V. Taxak and M. Kumar
- 1103 Identification of Two Luminescence Sites of $\text{Sr}_2\text{SiO}_4:\text{Eu}^{2+}$ and $(\text{Sr},\text{Ba})_2\text{SiO}_4:\text{Eu}^{2+}$ Phosphors
H. Nguyen, I. Yeo and S. Mho

- 1104 Optical Properties of $\text{Eu}^{(3+, 2+)}$ Ions Doped in NaCaPO_4
J. Yoon, K. Jang, M. Jayasimhadri, J. Jeong, H. Lee, S. Lee and J. Jeong
- 1105 Luminescent Properties of Eu^{3+} -Doped $\text{Y}(\text{V}_{(1-x)}, \text{Nb}_{(x)})\text{O}_4$ and $(\text{Y}_{(1-x)}, \text{Bi}_{(x)})\text{VO}_4$ Phosphors
R. Balakrishnaiah, D. Kim, S. Yi, S. Kim, K. Jang, H. Lee, B. Moon and J. Jeong
- 1106 Luminescent Properties of Ce^{3+} -Doped $(\text{Y}_{(1-x)}, \text{Gd}_{(x)})\text{VO}_4$ Phosphors
R. Balakrishnaiah, S. Yi, S. Kim, K. Jang, H. Lee and J. Jeong
- 1107 Preparation of $(\text{Y}, \text{Gd})_3\text{Al}_{5-2y}(\text{Si}, \text{Mg})_y\text{O}_{12}:\text{Ce}$ Phosphor by Spray Pyrolysis: Effect of Precursor Type and Flux on Its Luminescence Characteristics
M. Maniquiz and K. Jung
- 1108 Luminescence Properties of Color-Tunable Oxynitrides Phosphor for White LED Applications
Y. Fang and S. Chu
- 1109 Fabrication of High Luminous Field Emission Display Using GaN Nanorods and Low Voltage Phosphor
Y. Wu, K. Lee, Y. Nien and I. Chen
- 1110 Synthesis and Photoluminescence Properties of $\text{Y}_2\text{O}_3:\text{Eu}^{3+}/\text{SiO}_2$ Nano Phosphor Core/Shell Particles
J. Han, J. Talbot and J. McKittrick
- 1111 CVD Preparation and Photoluminescence of ZnS Nanowires from $\text{Zn}(\text{TMHD})_2$
J. Juarez and F. Juarez
- 1112 Si Nanocrystal MOSLEDs: From Materials to Transistors
B. Garrido, M. Perálvarez, Y. Berencén, J. Carreras and O. Jambois
- 1113 Electroluminescence in Metal-Oxide-Semiconductor Tunnel Diodes with a Silicon Nanolayer
M. Morita, K. Matsumura, R. Yamada, J. Uchikoshi and K. Arima
- 1114 High Performance Quantum Dot Microtube Lasers and Nanowire LEDs on Si
Z. Mi, Y. Chang, F. Li and J. Wang
- 1115 Coupling Silicon Nanocrystal Fluorescence to Optical Bottle Resonators
P. Bianucci, J. Veinot and A. Meldrum
- 1116 Dual Properties of NaF Ultrathin Film as Buffer Layer on Organic Light Emitting Devices
Y. Chen and S. Chu

E5 - Thermal and Plasma CVD of Nanostructures and their Applications

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

- 1117 (Invited) Directing Energy and Matter at Nanoscales in Plasma-Surface Interactions: Towards Sustainable Future
K. Ostrikov
- 1118 (Invited) Plasma Synthesis of Silicon Nanocrystal Inks and their Applications in Printed Silicon Technology and Hybrid Solar Cells
C. Liu, X. Pi and U. Kortshagen
- 1119 (Invited) Influence of Plasma Parameters on the Growth of Metal Oxide Nanowires
M. Mozetic and U. Cvelbar
- 1120 Electric Fields and Chemical Vapor Deposition
M. Warwick, R. Smith, N. Furlan, J. Crane and R. Binions
- 1121 Silicon Oxide Nanodots by Direct Plasma Synthesis
U. Cvelbar, I. Junkar, I. Levchenko and K. Ostrikov
- 1122 CF_4 Plasma Treatment on Gd_2O_3 Nanocrystal Memory for High Performance Nonvolatile Memory Application
C. Lin, J. Wang, C. Lai, J. Hsu and C. Ai
- 1123 A Combined Experimental with Computational Study of Precursor Stability and ALD Growth Mechanism in Tantalum Nitride Deposition
P. Pullumbi, A. Correia Anacleto, D. Cany-Canian, C. Ko, A. Zauner, J. Gatineau and M. Hugon

- 1124 Analysis of the Homogeneous Thermal Decomposition of the Tungsten Dimethylhydrazido Complex $\text{Cl}_4(\text{CH}_3\text{CN})\text{W}(\text{NNMe}_2)$ Using In Situ Raman Spectroscopy and DFT Calculations
J. Lee, D. Kim, O. Kim, T. Anderson, J. Koller and L. McElwee-White
- 1125 Phase-Change InSbTe Nanowires Grown In Situ at Low Temperature by MOCVD Method
J. Ahn, K. Park, H. Jung, S. Hur and S. Yoon
- 1126 (Invited) Rational Growth of 1D Carbon Nanostructures for Via Interconnect Applications
X. Sun, C. Li, J. Gao and C. Yang
- 1127 (Invited) Controlled Growth of Single-Walled Carbon Nanotubes with Metallic Conductivity
G. Sumanasekera
- 1128 (Invited) Microscale Plasma Discharges in Aqueous Solutions: New Technique for Localized Synthesis of Nanoparticles
D. Staack
- 1129 Microplasma Reduction of Metal Cations Dispersed in Polymeric Films for Fabrication of Patterned Nanoparticles
S. Lee and R. Sankaran
- 1130 Bulk Production of Metal Oxide Nanowires Using an Atmospheric Microwave Plasma Reactor
V. Kumar, J. Kim, J. Jasinski and M. Sunkara
- 1131 Novel Surface-Wave-Excited PE-CVD System with Reciprocated Substrate Ambulation Mechanism
K. Azuma, S. Ueno, M. Suzuki, Y. Konishi and S. Ishida
- 1132 Epitaxial Si Films by LPCVD and Their Application for TFT/NVM Devices
K. Jang, S. Jung, J. Cho, W. Lee and J. Yi
- 1133 Hot Wire Chemical Vapor Deposition of $\text{Ge}_2\text{Sb}_2\text{Te}_5$ Thin Films
D. Reso, M. Silinskas, B. Kalkofen, M. Lisker and E. Burte
- 1134 Effect of Boron Doping Concentration at the p/i Interface of the Thin Film Silicon Solar Cell Using Impedance Spectroscopy Analysis
S. Park, S. Lee, J. Park, Y. Kim, D. Yang and J. Yi
- 1135 Gallium Assisted PECVD Synthesis of Silicon Nanowires
A. Gewalt, B. Kalkofen and E. Burte
- 1136 The Effect of the Hydrogen Gas Ratio on p-Type Amorphous Silicon Suboxides Layer and Its Application to Amorphous Silicon Solar Cells
J. Park, Y. Kim, S. Park, K. Yoon, S. Lee, Y. Lee, K. Jang, H. Park, S. Jung and J. Yi

E6 - Wide-Bandgap Semiconductor Materials and Devices 11

Electronics and Photonics / Sensor / Luminescence and Display Materials

- 1137 Studies of Electron Trapping in ZnO Semiconductor
L. Chernyak and E. Flitsyan
- 1138 The Effect of Moisture on the Bias Illumination Temperature Instability in GIZO TFTs and the Associated Investigation on Passivation Systems
K. Lee, J. Jung, K. Son, J. Park, T. Kim, J. Kwon, B. Koo and S. Lee
- 1139 Aluminum-Doped Zinc Oxide Thin Films for Opto-Electronic Applications
N. Hirahara, B. Onwona-Agyeman and M. Nakao
- 1140 Investigation and Fabrication of Bottom Gate ZnO:Al TTFTs with Various Thicknesses of ZnO Buffer Layers
Y. Lin, H. Lee and C. Lee
- 1141 Solution Based Fabrication of ZnO Nanowires and Their Novel Heterostructures Array: Characterization and Applications
K. Yong
- 1142 High Responsivity Ultraviolet Photodetector Based on p-GaN/i-ZnO Nanorod /n-ZnO:In Nanorod
C. Chen, J. Yan and C. Lee

- 1143 Fabrication of p-Cu₂O/n-ZnO Heterojunction Diode Using Electrodeposition Method
M. Fariza, J. Sasano and M. Izaki
- 1144 Epitaxial Growth of ZnO on LiAlO₂ and LiGaO₂ Substrates by Chemical Vapor Deposition
C. Chen, L. Chang, M. Chou, J. Yu and T. Huang
- 1145 GaN-on-Si Electronics
W. Johnson, A. Hanson and K. Linthicum
- 1146 Control of Polarization Fields in III-Nitride Nanowire Devices
M. Mastro, B. Simpkins, J. Hite, C. Eddy Jr., J. Kim, J. Kim and J. Ahn
- 1147 Light Extraction Enhancement of n-Side Up Light-Emitting Diodes Without Electrodes Covering by Wafer Bonding and Textured Surfaces
R. Horng, Y. Lu and D. Wu
- 1148 AlGaIn/GaN HEMT Based Biosensor
S. Alur, T. Gnanaprakasa, Y. Wang, Y. Sharma, J. Dai, J. Hong, A. Simonian, M. Bozack, C. Ahyi and M. Park
- 1149 Development of Enhancement Mode AlN/Ultrathin AlGaIn/GaN HEMTs by Selective Wet Etching
T. Anderson, M. Tadjer, M. Mastro, J. Hite, K. Hobart, C. Eddy and F. Kub
- 1150 Fabrication of the Metal-Oxide-Semiconductor Au/Ga₂O₃/GaN Nanowires
C. Hsieh and L. Chou
- 1151 ZnO Nanorod/p-GaN Heterostructured Light-Emitting Diodes Passivated by Using a Photoelectrochemical Method
J. Yan, C. Chen and C. Lee
- 1152 Grand Challenges in Silicon Carbide Material and Devices
K. Shenai
- 1153 Etch Pits of 4H-Silicon Carbide Surface Formed Using Chlorine Trifluoride Gas
H. Habuka, K. Furukawa, K. Tanaka, Y. Katsumi, N. Takechi, K. Fukae and T. Kato
- 1154 AlN Nano-Island Interlayers for High Efficiency GaN-Based Light-Emitting Diodes
S. Kim, H. Oh and J. Baek
- 1155 A-Plane GaN for Hydrogen Sensing Applications
H. Kwang, W. Lim, S. Pearton, Y. Wang, F. Ren, J. Yang and S. Jang
- 1156 The Application of Palladium Oxide-Based Silicon Carbide Gas Sensors for Aerospace Applications
G. Hunter, J. Xu, P. Neudeck, L. Chen, B. Ward and D. Makel
- 1157 Passivation of Deep Levels at the SiO₂/SiC Interface
A. Basile, J. Rozen, X. Chen, S. Dhar, J. Williams, L. Feldman and P. Mooney
- 1158 Analysis the Suppression of Ag Agglomeration by Mg Additive Atoms
Y. Song, J. Son and J. Lee
- 1159 Formation of Self-Positioned Phosphor Layer for Angular Color Homogeneity of White Light-Emitting Diodes
K. Lee, S. Kim, J. Kim, S. Song and J. Moon
- 1160 Dy³⁺ Emission from GaAlN Powder and Radio-Frequency Sputtered Thin Film
J. Tao, J. McKittrick and J. Talbot
- 1161 Electron Paramagnetic Resonance Studies of Shallow Donors Behavior in Hydrogenated ZnO Films
L. Larina, N. Tsvetkov, J. Yang, K. Lim and O. Shevaleevskiy
- 1162 Optical Properties of Pure and Doped Electrodeposited ZnO Films
I. Enculescu, E. Matei, N. Preda, M. Sima, M. Enculescu and R. Neumann
- 1163 Formation Mechanism and Reliability of Cu/Ge/Pd Ohmic Contact to n-Type InGaAs
E. Chang, Y. Lin and S. Shie
- 1164 InGaIn Light-Emitting Diode Structure on a Photoelectrochemical Treated GaN:Si Layer
K. Chen, C. Lin and C. Lin
- 1165 InGaIn-Based Light Emitting Diodes with an AlN Sacrificial Buffer Layer for Chemical Lift-Off Process
C. Lin, J. Dai and M. Lin

- 1166 Low-Resistivity and High-Transmittance Indium Gallium Zinc Oxide Films for UV Light-Emitting Diodes
H. Chang, K. Huang, S. Chen, L. Shan and M. Wu
- 1167 Fabrication of IGZO Sputtering Target and Its Applications to the Preparation of Thin-Film Transistor Devices
C. Lo and T. Hsieh
- 1168 Spatially Resolved Cathodoluminescence Spectroscopy of ZnO Microparticles
T. Hirai, Y. Harada, N. Ohno, Y. Sawada and T. Itoh
- 1169 Drain Leakage Current in MuGFETs at High Temperatures
J. Girollo Jr. and M. Bellodi
- 1170 Study of the Number of Quantum Well Pairs for High Bright AlGaInP-Based Light Emitting Diodes
H. Oh, S. Kim, J. Kwak and J. Baek
- 1171 npn Heterostructural Optoelectronic Switch with Collector Confinement Layer
D. Guo
- 1172 pnpn and npn Heterostructural Optoelectronic Devices
D. Guo
- 1173 Cuprous Oxide Solution Preparation and Application to Cu₂O-ZnO Solar Cells
A. Du Pasquier, Z. Duan, N. Pereira and Y. Lu
- 1174 Spray Pyrolysis Based CIGS Solar Cell
K. Song, J. Suh, C. Ham, J. Cho and E. Bae
- 1175 Photovoltaic Properties of TiO₂/Cu₂O Hetero-Structure
J. Lu and D. Li
- 1176 Indium and Gallium Incorporation Mechanism during Electrodeposition of Cu(In,Ga)Se₂ Thin Film
J. Li, F. Liu, Y. Lai, Z. Zhang and Y. Liu
- 1177 CIGSS Thin Film Solar Cells by Simple Powder Evaporation Process
J. Suh, K. Song, C. Ham, J. Cho and E. Bae
- 1178 A Study on CdTe Thin Films for Photovoltaic Cells by a Solution-Based Continuous Flow Reactor Process
J. Lee, E. Bae, S. Han, C. Chang and S. Ryu

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

Dielectric Science and Technology

- 1179 Graphene RF Transistor Performance
K. Jenkins, Y. Lin, D. Farmer, C. Dimitrakopoulos, H. Chiu, P. Avouris and A. Grill
- 1180 Graphene Process Integration for Post-CMOS Devices
J. Peterson, M. Sprinkle, J. Yang, J. Williams, M. Rodriguez, Y. Yang, R. Murali, C. Berger, B. Thiel, K. Berggren, J. Meindl, W. de Heer and G. Bourianoff
- 1181 Novel Device Concepts for Nanotechnology: The Nanowire Pinch-Off Fet and Graphene Tunnelfet
B. Sorée, W. Magnus, M. Szepieniec, W. Vandenberghe, A. Verhulst, G. Pourtois, G. Groeseneken, S. De Gendt and M. Heyns
- 1182 Growth Kinetics and Defects of CVD Graphene on Cu
L. Colombo, X. Li, B. Han, W. Cai, Y. Zhu and R. Ruoff
- 1183 Transition Metal Catalyst-Assisted LPCVD and APCVD Syntheses of Large Area Mono- and Few Layer Graphene
S. Bhaviripudi, A. Reina, K. Kim, K. Zhang and J. Kong
- 1184 Optimization of Wafer-Scale Graphene Epitaxy on SiC for High Frequency Devices
A. Grill, C. Dimitrakopoulos, Y. Lin, M. Freitag, S. Han, Z. Chen, K. Jenkins, Y. Zhu, T. McArdle, J. Ott, P. Avouris and R. Wisniewski
- 1185 Spin Transport in Single- and Multilayer Graphene
M. Shiraishi

- 1186 Formation and Transport of Correlated Electron States at Room Temperature in Graphene Bilayers
J. Shumway and M. Gilbert
- 1187 Bilayer Graphene System: Transport and Reliability
T. Yu, E. Lee, B. Briggs, B. Nagabhirava and B. Yu
- 1188 Infrared Images of Heat Dissipation in Graphene Ambipolar Transistors
M. Bae, Z. Ong, D. Estrada and E. Pop
- 1189 Extraordinary Thermal Conductivity of Graphene: Applications in Thermal Management
A. Balandin
- 1190 Thermal Transport in Graphene Nanostructures
Y. Chen
- 1191 Ultra-High Vacuum Processing and Characterization of Chemically Functionalized Graphene
M. Hersam
- 1192 Advances in Graphene Metrology
A. Diebold, T. Zhang and F. Nelson
- 1193 Characterization of a Single Metal Impurity in Graphene
E. Cockayne, G. Rutter and J. Stroscio
- 1194 Noise Reduction in Graphene Transistors
A. Balandin
- 1195 Scanning Tunneling Spectroscopic Studies of the Effects of Dielectric Gate Materials on the Local Electronic Characteristics of Graphene
N. Yeh, M. Teague, M. Bockrath, J. Velasco and C. Lau
- 1196 Probing the Underlying Physics of Graphene with Raman Spectroscopy
I. Calizo, G. Cheng, J. Simpson and A. Hight Walker
- 1197 Graphene Quantum Size Effect, Zigzag Edge States and Substrate Semitransparency
J. Lyding, K. Ritter, K. He, J. Koepke, S. Schmucker, J. Wood, Y. Xu and N. Aluru
- 1198 Graphene as a Material for Nanoelectronics
G. Iannaccone, G. Fiori, M. Cheli, P. Michetti, M. Macucci, A. Betti and P. Marconcini
- 1199 Reconfigurable Graphene Logic
S. Tanachutiwat and W. Wang
- 1200 Optical and Electrical Properties of Percolated Graphene Networks from Liquid Exfoliation of Graphite
J. Obrzut, D. Pristinski and M. Yoonessi
- 1201 Electronic Transport Properties of Graphene pn Junctions and Its Electron Optics Devices
T. Low and M. Lundstrom
- 1202 Dielectric Interfaces for Graphene-Based Devices
A. Pirkle, B. Lee, C. Floresca, S. McDonnell, L. Colombo, J. Kim, M. Kim, Y. Chabal and R. Wallace
- 1203 Graphene Veselago Device: Fabrication and Characterization of Graphene p-n Junction Devices
J. Lee
- 1204 High Mobility SiGe Channel NonPlanar Devices
C. Hobbs, C. Smith, H. Adhikari, S. Lin, I. Ok, K. Akarvardar, S. Lee, B. Coss, C. Young, M. Cruz, P. Majhi and R. Jammy
- 1205 Trap-Assisted Tunneling in Deep-Submicron Ge pFET Junctions
G. Eneman, M. Bargallo Gonzalez, G. Hellings, B. De Jaeger, G. Wang, J. Mitard, K. DeMeyer, C. Claeys, M. Meuris, M. Heyns, T. Hoffmann and E. Simoen
- 1206 Tetragonal ZrO₂-Gated Ge MOS Capacitors Fabricated on Si Substrate
M. Wu, L. Chen, J. Wu and Y. Wu
- 1207 The Effect of Applied Magnetic Fields on Silicon Transport in Liquid Phase Diffusion Growth of SiGe
N. Armour, A. Kidess and S. Dost

- 1208 III-V Devices for Advanced CMOS
N. Waldron, D. Nguyen, D. Lin, G. Brammertz, G. Hellings, B. Vincent, A. Firrincieli, S. Sioncke, B. De Jaeger, G. Wang, R. Krom, J. Mitard, W. Wang, M. Passlack, M. Heyns, M. Caymax, M. Meuris, S. Biesemans and T. Hoffman
- 1209 (Invited) Scaling of InGaAs MOSFETs into Deep-Submicron
P. Ye and Y. Wu
- 1210 InGaAs HFETs for Beyond-the-Roadmap CMOS
D. Kim and J. A. del Alamo
- 1211 Sputtering Behavior and Evolution of Depth Resolution upon Low Energy Ion Irradiation of GaAs
M. Hopstaken, D. Pfeiffer, M. Gordon, E. Kiewra, Y. Sun, D. Sadana, T. Topuria, P. Rice, P. Ronsheim, C. Gerl, C. Marchiori, M. Richter, M. Sousa and J. Fompeyrine
- 1212 Novel Ga(NAsP)-Based Heterostructures for the Integration of Optoelectronic Functionalities on (001) Si-Substrate
B. Kunert, K. Volz and W. Stolz
- 1213 Hetero-Epitaxy of III-V Compounds by MOCVD on Silicon Substrates
C. Tang, Z. Zhong and K. Lau
- 1214 Growth of III/V Materials on Large Area Silicon
B. Schineller and M. Heuken
- 1215 Merging Standard CVD Techniques for GaAs and Si Epitaxial Growth
A. Sammak, W. de Boer, A. van der Bogaard and L. Nanver

F1 - Dealloying Process and Related Synthetic Opportunities

Electrodeposition / Corrosion

- 1216 The Role of Surface and Near-Surface Composition in Electrocatalysis
C. Wang, D. Strmcnik, P. Paulikas, D. van der Vliet, C. Lucas, A. Brownrigg, N. Markovic and V. Stamenkovic
- 1217 Dealloyed Nanoporous Metals for Electrocatalysis
R. Wang and Y. Ding
- 1218 Dealloyed Bimetallic PtM₃ Nanoparticle Electrocatalysts
M. Oezaslan, Z. Liu and P. Strasser
- 1219 Assessment of the Electrocatalytic Properties of Nanoporous Metals Formed by Dealloying Binary and Ternary Alloys
J. Snyder and J. Erlebacher
- 1220 Electrodeposition of Pt-(Ni, Co, Cu, Pb) Alloys for Fuel Cell Applications
T. Moffat, S. Hwang, L. Ou Yang, U. Bertocci, J. Bonevich and J. Kim
- 1221 Stability of Pt Alloy High Surface Area Catalysts
K. Mayrhofer, K. Hartl and M. Arenz
- 1222 Dealloying at the Nanoscale
K. Sieradzki
- 1223 Nanoporous Gold: A Novel Catalyst with Tunable Properties
A. Wittstock, J. Biener and M. Bäumer
- 1224 Size and Surface/Interface Controlled Properties of Nanoporous Gold
J. Biener, M. Biener, L. Zepeda-Ruiz, A. Hamza, A. Wittstock, M. Bäumer, R. Viswanath, J. J. Weissmüller and A. Hodge
- 1225 First Principles Studies of Metal-on-Metal Dissolution and Deposition
J. Greeley and D. Torres-Rangel
- 1226 Recent Progress in Dealloying Studies of Cu₃Au(111)
F. Renner

- 1227 Simulations of Morphological and Topological Coarsening of Dealloyed Nanoporous Metals
J. Erlebacher
- 1228 Plastic Flow of Nanoporous Gold, and How It Relates to Electrochemistry
H. Jin and J. Weissmueller
- 1229 In Situ X-Ray Diffraction and Small Angle Scattering of the Formation of Nanoporous Gold Via Dealloying
C. Dotzler, B. Ingam, B. Illy, M. Toney and M. Ryan
- 1230 Dealloying Kinetics and Morphology in Engineering Alloys, and Comparison with Noble-Metal Alloys
S. Parida, D. Artymowicz, Z. Coull and R. Newman
- 1231 Nanoporous Ni Electrodes Developed by Dealloying of Cu from Electrodeposited Ni-Cu Alloys for Supercapacitor Applications
J. Chang, Y. Li, S. Hsu, M. Deng, W. Tsai and I. Sun
- 1232 Electrochemical BET or UPD of Metals in Surface Area Measurements
Y. Liu, S. Bliznakov and N. Dimitrov
- 1233 In Situ STM Studies of Electrochemical Alloying-Dealloying of an Atomic Layer Deposited on Au(111)
A. Damian, F. Maroun and P. Allongue
- 1234 Surface Alloying/Dealloying in UPD Systems: Pb/Au(111) and Pb/Cu(100)
N. Vasiljevic, J. Nutariya, J. Velleuer and W. Schwarzacher
- 1235 Microstructure and Optical Properties of Nanoporous Metals Synthesized by Dealloying
M. Chen
- 1236 Analytical Applications of Porous Gold Electrodes Prepared from Electrochemical Alloying/Dealloying Process
C. Tai, J. Chang, Y. Lin, W. Hsuei, W. Lo and I. Sun
- 1237 Alloying Effects on the Selective Dissolution of CuZr-Based Metallic Glasses
Z. Wang and J. Wang
- 1238 Origin of Interface Instability during the Initial Growth of Porous Anodic Oxide Films
K. Hebert and W. Hong
- 1239 In Situ Mass and Stress Measurement during Sn Electrodeposition Using an Electrochemical Double Quartz Crystal Microbalance (E-DQCM) Technique
J. Li, X. Xiao, F. Yang and Y. Cheng

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

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

- 1240 Water Transport in the Ionomer-Phase and Across Its Interfaces in Catalyst Coated Membranes for Proton Exchange Membrane Fuel Cells
V. Gurau and J. Mann
- 1241 Surface Morphology of Lithium Metal Anodes
M. Karulkar and J. Adams
- 1242 Continuum and Multiscale Modeling of Performance Curves and Capacity Fade in Lithium-Ion Batteries
V. Subramanian, V. Ramadesigan, R. Methekar, K. Chen and R. Braatz
- 1243 Formation of Localized Corrosion-Relevant Surface Defects on Aluminum: Experimental Studies and Kinetic Monte Carlo Simulation
K. Hebert, G. Zhang, J. Ai and G. Stafford
- 1244 Simulation of Three-Dimensional Solid-by-Solid Model and Application to Electrochemical Engineering
Y. Kaneko, Y. Hiwatari, K. Ohara and F. Asa
- 1245 (Keynote) Electrochemical Engineering: The Need for Next-Generation Methods
R. Alkire

- 1246 (Keynote) An Algorithm for Simulation of Electrochemical Systems with Surface-Bulk Coupling Strategies
M. Buoni and L. Petzold
- 1247 Characteristic Timescales in Multiscale Feature Metallization
J. Adolf and U. Landau
- 1248 Adsorptive SPS Dissociation Within the c(2x2)-Cl Matrix on Cu(100) under Reactive Conditions: A Combined In Situ STM and DFT Study
N. Hai, W. Reckien, A. Fluegel, M. Hahn, A. Wagner, D. Mayer, T. Bredow and P. Broekmann
- 1249 (Keynote) The Metallization of SAMs: Molecular Double Deckers
F. Eberle, M. Manolova, D. Kolb, H. Boyen and M. Saitner
- 1250 Metallization of DNA Origami Templates for the Fabrication of Nanoelectronic Circuits
J. Harb, J. Liu, Y. Geng, E. Pound, J. Ashton, S. Gyawali and A. Woolley
- 1251 Combined Electrochemical and In Situ STM Studies on the Redox-Activity of Leveler Additives
A. Fluegel, N. Hai, M. Hahn, A. Wagner, D. Mayer and P. Broekmann
- 1252 Nanomanufacturing by Orchestrated Structure Evolution
S. Kitayaporn, S. Abbasi, K. Böhringer and D. Schwartz
- 1253 Nanosheet Formation by Electrodeposition and Its Application to Miniaturized Reference Electrodes
S. Safari-Mohsenabad, P. Selvaganapathy, A. Derardja and M. Deen
- 1254 Creating Metallic Conductivity in TiO₂ Nanotubes
R. Hahn and P. Schmuki
- 1255 Density Functional Theory Study on the Oxidation Reactivity of Hypophosphite Ion as a Reductant for Electroless Deposition Process
M. Kunimoto, H. Nakai and T. Homma
- 1256 Wet Etching Process on Semiconductors: A Typical Electrochemical Engineering Challenge
A. Causier, M. Bouttemy, I. Gérard and A. Etcheberry
- 1257 Simulation of Cu Surface Morphology Evolution during Electropolishing
J. Thomas and S. Brankovic
- 1258 Porosity of Electrodeposited Cobalt Hard Gold: Effects of Reversed Pulse Current
Z. Liu, M. Zheng, R. Hilty and A. West
- 1259 Direct Copper Plating on a RuTa Substrate
M. Nagar, A. Radisic, K. Strubbe and P. Vereecken
- 1260 (Keynote) Establishment of Electrochemical Device Engineering
T. Osaka
- 1261 One-Dimensional Molecular-Junction Arrays Fabricated Using Anodic Aluminum Oxide Templates
Y. song, J. Fang and Z. Chen
- 1262 Future Challenges in Electrochemical Engineering from Microelectronics to Solar Thin Films
H. Deligianni, Q. Huang, L. Romankiw, R. Vaidyanathan, S. Ahmed, S. Jaime, P. Grand, V. Charrier and O. Kerrec
- 1263 Analysis and Control of Plating Baths in the Electrodeposition of Copper Indium Gallium Selenide Films with Ion Chromatography
J. Wang, S. Aksu and M. Pinarbasi
- 1264 Roughness Control of Electrodeposited CIS Thin Film
H. Huang and C. Lin
- 1265 Preparing Electrochemical Engineers for the 21st Century - The Henry B. Linford Award Address of The Electrochemical Society
D. Schwartz
- 1266 Microfluidic Platforms for Catalyst and Electrode Optimization
F. Brushett and P. Kenis
- 1267 Electro-Oxidation on the Ti/SnO₂-Sb₂O₅ Anode for Wastewater Treatment
Q. Ni, D. Kirk and S. Thorpe

- 1268 Analysis of Coal-Extracts Using Electrochemical Techniques
A. Valenzuela-Muñiz and G. Botte
- 1269 Effect of the Electroactive Area and Liquid Mass Flow on the Resident Time Distribution (RTD) in a FM01 Electrochemical Reactor
M. Cruz-Díaz, E. Rivero, F. Rivera and I. González
- 1270 Fundamental Thermodynamic Limitations in Wagner's Equation in Solid State Electrochemistry
T. Miyashita
- 1271 Surface Energy Effects on the Metallization of Nanoscale Features
J. Adolf and U. Landau
- 1272 Investigation on Adsorption Characteristics of Organic Dyes during Via Filling by Copper Electrodeposition
R. Manu and S. Jayakrishnan
- 1273 Structural and Protecting Properties of Functional Organic Coatings on Copper
& Petrović, M. Metikos-Hukovic and S. Omanovic
- 1274 Surface Modification of Nitinol by Biocompatible Passive Films
J. Katić and M. Metikos-Hukovic
- 1275 Electrodeposition and Thermoelectric Properties of BiSbTe Nanowires
R. Mannam, K. Varahramyan, D. Davis and M. Agarwal
- 1276 Study the Diffusion Behavior of Li⁺ in the WO₃ Electrochromic Device by Electrochemical AC Impedance Spectroscopy
Y. Lu and F. Lien
- 1277 Understanding and Predicting Metallic Whisker Growth as a Function of Electrodeposited Morphology
W. Yelton, D. Susan, J. Michael and D. Shore
- 1278 Recrystallization of Electrodeposited Copper-Silver Thin Films
N. Alshwawreh, M. Miltzer and D. Bizzotto
- 1279 Optimization of Fill Rate Uniformity for Dense Features
B. Buckalew, T. Ponnuswamy, J. Reid and Y. Takada
- 1280 Seedless Copper Electrochemical Deposition on Barrier Materials as a Replacement/Enhancement for PVD Cu Seed Layers in HAR TSVs
S. Armini, H. Philipsen, Z. El-Mekki, A. Redolfi, A. Van Ammel, A. Radisic, M. Nagar and W. Ruythooren
- 1281 Electrodeposition and Characterization of FePd Magnetic Thin Films
D. Pečko, K. Zužek Rožman, B. Pihlar and S. Kobe
- 1282 (Keynote) Electrochemical Technology in Electronics: A Path from Art to Science
L. Romankiw
- 1283 Electrochemical Processes for TSV/Bump Formation Without CMP and Lithographic Process
J. Lee, S. Kim and J. Lee
- 1284 Effect of pH and Temperature of the Electrolyte on the Electrodeposition of CoWP Films Using Alkali-Metal-Free Precursors
Y. Son, H. Lee and C. Kim
- 1285 Molecular Scale Growth of Electrolytic Copper Foils
K. Kondo
- 1286 Additive Transport and Adsorption in Copper Metallization of Interconnects Focusing on TSV Scales
J. Adolf and U. Landau
- 1287 (Keynote) Diffusion-Induced Stress, Charge-Transfer Resistance, and Materials Selection Criteria for Avoiding Crack Initiation of Insertion Electrode Particles
M. Verbrugge and Y. Cheng
- 1288 Two-Port Transmission Line Technique for Dielectric Property Characterization of Polymer Electrolyte Membranes
Z. Lu, M. Lanagan, E. Manias and D. Macdonald

- 1289 A Generalized Multidimensional Mathematical Model for Li-Ion Intercalation Batteries
S. Pannala, S. Allu, J. Nanda and W. Shelton
- 1290 Low Temperature Studies of EC:DMC Mixture in Lithium-Ion System
A. Drews, J. Adams, R. Kudla, M. Karulkar and C. Paik
- 1291 Carbon Nanotube-Confined MnO₂ Nanocomposites for Electrochemical Capacitors
W. Chen, K. Bechtold, M. Beidaghi, V. Penmatsa and C. Wang

G1 - Industrial Electrochemistry and Electrochemical Engineering General Session

Industrial Electrochemistry and Electrochemical Engineering

- 1292 Towards Energy Storage for Renewable Generation: The Vittorio de Nora Award Presentation
D. Pletcher
- 1293 Optimization of Power and Energy Density in Supercapacitors
D. Robinson
- 1294 Structural Characterization of Electrodeposited Technetium on Gold Foil
E. Mausolf, F. Poineau, T. Hartmann and K. Czerwinski
- 1295 Electrochemical Synthesis and Characterization of Copper/Ceria Composite Functional Coatings for Electrochemical Cells Applications
J. Melnik, J. Luo, A. Sanger, K. Chuang and Q. Yang
- 1296 Alternating Flow Patterns for Copper Plating Uniformity
H. Garich, L. Gebhart, S. Snyder, E. Taylor, J. Van Zee and S. Shimpalee
- 1297 Co-Electrodeposition of Co Alloys and Inorganic Fullerene WS₂ from Gluconate Bath with Anionic and Cationic Surfactants
D. Weston, Y. Zhu, D. Zhang, C. Miller, D. Kingerley, C. Carpenter and S. Harris
- 1298 Optimization of SiO₂ and Al₂O₃ Asymmetric Electrodes in a Capacitive Deionization System
J. Wouters, M. Tejedor, J. Lado and M. Anderson
- 1299 Meso-Scale Computer Simulations of Carbon Corrosion in Catalyst Layers of Polymer Electrolyte Fuel Cells
K. Malek and A. Franco
- 1300 Modeling Water Transport and Swelling in Polymer Electrolyte Membranes
T. Silverman, J. Meyers and J. Beaman
- 1301 Direct Carbon Fuel Cell Anode Modeling
C. Chen and J. Selman
- 1302 Perchlorate Impurity in Chlorate Electrosynthesis: Effects and Control
T. Drackett, F. Mok, R. van Heek and G. Thibault
- 1303 Hydrogen Oxidation Improvements for Low Voltage Base Production
B. Boggs, N. Jalani, R. Gilliam and B. Constantz
- 1304 Impedance Response of a Rotating Disk Electrode below the Mass-Transfer-Limited Current
S. Wu, M. Orazem, B. Tribollet and V. Vivier
- 1305 Electrocatalysis of n-Type TiO₂ Thin Films for Ozone Production by Water Electrolysis
K. Kitsuka, K. Kaneda, M. Ikematsu, M. Iseki, K. Mushiake, D. Nilushika, T. Okajima and T. Ohsaka
- 1306 On the Direct Solid-State Electrochemical Synthesis of Silicon Tetrachloride from Silica at Ambient Temperatures and Pressures
B. Ari-Wahjoedi
- 1307 Electrochemical Behavior of Zirconium in LiCl - KCl Eutectic Molten Salt
C. Fabian, C. Caravaca Moreno, C. Griffith, V. Luca and G. Lumpkin
- 1308 Novel Membrane Capacitive Deionization System with Improved Energy Efficiency
C. Kim, H. Kim, H. Yang, J. Lee and H. Kang

- 1309 Characterization and Reinforcement of Porous Pb-Ag Anode for Energy-Saving in Zinc Electrowinning
J. Li, L. Jiang, Y. Lai, X. Lv and Y. Liu
- 1310 Electrochemical Reduction of UO_2 Pellets in a Molten LiCl Salt
S. Jeong, E. Choi, J. Hur, I. Choi and H. Lee
- 1311 Coal Oxidation in Hydrochloric Acid Solution with Different Liquid Catalysts
R. Yin, H. Liu, Y. Zhao, S. Lv and Q. Fan
- 1312 The New Multipurpose Electrochemical Cell
L. Rafailovic, T. Trisovic, B. Grgur and G. Nauer
- 1313 Advantages of Turbulence Models and Wall Functions for Simulating Mass Transport in a Rotating Cylinder Electrode Reactor
E. Rivero, F. Rivera, M. Cruz and I. González
- 1314 Effect of Dissolved Species on the Fluoride Electro-Removal from Groundwater
C. Montero-Ocampo and J. Martínez Villafaña
- 1315 Properties of Pulse Electrodeposited $\text{CdS}_x\text{Te}_{1-x}$ Films
P. Thirumoorthy and R. Murali
- 1316 Optimization of Low Voltage Base Production in the Presence of Dissolved CO_2
M. Kostowskyj, N. Knott, S. Gorer, R. Gilliam and B. Constantz
- 1317 Screen Printed Phosphorus Diffusion for Low-Cost and Simplified Industrial Mono-Crystalline Silicon Solar Cells
D. Yang, T. Kwon, M. Ju, W. Jung, S. Kim, Y. Lee and D. Gong
- 1318 Micromachining of Silicon Wafers with Catalytic Needle Electrodes in HF Solution
T. Sugita, T. Hirai, S. Ikeda and M. Matsumura
- 1319 The Kinetics for Electrochemical Removal of Ammonia in Coking Wastewater
Z. Liang, H. Sun, W. Guo, C. Fan, X. Hao and S. Liu
- 1320 Characteristics of Pulse Plated ZnS Films Using Nonaqueous Solvents
R. Murali, S. Kala and P. Elango
- 1321 Nondestructive Testing Development for Laser Peening Process Using Electrochemical Impedance Spectroscopy
J. Hu

G3 - Electrochemical Technologies for Hydrogen Production

Industrial Electrochemistry and Electrochemical Engineering / Energy Technology / High Temperature Materials

- 1322 La_2O_3 -Modified Nickel-Cobalt Composite Coating for HER Cathode in Acid Medium
Y. Liang, P. He, Q. Jiang, J. Sun and H. Liu
- 1323 Hydrogen Evolution on the Y_2O_3 -Modified Ni-Co Composite Layers
X. Yi, P. He, Y. Liang, Y. Chen, J. Sun and Q. Jiang
- 1324 Effect of Gd_2O_3 on the Hydrogen Evolution Property of Nickel-Cobalt Coatings Electrodeposited on Titanium Substrate
X. Yi, P. He, Y. Liang, Y. Chen, J. Sun and Q. Jiang
- 1325 Exploration of Surface Treatments for Semiconductor-Based Photoelectrochemical Water Splitting
K. Menningen
- 1326 Fabrication of Co-Ni-P Catalysts on TiO_2 Nanotube Substrate and the Catalytic Generation of Hydrogen from an Alkaline NaBH_4 Solution
K. Yun, W. Beom and C. Park
- 1327 Bimetallic Electrocatalysts Supported on TiO_2 for PEM Water Electrolyzer
R. Fuentes, S. Rau, T. Smolinka and J. Weidner
- 1328 Exploring Tin Tantalates and Niobates as Prospective Catalyst Supports for Water Electrolysis
O. Velikokhatnyi and P. Kumta

- 1329 Influence of the Electrolyte on Electrochemical Properties of Iridium Oxide Films
L. Owe, M. Tsyppin, I. Lervik and S. Sunde
- 1330 Oxygen Evolution Catalysts for Alkaline Water Electrolysers
X. Li, D. Pletcher and F. Walsh
- 1331 Catalytic Inverse Opals for Water Electrolysis in an Alkaline Electrolyte
L. Wang, Y. Chang and P. Wu
- 1332 Polymer Electrolyte Membranes for the Hybrid Sulfur Thermochemical Cycle
J. Staser and J. Weidner
- 1333 Quantification of Voltage Loss in the Proton Exchange Membrane Reactor for Electrolyzing Hydrogen Bromide to Produce Hydrogen
R. Zhang and J. Weidner
- 1334 CuCl-HCl Electrolysis for Hydrogen Production in the Cu-Cl Thermochemical Cycle
V. Balashov, R. Schatz, E. Chalkova, M. Fedkin and S. Lvov
- 1335 High Performance Anode Materials for Hydrogen Production Via the Cu-Cl Thermochemical Cycle
E. Easton and S. Ranganathan
- 1336 Comments on the Undesirable Copper Deposition during Electrolysis of the CuCl/HCl Aqueous System for the Production of Hydrogen
M. Reda
- 1337 SOFC-Driven Steam-Carbon Electrolyzer for CO-Free Hydrogen Production
B. Alexander, A. Lee, R. Mitchell and T. Gür
- 1338 Origin of Polarisation Losses in Solid Oxide Electrolysis Cells Operated at High Current Density
R. Knibbe, S. Ebbesen and M. Mogensen
- 1339 High Pressure Electrochemical Hydrogen Purification Process Using a High-Temperature Polybenzimidazole (PBI) Membrane
J. Jiang, T. Aulich and K. Luo
- 1340 Electrochemical Compression of Hydrogen
G. Sozhan, S. Vasudevan, S. Ravichandran, R. Balaji, S. Navaneethakrishnan, A. Sankari and J. Lakshmi
- 1341 A Solar Process to End Anthropogenic Global Warming? The STEP (Solar Thermal Electrochemical Photo) Generation of Energetic Molecules
S. Licht
- 1342 Modelling and Evaluation of a Photoelectrochemical Reactor for H₂ Production
C. Carver, Z. Ulissi, C. Ong, S. Dennison, K. Hellgardt and G. Kelsall
- 1343 (Invited) New Materials Search for Solar Hydrogen Using Nanowires
M. Sunkara, C. Pendyala, B. Chernomordik, D. Cummins, H. Russell, J. Kim and J. Thangala
- 1344 Conductive Polymer-Titania Photocathode Development for Hydrogen Production
D. Bruce and D. Wilkinson
- 1345 Hybrid Noble Metal-Semiconductor Nanomaterials for Efficient Electrochemical Hydrogen Generation
M. Dirmyer, E. Luther, A. Burrell, B. Tappan and A. Mueller
- 1346 Nanostructured MoS₂ for Solar Hydrogen Production
Z. Chen, S. Choi, J. Kibsgaard and T. Jaramillo
- 1347 In Search of Efficient Anode and Cathode Materials for Double Junction Amorphous Solar Cell Driven all Solar Electrolysis of Water to Hydrogen and Oxygen Gases
M. Frites, W. Ingler Jr. and S. Khan
- 1348 Manganese Oxide Thin Films for Photoelectrochemical Hydrogen Production
B. Pinaud and T. Jaramillo
- 1349 Photoelectrochemical Behavior of Birnessite-type MnO₂ Nanosheet in Response to Visible Light
Y. Hsu, Y. Chen, L. Chen and K. Chen

G4 - Electrochemistry in Mineral and Metal Processing 8 (EMMP 8)

Industrial Electrochemistry and Electrochemical Engineering

- 1350 Surface Forces Measured Between Xanthate-Coated Gold Surfaces
J. Wang and R. Yoon
- 1351 A SERS Study of the Interaction of n-Octanohydroxamate with a Copper Electrode
G. Hope, R. Woods and G. Parker
- 1352 Interaction of Hydroxamates with Malachite
G. Hope, R. Woods and G. Parker
- 1353 A Raman Spectroscopic Investigation of Pyrite Oxidation and Flotation Reagent Interaction
G. Parker and G. Hope
- 1354 Surface Oxidation of Cuprite
R. Woods, B. Fleming, A. Buckley and B. Gong
- 1355 Ex Situ Surface Chemical Characterization in Minerals Processing Research: The Effect of Hydrophilic Organic Solvents on Sulfide Mineral Surfaces
A. Buckley, S. Goh and L. Fan
- 1356 AR-XPS and SXPS Evidence for Surface Stabilization and Cu Activation of Sphalerite $Zn_{1-x}Fe_xS$ (110) Surfaces
S. Harmer, H. Nesbitt, W. Skinner and A. Buckley
- 1357 Fine Structure in XPS and XANES Spectra Acquired From a Series of Sphalerite Samples
A. Pratt
- 1358 Electrochemical and Spectroscopic Analysis of the Arsenopyrite (FeAsS) Oxidation under Calcareous Soil Conditions
R. Lara, R. Briones, M. Monroy, J. Ehrhardt, M. Mullet and R. Cruz
- 1359 Production of Oxidizing Intermediates During Corrosion of Iron; Implications for Remediation of Contaminants from Mineral and Metal Processing
A. Pham, D. Sedlak and F. Doyle
- 1360 Electrochemical Analysis of Highly Reactive Pyrite
K. Watling, E. Burton, M. Johnston, R. Bush and L. Sullivan
- 1361 Surface Characterization by X-Ray Photoelectron Spectroscopy and Cyclic Voltammetry of Products Formed during the Potentiostatic Oxidation of Chalcopyrite
D. Nava, I. González, D. Leinen and J. Ramos-Barrado
- 1362 Duality of Pyrite Semiconductor Properties Influence on Flotation
V. Chanturiya, V. Vigdergauz and S. Vorobyev
- 1363 Influence of Surfactant Adsorption on the Leaching of Copper Sulfides
P. Nowak
- 1364 A Novel Mathematical Model for the Study of Electrochemical Nucleation of Metals on Foreign Substrates from the Analysis of Potentiostatic Current-Transients
T. Vargas, M. Colet and J. Salgado
- 1365 The Pyrite Catalysed Oxidation of Sulfide Ions
D. Hewitt, P. Breuer and M. Jeffrey
- 1366 Electrochemical Study of Massive Chalcopyrite Electrodes Bioleached by Moderately Thermophilic Microorganisms at 48°C
W. Zeng, Y. Zhang, G. Qiu, M. Chen and B. Follink
- 1367 Galvanic Interactions Between Pyrite and Chalcopyrite and their Effect on Galvanically Assisted Leaching
M. Eghbalnia and D. Dixon
- 1368 Attributes of Electrochemical Potential in a Multiphysics Heap Leach Model
J. Gebhardt, D. McBride and M. Cross

- 1369 An Approach to the Reactivity of Isomorphous Proustite (Ag_3AsS_3) and Pyrargyrite (Ag_3SbS_3) in Cyanide Solutions
A. Meléndez, I. González and R. Arroyo
- 1370 Modeling the Kinetics of Anodic Dissolution of Chalcopyrite Based on Electrochemical Measurements Conducted Directly on Chalcopyrite Particle Electrodes
H. Jordan and T. Vargas
- 1371 Using Electrochemical Impedance Spectroscopy to Investigate Gold Dissolution in Thiourea and Thiocyanate Acid Solutions
X. Yang, M. Moats and J. Miller
- 1372 A Spectroelectrochemical Investigation of the Interaction of Gold with Cyano-Containing Ligands
G. Parker and G. Hope
- 1373 An Electrochemical Study of the Dissolution of Pure Gold and Gold-Silver Alloys in Thiosulfate Leach Solutions
E. Oraby and M. Jeffrey
- 1374 Investigating Gold Dissolution during Oxidative Desorption of Alkylthiol Self-Assembled Monolayers
S. Smith, J. Shepherd and E. Guerra
- 1375 Electrochemical Determination of Minor Elements in Zinc Flotation Concentrates
A. Hernández-Gómez, A. Meléndez, C. Lara and I. González
- 1376 An Investigation on the Effects of Organic Additives on Zinc Electrowinning from Industrial Electrolyte
D. Dhak, E. Asselin and A. Alfantazi
- 1377 Electrowinning of Copper from Various Copper Cyanide Eluates at Low pH
X. Dai, P. Breuer and M. Jeffrey
- 1378 Evaluation of Copper Electrowinning Parameters on Current Efficiency and Energy Consumption Using Surface Response Methodology
Y. Khouraiibchia and M. Moats
- 1379 Comparison of H_2 and NH_3 Treatment for Cu Interconnects
Y. Cheng, T. Chiu and Y. Wang
- 1380 Lead(II) Electrodeposition from Alkaline Solutions Containing Xylitol
G. Yingying, Z. Qionghua, Y. Tianzu, L. Wei and Z. Duchao
- 1381 Electrochemical Dissolution and Passivation Behavior of Pure Iron in Ammoniacal Solution
S. Roy and E. Asselin
- 1382 Electrowinning of Iron from Alkaline Solution
S. Tang and G. Haarberg
- 1383 Electrodeposition of Nickel from Sulfamate Effluents
G. Kelsall and A. Kovaleva
- 1384 Anodic Formation of Cobalt Oxide During Electrowinning of Cobalt in a Chloride Electrolyte
G. Haarberg, J. Thonstad and O. Kongstein
- 1385 Electrochemical Deposition of Nanoparticulate Materials
G. Hope, P. Liu, H. Li and G. Heber
- 1386 $\text{CaTi}_x\text{Ru}_{(1-x)}$ as an Inert Anode for Application in Calcium Chloride-Calcium Oxide Melts
S. Jiao and D. Fray
- 1387 Application of Current-Pulse Techniques to Analysis of Anode Gas Film Behavior in a Hall-Heroult Cell
K. McGregor, G. Snook, A. Urban and M. Lanyon
- 1388 Depolarized Gas Anodes for Electrowinning of Metals in Molten Salts
S. Xiao, T. Mokkelbost, G. Haarberg, A. Ratvik and H. Zhu
- 1389 Direct Electrolysis of Molten Lunar Regolith for the Production of Oxygen and Metals on the Moon
A. Sirk, D. Sadoway and L. Sibille

G5 - Fuel Cell Membranes, Electrode Binders, and MEA Performance
Industrial Electrochemistry and Electrochemical Engineering / Energy Technology

- 1390 Development of a Methanol Tolerant Nonfluorinated Proton Exchange Membrane for Direct Methanol Fuel Cells Applications
D. Julius, L. Hong and J. Lee
- 1391 Surface Modified of Heteropolyacids for Proton Exchange Membrane Fuel Cells
J. Sutrisno, A. Fuchs, S. Hopkins, C. Evrensel and F. Gordaninejad
- 1392 New Approaches to Composite PFSA Membranes for Enhanced Fuel Cell Performance
A. Herring, S. Sachdeva, J. Rajeswari, G. Haugen and S. Hamrock
- 1393 Polyoxometalate Ionomers: Multi-Generational Design of Novel High Temperature/Low Humidity Membranes
J. Horan, M. Kuo, A. Genpur, A. Perdue, F. Zhang, M. Frey and A. Herring
- 1394 Influence of Morphology of Block Copolymers on the Conductivity of Proton Exchange Membranes
M. Gross, G. Maier, T. Fuller, S. MacKinnon and C. Gittleman
- 1395 Intermediate-Temperature Proton Exchange Fuel Cell Based on an Inorganic-Organic Composite Membrane
Y. Jin, K. Fujiwara and T. Hibino
- 1396 Fabrication of Protic Ionic Liquid/Sulfonated Polyimide Composite Membranes for Nonhumidified Intermediate Temperature Fuel Cells
T. Yasuda, S. Lee, S. Nakamura and M. Watanabe
- 1397 Synthesis and Characterization of Phosphoric Acid Doped Poly(benzimidazole-*co*-benzoxazole) Membranes for High Temperature PEM Fuel Cells
D. Lee, H. Lee, B. Kim, S. Kim, E. Cho, J. Jang, T. Lim and H. Kim
- 1398 Nafion/Sulfonated Silica Composite Polymer Electrolyte Membranes
N. De Almeida and E. Easton
- 1399 Functionalized Titanium Dioxide Nanotube Based Composite Membranes for High Temperature PEMFCs
Z. Chen, Y. Jun and M. Fowler
- 1400 AFM Investigation of PEM Fuel Cell Membranes and Gas Diffusion Layers
R. Hiesgen, I. Wehl, A. Carreras, J. Kraut, A. Bauder, M. Schulze, K. Friedrich, H. Wang and X. Yuan
- 1401 A Molecular Dynamics Study of Ionomer and Water Adsorption at Carbon Support Materials
T. Mashio, K. Malek, M. Eikerling, A. Ohma, H. Kanesaka and K. Shinohara
- 1402 Innovative Catalyst Layer Structures Based on Extended Pt Surfaces
H. Dinh, K. Neyerlin, T. Olson, J. Leong, C. Engtrakul, A. Dameron, L. Simpson and B. Pivovar
- 1403 In Situ Analyses of Membrane-Electrode Interfaces Using a Microfluidic Platform
F. Brushett and P. Kenis
- 1404 Sulfonated Carbon Supports For PEM Fuel Cell Electrodes
A. Pedersen, A. Pauric, J. Eastcott and E. Easton
- 1405 Estimation of Oxygen Transport Resistance in PEFC Electrode Binders by Limiting Current Methods
S. Sambandam and V. Ramani
- 1406 Nonfluorinated Polyphosphazene as Electrode Binder in PEM Fuel Cell
J. Lin, R. Wycisk, J. Muldoon and P. Pintauro
- 1407 The Analysis of Performance Loss with Low Platinum Loaded Cathode Catalyst Layers
Y. Ono, T. Mashio, S. Takaichi, A. Ohma, H. Kanesaka and K. Shinohara
- 1408 Membrane Degradation under Idle Condition in a PEM Fuel Cell Stack
X. Yuan, H. Wang, J. Wu, S. Zhang, C. Sun, R. Hiesgen, K. Freidrich, M. Schulze and A. Haug
- 1409 Diagnosis of MEA Failure Modes under Accelerated RH Cycling Conditions
V. Singaram, M. Fowler, X. Yuan and H. Wang
- 1410 A Study on Cathode Degradation of PEMFCs under On/Off Cycling Operation
J. Kim, E. Cho, J. Jang, H. Kim, T. Lim and I. Oh

- 1411 The Effects of Aluminum and Iron Ions on the Degradation of PEMFC Cathode
H. Li, K. Tsay, S. Wu, H. Wang, J. Zhang, N. Jia, S. Wessel, R. Abouatallah, N. Joos and J. Schrooten
- 1412 Fuel Cell Operation with Very Low Humidity Causing Voltage Reversal and Overheating Effects
R. Bradean, K. Eggen, D. Adam, F. Berretta, H. Haas and A. Leow
- 1413 On the Negative Impedance Region and Proton Transfer Mechanism in Fully Hydrated Nafion Membranes
M. Tsampas and C. Vayenas
- 1414 Effect of Gas Diffusion Media on PEMFC Performance: An EIS Study
P. Gallo Stampino, L. Omati, R. Pelosato, L. Zampori, C. Cristiani and G. Dotelli
- 1415 A 2D PEMFC Impedance Model Taking into Account the Propagation of the Concentration Oscillations in the Direction of the Gas Channels: The Second Loop Artifact
G. Maranzana, J. Mainka, J. Dillet, S. Didierjean and O. Lottin
- 1416 A Two-Fluid Model for Hydrogen PEM Fuel Cell Performance Integrating Gas Phase and Water Transport with Porous Media Capillary Effects, Heat Transfer, and Electrochemistry
S. Mukherjee, A. Gidwani, A. Roy, J. Cole, K. Jain, C. Bapat and R. Thomas
- 1417 Irradiation Methods for Preparation of Nanosized Catalysts in Low Temperature Fuel Cells
M. Min, G. Chai, H. Kim, S. Shin, K. Kim, B. Choi, Y. Han and B. Lee
- 1418 Fabrication of Branched-Carbon Nanotubes and Their Properties as Supports for Electrocatalysts
H. Joh, S. Kim, J. Prabhuram and H. Ha
- 1419 Three Dimensional Reconstruction of PEFC Catalyst Layers
S. Thiele, R. Zengerle and C. Ziegler
- 1420 Effect of Nafion Aggregation within the Catalytic Layers on the Performance of the Passive DMFCs
T. Yuan, Z. Zou, Z. Li and H. Yang
- 1421 High-Resolution X-Ray Computed Tomography and Direct Simulation of the Carbon-Paper GDLs
Y. Wang and H. Wang
- 1422 The Relationship Between Hydrophilic Channel Morphology, Water Diffusion and Proton Conductivity
C. Wu and P. Chu
- 1423 Effect of Spray Parameters, Catalyst Type, Ionomer Type and Ionomer Loading on Electrode Surface Morphology and Electrode Performance of PEM Fuel Cells
R. Brooker, M. Rodgers, L. Bonville, H. Kunz, D. Slattery and J. Fenton
- 1424 Investigation of the Presence of a Saturating Media during Hot Pressing of Proton Exchange Membranes to Improve Performance
M. Rodgers, B. Pearman, N. Mohajeri, L. Bonville, D. Slattery, H. Kunz and J. Fenton
- 1425 Impact of Ionomer Content on the Performance of a Direct Methanol Fuel Cell
B. Krishnamurthy and S. Deepalochani
- 1426 Synthesis and Characterization of Sulfonated Poly(arylene biphenylsulfone ether)s for Proton Exchange Membranes
D. Yoo, S. Hyeon, A. Kim, G. Gnana Kumar, R. Park, I. Hwang and K. Nahm
- 1427 Oxygen Reduction Reaction of Nitrogen-Doped Carbon Nanofibers With or Without Pt Catalysts
J. Kim, S. Lim, S. Kim, D. Peck, B. Lee and D. Jung
- 1428 Study on Effects of the Cathode Flow Field on the Current Distribution in DMFC
S. Lee, S. Kim, S. Lim, D. Jung, D. Peck, B. Lee and H. Kim
- 1429 Experimental Validation of a One Dimensional, Two-Phase Direct Methanol Fuel Cell Model under a Wide Range of Operating Temperatures and Methanol Feed Concentrations
K. Kang and H. Ju
- 1430 H₂/Air Alkaline Membrane Fuel Cell Performance and Durability Using Novel Anionexchange Materials (Ionomer and Membrane) and Nonplatinum Group Metal Cathode Catalysts
M. Boccia, A. Filpi, E. Flammia, H. Miller, M. Orsini, M. Piana, F. Salusti and S. Santiccioli
- 1431 Effect of Phosphotungstic Acid in MEA on PEMFC Performance at Elevated Temperature
S. Gopu and A. Bose

- 1432 Investigation the Effect of Chitosan-Modified Montmorillonite Presence on Fuel Cell Performance of Partially Sulfonated Poly(2,6-dimethyl-1,4-Phenylene Oxide) at Elevated Temperatures
M. Hasani-Sadrabadi, E. Dashtimoghadam, F. Majedi and K. Kabiri
- 1433 Nanocomposite Ternary Acid-Base Blend Based Polymer Electrolyte Membranes for Fuel Cells
K. Stewart and H. Missan
- 1434 Long-Term Stable Operation of Direct Methanol Fuel Cell by Control of the Operation Modes
Y. Park, D. Peck, S. Lim, S. Kim, B. Lee, D. Jung and D. Lee
- 1435 Effects of Operating Temperature on Performance Degradation of PEMFCs under Repetitive Startup/Shutdown Cycling
Y. Jo, E. Cho, J. Kim, J. Kim, T. Lim, I. Oh, J. Jang and H. Kim
- 1436 Multiscale Simulation of Single-Phase Multicomponent Transport in the Cathode Gas Diffusion Layer of a Polymer Electrolyte Fuel Cell
P. Rama, Y. Li, R. Chen, H. Ostadi, K. Jiang and X. Zhang
- 1437 Imaging the Electrode-GDL Interface by a Modified Wood's Intrusion Process
U. Kunz, F. Scheiba, N. Benker, H. Fuess and C. Roth
- 1438 Anode Materials for Mitigating Hydrogen Starvation Effects in PEM Fuel Cells
I. Halalay, S. Swathirajan, B. Merzougui, M. Balogh, G. Garabedian, M. Carpenter and N. Irish
- 1439 Degradation/Failure Analysis in a PEMFC Stack Tested under Dynamic Load Cycling Linked to Vehicle Application
A. Bose, P. Babburi, R. Kumar, D. Myers, J. Mawdsley and J. Millhuff
- 1440 Fabrication of Nanoporous Silicon Membrane Based Micro-Direct Methanol Fuel Cell
D. Ge, Y. Zhou, J. Jiao, H. Yang, P. Chen and Y. Leng
- 1441 In Situ Mass Transport and ORR Kinetics in Solid Sulfonated Polybenzimidazoles Electrolytes
A. Mani, O. Thomas, T. Peckham, Y. Yang and S. Holdcroft
- 1442 Sulfonated Polybenzimidazoles: Proton Conduction and Acid-Base Cross-Linking
O. Thomas, T. Peckham, U. Thanganathan, Y. Yang and S. Holdcroft
- 1443 In Situ Analysis of the Effects of Variation of the MEA Microstructure at Different Pt/Nafion Ratio, Pressure and Temperatures
&. Kriston, &. Nemes and G. Inzelt
- 1444 Regeneration of Pt Electrode Activity in PBI Fuel Cell Following CO Poisoning
E. Ubong, D. Phillips and M. Gieseke
- 1445 Water Sorption, Ion Conductivity and Hygrothermal Aging of Nafion 115
L. Maldonado, J. Dillet, F. Xu and O. Lottin
- 1446 Effects of Various PTFE Loadings in the Anode Backing Layer of Direct Methanol Fuel Cells
K. Kang and H. Ju
- 1447 Nafion-Impregnated Electrospun Polyethersulfone Composite Membrane for Direct Methanol Fuel Cells
H. Hwang, H. Lee, S. Park, S. Choi and Y. Shul
- 1448 Microwave-Assisted Synthesis of Silica Aerogel Supported Pt Nanoparticle for Self-Humidifying Proton Exchange Membrane Fuel Cell
C. Tsai, F. Yang, C. Chang, W. Wang and Y. Cheng-Yang
- 1449 Irradiated Poly Vinylidene Fluoride Hexafluoropropylene-Chitosan Composite Membranes for the Application of High Temperature and Lower Humidity Polymer Electrolyte Fuel Cells
G. Gnana Kumar, A. Kim, I. Park, J. Shin, Y. Nho, P. Kim, D. Yoo and K. Nahm
- 1450 Conducting Polymer/Heteropolyoxometalate Composites as Efficient Electron/Proton Conducting Membranes for Energy Conversion Applications
M. McDonald and M. Freund

H1 - Electron Transfer and Applications of Fullerenes and Nanostructured Materials

Fullerenes, Nanotubes, and Carbon Nanostructures

- 1451 The Dynamics of Photoinduced Electron Transfer Processes in Porphyrin-[60]Fullerene Supramolecular Interlocked Systems
D. Schuster, J. Megiatto Jr., D. Guldi, S. Abwandner and G. Rojas
- 1452 Photo-Physical Properties of Simple and Double Strand Multiporphyrinic Polypeptides
N. Solladié
- 1453 Functionalized Fullerenes: Synthesis and Functions
D. Guldi
- 1454 Fullerene-Porphyrin Supramolecular Adducts: Photoinduced Processes
N. Armaroli, G. Accorsi, K. Yoosaf and J. Mohanraj
- 1455 Bio-Inspired Supramolecular Nano-Assemblies for Light Energy Conversion
F. D'Souza
- 1456 Carbon-13 Isotope Effect on the Delayed Fluorescence of C₆₀ and C₇₀
C. Baleizão and M. Berberan-Santos
- 1457 Supramolecular Assemblies of Carbon Nanohorns and Porphyrin for Photovoltaic Devices
M. Vizuete, M. Gómez-Escalonilla, J. Fierro, A. S.D. Sandanayaka, T. Hasobe, M. Yudasaka, S. Ijima, O. Ito and F. Langa
- 1458 Long Distance Photoinduced Electron Transfer in Triazole-Based Conjugated Polymers with Porphyrin and C₆₀ End Groups
C. Haley and D. Schuster
- 1459 Single Molecule Electronics with Fullerenes
E. Leary, T. González, N. Agraït and N. Martín
- 1460 Electrochemistry of C₈₄ Isomers Modified Electrodes in an Aqueous Solution
L. Liu, S. Wang, B. Sun and M. Li
- 1461 Single-Walled Carbon Nanotube Complexes with Conjugated Polymers: Preparation and Electrochemical Properties
A. Adronov, X. Pang, P. Imin and I. Zhitomirsky
- 1462 Vis-NIR and ESR Spectroelectrochemical Study of Sc₃N@C₈₀(CF₃)₂
A. Popov, N. Shustova, M. Mackey, C. Coumbe, J. Phillips, S. Stevenson, S. Strauss, O. Boltalina and L. Dunsch
- 1463 Redox-Tunable Perfluoroalkylfullerene-Based Polymers with Highly Variable Donor/Acceptor Domain Morphologies For OPV Active Layers
N. Escudo, B. Larson, W. Rance, M. Wells, J. Whitaker, I. Kuvychko, T. Bailey, O. Boltalina, E. Chen, N. Kopidakis and S. Strauss
- 1464 Mechanism of C₆₀ Electropolymerization in the Presence of Dioxygen and Application of the Resulting Fullerene Polymer for Preparation of a Conducting Composite with Single-Wall Carbon Nanotubes
P. Pieta, G. Zukowska, S. Das, F. D'Souza, A. Petr, L. Dunsh and W. Kutner
- 1465 Precise Determination of Electronic States of (n,m)Single-Walled Carbon Nanotubes
Y. Tanaka, Y. Hirana, Y. Niidome, K. Kato, S. Saito and N. Nakashima
- 1466 The Role of the Selected Metal in Mixed Metal Nitride Clusters
A. Popov, S. Yang, L. Zhang, J. Tarabek and L. Dunsch
- 1467 Development of Nanostructured Carbon Materials and Their Application Toward Electrocatalysts for Polymer Electrolyte Fuel Cell
A. Hayashi, K. Kimijima and I. Yagi
- 1468 Redox Properties and Electrochemiluminescence of Corannulene and Its Electrochemically-Generated Film
C. Bruno, G. Valenti, F. Paolucci, M. Marcaccio, L. Scott and C. Fontanesi

- 1469 Optical Properties of Green/Red Emitting Oxynitride Phosphors Synthesized at Low Temperature for LED Application
H. Lee, K. Kim, J. Yoo, I. Park, H. Lee and S. Hwang
- 1470 Isoperimetric Quotient of Fullerenes/Polyhedral Cages
F. Torrens and G. Castellano
- 1471 Application of Multi-Walled Carbon Nanotubes/Ionic Liquid Mixture as an Electron Transfer Facilitator in Direct Electron Transfer and Biocatalytic Reactivity of Hemoglobin
D. Asheghali, A. Khodadadi and A. Bayandori Moghaddam

H2 - Molecular and Supramolecular Chemistry of Fullerenes and Carbon Nanotubes

Fullerenes, Nanotubes, and Carbon Nanostructures

- 1472 Nanocarbon-Based Photoelectrochemical and Photovoltaic Devices
H. Imahori
- 1473 Design and Electrochemical Properties of C₆₀ Derivatives under Regioselective Control
L. Echegoyen and A. Ortiz
- 1474 Complexation of Porphyrin-Fullerene Composites in Amorphous State Revealed by Solid-State NMR
H. Hayashi, T. Yamada, S. Kang, T. Umeyama, Y. Matano, H. Kaji and H. Imahori
- 1475 [60]Fullerene with Malonic Esters and β -Keto Esters Promoted by Ferric Perchlorate
F. Li and G. Wang
- 1476 New Highly Efficient Concave Receptors for Fullerenes
N. Martín, E. Pérez, H. Isla and M. Gallego
- 1477 Periodically Rippled Graphene: An Electronically and Structurally Nanostructured Material
B. Borca, S. Barja, M. Garnica, J. Hinarejos, A. Politano, M. Minniti, D. Farías, A. Vázquez de Parga and R. Miranda
- 1478 Organic Photovoltaic Devices Based on Fullerene Derivatives
J. Delgado, C. Villegas, P. Bouit and N. Martín
- 1479 Porphyrin Counter Anion in Imidazolium Modified Graphene
N. Tagmatarchis
- 1480 Applications of Functionalized Carbon Nanotubes
M. Prato
- 1481 Single-Walled Carbon Nanotube Complexes with Conjugated Polyelectrolytes: Synthesis and Properties
P. Imin, N. Rice, F. Cheng and A. Adronov
- 1482 Recent Advances in Fluorination of Fullerenes
O. Boltalina, N. Shustova, I. Kuvychko, S. Strauss, Z. Mazej, Y. Chen and A. Popov
- 1483 Exploiting the Alkynyl Moiety to Modulate the Electronic of Novel Fullerene Derivatives
J. Morin and S. Rondeau-Gagné
- 1484 Functionalization of Carbon Nanotubes by Innovative Methods
M. Bonchio
- 1485 Synthesis and Functionalization of Carbon Nanoscrolls
M. Maggini and R. Riccò
- 1486 Modulating Electronic Interactions Between Closely Spaced Complementary π -Surfaces: SubPc-C₆₀ Conjugates
D. González-Rodríguez, J. Guilleme, E. Carbonell, A. Medina, C. Claessens, D. Guldi and T. Torres
- 1487 One-Pot Synthesis of New Thio Derivatives of C₆₀ with the Unexpected Formation of Thiazolidine Fulleropyrrolidine
S. Yang, C. Chen and X. Li
- 1488 Supramolecular and Covalent [60]Fullerene Arrays
A. Sastre-Santos, L. Martin-Gomis, F. Céspedes-Guirao and F. Fernandez-Lazaro

- 1489 Supramolecular Recognition of Functionalized Carbon Nanotubes: A Route to Produce Versatile 2D Microstructures
M. Quintana, A. Llanes-Payas and M. Prato
- 1490 A Click-Click Approach for the Preparation of Functionalized [5:1]-Hexaadducts of C₆₀
J. Nierengarten
- 1491 Supramolecular Complexes Between C₆₀ and Thienylenevinylene Oligomers
R. Caballero, S. Islam, M. Holler, P. De La Cruz, J. Nierengarten, S. Fukuzumi and F. Langa
- 1492 Morphological Studies of Donor-Acceptor Blends: Trimetallic Nitride Endohedral Fullerenes-Based Organic Photovoltaic Devices
C. Cardona, B. Swain, J. Wall and S. Joslin
- 1493 m-Phenylalkyne Bridged Oligothienylene Vinylene: A Good Candidate as a Gated Molecular Wire for High-Efficient Electron Transfer in C₆₀-Porphyrin Systems
M. Urbani, S. Islam, S. Fukuzumi and F. Langa
- 1494 Spectroscopic Signatures of Photogenerated Radical Anions in Polymer-[70]Fullerene Bulk-Heterojunctions
V. Dyakonov, S. Filippone, N. Martín, A. Sperlich, M. Liedtke, C. Deibel and O. Poluektov
- 1495 Towards Large Openings in Fullerenes
S. Huang, S. Khan and Y. Rubin
- 1496 In Pursuit of Fullerene Derivatives with New Structures: A Study of Chemical Modifications of Fluorofullerenes
O. Boltalina, I. Kuvychko, N. Shustova, J. Whitaker, S. Strauss, K. Seppelt and A. Popov
- 1497 Redox Gradients in Hydrogen Bonded Complexes: Containing N,N-Dimethylaniline, Flavin and Fullerene
M. Motonobu, K. Ohkubo, T. Hasobe, V. Sgobba, D. Guldi, F. Wessendorf, A. Hirsch and S. Fukuzumi
- 1498 Rapid, Efficient Techniques in the Macromolecular Covalent Functionalization of Carbon Nanotubes
R. Chadwick and A. Adronov
- 1499 Supramolecular Functionalization of Carbon Nanotubes Using Poly(2,7-carbazole)s
N. Rice and A. Adronov

H3 - Carbon Nanotubes and Nanostructures: Fundamental Properties and Processes

Fullerenes, Nanotubes, and Carbon Nanostructures

- 1500 (Invited) Direct Growth of Metallic Single-Walled Carbon Nanotubes Thin Films
A. Harutyunyan
- 1501 The Effect of Catalyst Composition on Chirality Distributions of As-Grown Single-Walled Carbon Nanotubes
W. Chiang, D. Dutta, V. Bhethanabotla and R. Sankaran
- 1502 Synthesis, Characterization and Electron Transfer Properties of Sea Urchin Shaped Carbon Nanostructured Materials
A. Tabet-Aoul Benyoucef, Z. Hamoudi and M. Mohamedi
- 1503 Pyrolytic Conversion of Organic Aerogels into Monolithic Meso- and Macroporous Carbon
N. Leventis, C. Sotiriou-Leventis, N. Chandrasekaran, C. Chidambareswarapattar, S. Mahadik, D. Mohite, S. Mulik and A. Sadekar
- 1504 (Invited) The Evolution of Populations of Nanotubes During Synthesis from Optical Imaging and Optical Spectroscopy
P. Finnie, A. Li-Pook-Than, P. Vinten, P. Marshall and J. Lefebvre
- 1505 (Invited) Low-Energy Dynamics in Single-Walled Carbon Nanotubes
J. Kono
- 1506 (Invited) Raman Spectroscopy of Chirality-Enriched Single Walled Carbon Nanotubes
S. Doorn, J. Duque, E. Haroz, J. Kono, H. Chen, A. Swan, X. Tu and M. Zheng

- 1507 (Invited) Effects of Fullerene Encapsulation on Radial Breathing Mode Frequencies of Metallic Single-Wall Carbon Nanotubes
T. Okazaki
- 1508 (Invited) Optical Properties and Energy Transfer in Carbon Nanotube-Polymer Nanohybrid Structures
R. Nicholas
- 1509 (Invited) Ultrabright Photoluminescence of Individual Single-Walled Carbon Nanotubes
X. Wang, A. Lee, L. Carlson, J. Smyder, X. Tu, M. Zheng and T. Krauss
- 1510 (Invited) Exziton Dynamics in Novel Carbon Nanotube-Molecule Aggregates
J. Crochet, T. Ackermann, M. Hailmann, T. Hain, T. Hefner, S. Himmelein, F. Schoeppler, D. Stich and T. Hertel
- 1511 Emission Energy and Quantum Yield of Photo-Excited Single Walled Carbon Nanotubes: The Influence of Solvent and Surface Bound Molecules
B. Larsen, P. Deria, M. Heben, M. Therien and J. Blackburn
- 1512 (Invited - Young Investigator Award) Preparation, Characterization, and Application of Monodisperse Carbon-Based Nanomaterials
M. Hersam
- 1513 (Invited) Optical Detection of Heavy Metals Using DNA-Carbon Nanotube Hybrids
W. Zhao, D. Deloach and A. Kamel
- 1514 (Invited) Ground and Excited State Charge Transfer Processes in Single-Walled Carbon Nanotubes
J. Blackburn, J. Holt, K. Mistry, J. Rocha, D. Svedruzic-Chang, P. King, A. Ferguson, N. Kopidakis, M. Heben and G. Rumbles
- 1515 (Invited) Preparation and Characterization of Carbon Nanotube Reference Materials
J. Fagan
- 1516 (Invited) Novel Near-IR Photoluminescence from Oxidized Single-Walled Carbon Nanotubes
S. Bachilo, S. Ghosh and R. Weisman
- 1517 (Invited) Squeezing Out Perfection from Single Walled Carbon Nanotubes
F. Papadimitrakopoulos
- 1518 Emission Saturation of Single-Wall Carbon Nanotubes via Modulation of Surfactant Interaction at the Nanotube Surface
J. Duque, C. Densmore and S. Doorn
- 1519 The Synergic Effect of Pulse and Pulse-Reverse Parameters with Various Surfactants on the Microstructure and Property of Ni-SWNT Composites
M. Zheng, M. Sullivan and R. Hilty
- 1520 (Invited) DNA Sequence Motifs for Structure-Specific Recognition and Separation of Carbon Nanotubes
X. Tu and M. Zheng
- 1521 (Invited) Optically Active Single-Walled Carbon Nanotubes
N. Komatsu
- 1522 Advanced (n,m) and Enantiomeric Sorting of HiPco Single-Walled Carbon Nanotubes by Nonlinear Density Gradient Ultracentrifugation
S. Ghosh, S. Bachilo and R. Weisman
- 1523 (Invited) Using SDS to Suspend Single-Walled Carbon Nanotubes: Love It or Hate It?
K. Ziegler
- 1524 (Invited) (n,m)-Selected Single-Walled Carbon Nanotubes as Molecular Templates
F. Hennrich, S. Lebedkin, N. Stuerzl and M. Kappes
- 1525 (Invited) Controlling the Surface Features of Carbon Nanotubes Using Designed Reversible Cyclic Peptides
G. Dieckmann, I. Musselman, S. Nielsen, A. Klimenko, P. Bajaj and C. Chiu
- 1526 (Invited) Advances in the Chemistry and Applications of Carbon Nanotubes and Graphene
R. Haddon

- 1527 (Invited - Young Investigator Award) Electrochemically Controlled Transport of Water Through Carbon Nanotube Membranes
N. Koratkar
- 1528 (Invited) Current Saturation and Surface Polar Phonon Scattering in Graphene and Carbon Nanotubes
V. Perebeinos
- 1529 (Invited) Probing Defects in Carbon Nanotubes Through Multi-Gated Structures
J. Lee
- 1530 Influence of Surface Pretreatment of MWNT Support on PEFC Performance
S. Mohanapriya, P. Sridhar, S. Pitchumani and A. Shukla
- 1531 Effects of Different Surface Morphologies and Nitrogen Contents on the Electrochemical Activity of Nitrogen Doped Carbon Nanotubes Towards Oxygen Reduction Reaction for Alkaline Fuel Cells
Z. Chen and Z. Chen
- 1532 Diffusion-Controlled Growth Model for Electrodeposited Cobalt Nanowires in Highly Ordered Aluminum Oxide Membrane
A. Ghahremaninezhad and A. Dolati
- 1533 Effects of Quantum Confinement on Interrelation Between DOS Spectrum and C(V) Dependencies of Si Nanowire-Based MOS Structure
V. Ligatchev and S. Chin
- 1534 Oxygen Reduction on Multiwalled Carbon Nanotube Modified HOPG Electrodes in Alkaline Solution
I. Kruusenberg, M. Marandi, V. Sammelseg and K. Tammeveski
- 1535 Static Inelastic-Elastic Properties of Carbon Nanotubes and Polypropylene
A. Onanko, O. Lyashenko, G. Prodaivoda, S. Vigva and Y. Onanko
- 1536 Nanocarbon Synthesis Using Oxidized Diamond-Supported Metal Catalysts
K. Nakagawa, H. Gamo, M. Nishitani-Gamo, T. Ando and H. Oda
- 1537 Templated Carbons from Bio-Derived Sources for Energy Storage
R. Mayes, D. DePaoli and S. Dai

H4 - Carbon Nanotubes and Nanostructures: Applications and Devices

Fullerenes, Nanotubes, and Carbon Nanostructures

- 1538 (Invited) Tumor Targetable, Self-Assembling Theranostic Carbon Nanotubes
D. Scheinberg, M. McDevitt, C. Villa, A. Ruggiero and W. Deen
- 1539 (Invited) Fullerene Immunoconjugates for Cancer Imaging and Treatment
S. Berger, L. Wilson, R. Bolskar, J. Collier, M. Rosenblum and W. Marks
- 1540 (Invited) Carbon Nanostructures: Chemistry and Biological Applications
T. Da Ros
- 1541 Radiofrequency Induced Heating of Single-Walled Carbon Nanotubes/Materials
M. Cheney, Y. Mackeyev, S. Curley and L. Wilson
- 1542 (Invited) Biological Studies with Structurally Sorted SWCNTs
R. Weisman, S. Ghosh, D. Tsybouski, G. Bartholomeusz and M. Weiss
- 1543 C₆₀ and PCB Decoration of Lipid Bilayers
A. Gewirth, T. Spurlin and A. Campbell
- 1544 (Invited) Aligned Arrays of Single Walled Carbon Nanotubes: Growth and Implementation in RF Electronics
J. Rogers
- 1545 (Invited) Characterization of CNT-FETs by Scanning Probe Microscopy
T. Mizutani and T. Takahashi
- 1546 (Invited) Avalanche, Hysteresis, and Energy Dissipation in Carbon Nanotube Devices
E. Pop, A. Liao, D. Estrada, Z. Ong and S. Dutta

- 1547 Patterned Networks of Single-Walled Carbon Nanotubes for Electronic Devices
B. Omrane, Y. Chen and C. Papadopoulos
- 1548 Electrolyte-Gated Nanotube/Silicon Solar Cell
P. Wadhwa and A. Rinzler
- 1549 (Invited) Individual Suspended Carbon Nanotubes under Applied Gate and Bias Potentials
S. Cronin, A. Bushmaker, V. Deshpande and M. Bockrath
- 1550 (Invited) Carbon Nanotube Exciton Dissociation and Charge Transfer at Semiconductor Heterointerfaces: Driving Forces and Relevance to Photovoltaics
D. Bindl and M. Arnold
- 1551 (Invited) Defects, Phonon Softening, and Resonant 1/f Noise in Carbon Nanotubes
M. Shim
- 1552 (Invited) Absorption Saturation Effects and Exciton Decay Dynamics in Carbon Nanotubes
A. Walsh, J. Schneck, M. Harrah, L. Ziegler and A. Swan
- 1553 (Invited) Wrinkling and Strain Softening in Membranes of Pristine Single-Wall Carbon Nanotubes on Stretched Polymer Substrates
E. Hobbie, D. Simien, J. Fagan, J. Huh, J. Chung, S. Hudson, J. Obrzut and C. Stafford
- 1554 The Charging of Single Walled Carbon Nanotubes in Contact with Thiophene and Aniline Oligomers and Polymers
M. Kalbáč, E. Dmitrieva, L. Kavan, I. Rabelo de Moraes and L. Dunsch
- 1555 Gas (H₂ and NO₂) Sensor of ZnO Nanorods in Vacuum
H. Lim, H. Jo, J. Kim, S. Jeong, S. Kang, J. Yun and Y. Shin
- 1556 Graphane and Graphite Fluoride: Structure and Layer Interactions from First Principles
V. Artyukhov and L. Chernozatonskii
- 1557 Amperometric Biosensing Using Vertically Aligned Multiwalled Carbon Nanotubes
S. Mantha, V. Davis and A. Simonian
- 1558 Experimental Study of the Resonance Energy Transfer Rate Between Rare Earth Ions and Carbon Nanotubes
T. Ignatova, H. Najafov and S. Rotkin
- 1559 (Invited) Terahertz Spectroscopy of Large-Area Graphene
L. Ren, T. Arikawa and J. Kono
- 1560 (Invited) Graphene-Based Materials and their Applications
R. Ruoff
- 1561 (Invited) Wafer Scale Chemical Vapor Deposition of Graphene and Its Applications
C. Zhou
- 1562 (Invited) Bio-Applications with Free-Standing Graphene
A. Banerjee and H. Grebel
- 1563 (Invited) Thermal Management in Heterogeneous Carbon Nanoelectronics
S. Rotkin and A. Petrov
- 1564 (Invited) Selective Growth of Well Aligned Semiconducting Single-Walled Carbon Nanotubes
L. Ding, W. Zhou, T. McNicholas, Y. Cheng and J. Liu
- 1565 (Invited) Vertically Aligned Carbon Nanofiber Synthesis and Process Integration for Cellular Interfacing Applications
A. Melechko, T. McKnight, D. Hensley, R. Pearce, R. Clearfield, S. Retterer, P. Rack and M. Simpson
- 1566 Self-Assembly of Carbon Nanotubes into Two-Dimensional Geometries Using DNA Templates
M. Bockrath, H. Maune, S. Han, R. Barish, W. Goddard III, P. Rothmund and E. Winfree
- 1567 Electrodeposition of Gold, Silver on Carbon Nanotube Thin Films
S. Lam, G. Scott and Z. Zhou
- 1568 Decoration of Surface of Carbon Nanotubes with Iron-Cobalt (FeCo) Alloy Using a Two-Step Electroless Deposition Technique
E. Kalu, L. Wilson and M. McHenry

- 1569 Nanoporous Carbon Engineering by Chemical Vapor Deposition onto Active Carbon Fiber Electrodes for Selective Water Desalination
D. Aurbach, M. Noked, E. Avraham and A. Soffer
- 1570 (Invited) Nanotube-Peptide Interactions on a Silicon Chip
P. Burke, L. Zheng and D. Jain
- 1571 Fluorescent Single-Walled Carbon Nanotubes in Ultra Low Density Silica Aerogels for Optical Sensing Applications
J. Duque, G. Gupta, C. Hamilton, K. DeFriend Obrey, A. Dattelbaum and S. Doorn
- 1572 Integration of Uniform Arrays of Carbon Nanotube-Based Biosensors and CMOS Signal-Processing Circuits into a System-on-a-Chip
B. Lee, S. Seo, M. Sung, D. Lee, M. Lee, J. Lee, J. Cheon, E. Cho, H. Lee, I. Chung, Y. Park, S. Kim and S. Hong
- 1573 Electrochemical Detection of Nitric Oxide by Carbon Nanopipettes
F. Li, N. Dementev, R. Ghavami, R. Singhal, Y. Gogotsi and E. Borguet
- 1574 A Carbon Nanotube-Nafion Composite Twin Microsensor for Vapor Phase Detection of a Ketosis Product in Breath and Urine
C. Felice, K. Santhanam and L. Fuller
- 1575 Thin-Film Field-Effect Transistors Based on Composites of Semiconducting Polymer and Carbon Nanotubes
Z. Liu, Z. Zhang, M. Qu, J. Li, A. López Cabezas, L. Zheng and S. Zhang
- 1576 Field Emission Properties of Metal-CNT Composite Films Prepared by Electrodeposition Techniques
S. Arai, E. Shinada, Y. Todoroki and M. Endo
- 1577 Electrodeposition of Copper on GaAs Nanowires
C. Liu, O. Einabad, S. Watkins and K. Kavanagh
- 1578 Pulsed Electric Fields for Fabrication of Copper/Carbon Nanotube and Carbon Nanotube Films
H. McCrabb, E. Taylor, M. Inman, C. Devlin and M. Leines
- 1579 A New Method for Supersolubilization of Ultrapure Carbon Nanotubes
N. Dementev and E. Borguet
- 1580 Electrochemically Reduced Graphene Oxide Films for Electrochemical Supercapacitor
X. Peng, X. Liu, D. Diamond and K. Lau
- 1581 (Invited) Tunable Bandgaps and Excitons in Doped Semiconducting Carbon Nanotubes Made Possible by Acoustic Plasmons
C. Spataru and F. Leonard
- 1582 (Invited) Molecular Transport in Carboneous Nanochannels: Drag, Electro-Osmosis, Switches, Sieves
P. Kral, B. Wang, A. Titov, E. Vokac, L. Vukovic and K. Sint
- 1583 (Invited) Casimir Interactions Between Scatterers in Carbon Nanotubes
D. Zhabinskaya
- 1584 Counterion Condensation on a Polyelectrolyte in the Presence of an Electronically Responsive Cylinder in an Electrolyte Solution
O. Malysheva, T. Tang and P. Schiavone
- 1585 Two-Dimensional Hexagonally Ordered Mesoporous Carbon Synthesized Via a One-Step Method for Supercapacitors
T. Zhou, F. Jiang, N. Xia, J. Chen and D. Yuan
- 1586 Carbon Nanostructured Supercapacitors with Large Areal Capacitances
J. McDonough, J. Choi, Y. Yang, F. La Mantia, Y. Zhang and Y. Cui
- 1587 Stretchable Supercapacitors from Carbon Nanotubes
B. Wei, C. Masarapu, J. Rong, C. Yu and H. Jiang
- 1588 Design of Carbon Nanotube-Based Hybrid Catalyst for Nonhumid Fuel Cell
T. Fujigaya, M. Okamoto, K. Matsumoto and N. Nakashima

- 1589 Multifunctional Graphitic Nanotube/Nanofiber Compositions for the Sorption and Catalytic Degradation of Vapor-Phase Toxins
J. Long, M. Laskoski, T. Keller, K. Pettigrew, S. Qadri, G. Peterson and B. Schindler
- 1590 High Density Directly-Grown Carbon Nanotube Layer for Proton Exchange Membrane Fuel Cell Application
H. Du, C. Wang, S. Yen, L. Chen and K. Chen
- 1591 Transport and Electrochemical Properties of Nanocomposite Polyelectrolyte Membranes Based on Nafion Ionomer and Functionalized Carbon Nanotube
M. Hasani-Sadrabadi, S. Ghaffarian, E. Dashtimoghadam and F. Majedi
- 1592 (Invited) New Vistas in Fullerene Endohedrals and Single-Walled Carbon Nanotubes
M. Yamada, T. Tsuchiya, T. Akasaka, Y. Maeda and S. Nagase

H5 - Endofullerenes and Carbon Nanocapsules

Fullerenes, Nanotubes, and Carbon Nanostructures

- 1593 Theoretical Study of Scandium Carbide Endohedral Metallofullerenes
N. Mizorogi, T. Akasaka and S. Nagase
- 1594 Regioselective Exohedral Functionalization of La@C₈₂ / 1,2,3,4,5-Pentamethylcyclopentadiene and La@C₈₂ / Adamantylidene Adducts
S. Sato, Y. Maeda, K. Inada, H. Nikawa, M. Yamada, N. Mizorogi, T. Tsuchiya, T. Hasegawa, Z. Slanina, T. Akasaka, T. Kato and S. Nagase
- 1595 Host-Guest Interactions in Azafullerene (C₅₉N)-Single-Wall Carbon Nanotube Peapod Hybrid Structures
Y. Iizumi, T. Okazaki, Z. Liu, K. Suenaga, T. Nakanishi, S. Iijima, G. Rotas and N. Tagmatarchis
- 1596 Functionalization of Endohedral Fullerenes
M. Mackey, J. Phillips and S. Stevenson
- 1597 Synthesis and Electrochemical Properties of Sc₃N@I_h-C₈₀ Donor Acceptor Systems
J. Pinzón, T. Torres and L. Echegoyen
- 1598 Synthesis of Endohedral Fullerene Derivatives for Quantum Information Processing
K. Porfyrakis
- 1599 Bis-Carbene Adduct of La₂@C₈₀
M. Ishitsuka, S. Sano, H. Enoki, S. Sato, H. Nikawa, T. Tsuchiya, Z. Slanina, N. Mizorogi, T. Akasaka and S. Nagase
- 1600 Organic Synthesis of an Endohedral C₆₀ Encapsulating a Small Molecule
K. Kurotobi and Y. Murata
- 1601 Yields in the X@C₇₄ and Z@C₈₂ Series
Z. Slanina, F. Uhlík, T. Akasaka and S. Nagase
- 1602 Comparisons of Structural Features of Endohedral Fullerenes from Recently Obtained Crystallographic Data
A. Balch, H. Yang, Z. Liu, B. Mercado, M. Olmstead and C. Beavers
- 1603 An Endohedral Titanium (III) in a Clusterfullerene: Putting a Nongroup-III Metal Nitride into the C₈₀-I_h Fullerene Cage
S. Yang, C. Chen, A. Popov, W. Zhang, F. Liu and L. Dunsch
- 1604 Production and Characterization of Single-Wall Carbon Nanotubes Encapsulated Fluorescent Molecules
T. Okazaki
- 1605 New Metal Encapsulated Heterofullerenes
H. Dorn
- 1606 Metallic Nitride Fullerenes in Films and Coatings
J. Phillips

- 1607 The Importance of the Pyracylene Motif for Understanding the Properties and Stability of Endohedral Metallofullerenes
T. Fuhrer and H. Dorn
- 1608 Free Metal Atom Endohedral Fullerene Structures: Sm@C₈₀, Tm₂@C₈₂ and Others
C. Beavers, B. Mercado, M. Olmstead, A. Balch, H. Yang, Z. Liu, L. Echegoyen, T. Zuo and H. Dorn
- 1609 Perfluoroalkylated Endometallofullerenes
N. Shustova, I. Kareev, A. Popov, M. Mackey, C. Coumbe, V. Bubnov, S. Lebedkin, Y. Chen, J. Phillips, S. Stevenson, S. Strauss and O. Boltalina
- 1610 Recent Advances in OxoMetallic Fullerenes and Metallic Nitride AzaFullerenes
S. Stevenson
- 1611 Molecular Structures and Bonding Situation in Endohedral Metallofullerenes
A. Popov and L. Dunsch
- 1612 A Pseudoatom in a Cage: Trimetallofullerene Y₃@C₈₀ Mimics Y₃@C₈₀ with Nitrogen Substituted by a Pseudoatom
A. Popov, L. Zhang and L. Dunsch
- 1613 ¹³C NMR Relaxation Study in Endohedral Fullerenes: Interaction of the Nitride Cluster and the Cage Carbons
S. Klod and L. Dunsch
- 1614 Structural Determination and Computational Analysis of Nanocapsules and Endohedral Metallofullerenes
B. Mercado, C. Beavers, H. Yang, Z. Wang, A. Jiang, Z. Liu, H. Jin, M. Easterling, S. Stevenson, M. Mackey, C. Coumbe, J. Phillips, J. Phillips, M. Olmstead, J. Poblet and A. Balch
- 1615 The Source of Nitrogen in Metal Nitride Cluster Fullerene Production
L. Dunsch, S. Yang, L. Zhang, A. Svitova and A. Popov

H8 - Porphyrins and Supramolecular Assemblies

Fullerenes, Nanotubes, and Carbon Nanostructures

- 1616 (Invited) Bis-Porphyrinic Tweezers for the Molecular Recognition of Bidentate Bases of Various Sizes: Towards the Purification of Polluted Effluents
R. Rein and N. Solladié
- 1617 (Invited) From the Porphyrin-Based Supramolecular Chirogenesis Towards the Metal-Based Chiral Material
V. Borovkov, T. Kizawa, T. Osawa, S. Ikeda, T. Kitamura and Y. Inoue
- 1618 (Invited) Nanostructured Films Based on Lutetium Bisphthalocyanines and Tyrosinase as Biosensors for the Detection of Antioxidants
C. Apetrei, P. Alessio, J. Constantino, J. de Saja and M. Rodriguez-Mendez
- 1619 (Invited) Novel Electron Donor Acceptor Nanocomposites
D. Guldi
- 1620 (Invited) Catalytic Decomposition of Reactive Oxygen and Nitrogen Species by Corrole Metal Complexes
Z. Gross
- 1621 'Clickable Porphyrins': A Versatile and Rapid Route Towards Porphyrin Libraries
S. Mohnani and D. Bonifazi
- 1622 (Invited) Phthalocyanines as Efficient Sensitizers in Photorefractive Polymer Composites
M. Diaz-Garcia, F. Gallego-Gomez, J. Quintana, J. Villalvilla, L. Martin-Gomis, F. Fernandez-Lazaro and A. Sastre-Santos
- 1623 (Invited) Porphyrin Assemblies for Chemical Sensors Development
D. Monti, S. Nardis, L. Lvova, F. Mandoj, C. Di Natale, A. D' Amico and R. Paolesse
- 1624 (Invited) Synthetic Strategies for Unsymmetrical Porphyrins
M. Senge

- 1625 Supramolecular Structures and Photoelectrochemical Properties of Self-Assembled Porphyrin Nanotubes Including Fullerenes
F. Tani, H. Nobukuni, Y. Shimazaki, Y. Naruta, K. Ohkubo, T. Nakanishi, T. Kojima, S. Fukuzumi, S. Seki and H. Uno
- 1626 (Invited) Porphyrin Conjugated Copolymers for Bulk Heterojunction Solar Cells
H. Imahori
- 1627 (Invited) Polypeptides with Functionalized Pendant Porphyrins for Self-Assembling Processes and the Elaboration of Novel Type of Glues
N. Solladié
- 1628 (Invited) Optical Sensing Properties of Distributed Porphyrins Layers
F. Dini, R. Paolesse, A. D'Amico, D. Filippini, I. Lundstrom and C. Di Natale
- 1629 (Invited) Generation of Porphyrin Nanotube and Its Light-Harvesting Function
Y. Kobuke and A. Satake
- 1630 (Invited) Design and Synthesis of Porphyrin Frameworks for Multidimensional Molecular Materials
C. Aurisicchio, D. Stassen, V. Corvaglia, C. Fabbro and D. Bonifazi
- 1631 (Invited) High and Low Potential Porphyrin and Phthalocyanine Sensitizers for Splitting Water to Hydrogen and Oxygen Using Solar Energy
B. Sherman, S. Pillai, J. Bergkamp, J. Tomlin, A. Moore, G. Devens and T. Moore
- 1632 (Invited) Synthesis and Photophysical Properties of Hydrogen-Bonded Phthalocyanine and Subphthalocyanine-Perylenediimide Assemblies
W. Seitz, A. Jimenez, E. Carbonell, B. Grimm, A. Medina, C. Claessens, S. Rodríguez-Morgade, D. Guldi and T. Torres
- 1633 (Invited) Gas-Phase Chemistry of Cationic Porphyrins
C. Ramos and M. Santana-Marques
- 1634 Self-Assembled Porphyrin for Organic Photovoltaics
O. Yoshikawa, Y. Kobuke and S. Yoshikawa
- 1635 (Invited) Photoinduced Electron Transfer in Supramolecular Assemblies Based on a Doubly Protonated and Saddle-Distorted Porphyrin
T. Kojima, T. Honda, T. Nakanishi, K. Ohkubo and S. Fukuzumi
- 1636 (Invited) Copper-Free Rotaxanes and Catenanes Decorated with Porphyrin and Fullerene Moieties
J. Megiatto Jr. and D. Schuster
- 1637 (Invited) Enhancement of Electron-Transfer Oxidation of Zinc Phthalocyanine Coupled with Formation of π -Dimer Radical Cation
K. Ohkubo, R. Iwata and S. Fukuzumi
- 1638 (Invited) Optical Spectroscopy of Molecular and Supramolecular Porphyrin Assemblies
S. Costa, P. Paulo, R. Teixeira and S. Andrade

H9 - Nanostructures for Energy Conversion

Fullerenes, Nanotubes, and Carbon Nanostructures / Energy Technology

- 1639 (Invited) The Performances of the $\text{WO}_3/\text{BiVO}_4$ Photoelectrode Modified with Au Nanoparticles for Water Oxidation under Visible Light Irradiation
C. Ponchio, A. Nosaka and Y. Nosaka
- 1640 Effects of ZnO Electrode Structure on Photoelectrochemical Properties
H. Hayashi, A. Kira, T. Umeyama, Y. Matano, P. Charoensirithavorn, T. Sagawa, S. Yoshikawa, N. Tkachenko, H. Lemmetyinen and H. Imahori
- 1641 (Invited) Femtosecond Diffuse Reflectance Transient Absorption to Measure Dye-Sensitized Solar Cells under Operational Conditions
A. Furube, K. Sunahara, Z. Wang, K. Hara, R. Katoh and M. Tachiya

- 1642 (Invited) Rapid Synthesis of Silver Shells on Gold Nanorods
Y. Niidome
- 1643 Electrochemical Elaboration and Characterization of the Morphology of Bis-Thiophene Carbazole-Fullerene Double-Cable Polymer Films
N. Berton, C. Ottone, F. Chandezon and S. Sadki
- 1644 (Invited) Plasmon-Assisted Photo-Energy Conversion in Organic Monolayer System
K. Ikeda, K. Takahashi, T. Masuda and K. Uosaki
- 1645 Graphene Oxide as 2-D Carbon Support to Anchor Semiconductor and Metal Nanoparticles
I. Lightcap and P. Kamat
- 1646 (Invited) Tungsten(VI) Oxide Flake-Wall Film Electrodes for Photoelectrochemical Oxygen Evolution from Water
F. Amano, D. Li and B. Ohtani
- 1647 Mechanism of Light Energy Conversion in Gold-TiO₂ Nanostructures: Importance of Electric Field Enhancement by Plasmon
A. Furube, L. Du, K. Hara, R. Katoh and M. Tachiya
- 1648 Hybrid Solar Cells with Bulk Heterojunction Between Conjugated Polymer and PbS Nanocrystals
S. Woo, Y. Han, K. Kim, H. Lyu and Y. Kim
- 1649 Free-Base Porphyrin-Fe Porphyrin Based Supramolecular Solar Cells
F. D'Souza, N. Subbaiyan and E. Maligaspe
- 1650 Low Temperature Sintering for Plastic Dye-Sensitized Solar Cell Using Electrospray Method
H. Lee, H. Kim, Y. Seo, S. Oh, S. Jo, S. Jang and D. Kim
- 1651 Nanostructured TiO₂ Electrode by Electrospray for Dye-Sensitized Solar Cells
D. Hwang, H. Lee, S. Jang, D. Kim and D. Kim
- 1652 Shape Control of Highly Crystallized Titania Nanorods
M. Adachi, K. Yoshida, T. Kurata, K. Tsuchiya, Y. Mori and F. Uchida
- 1653 (Invited) Nanostructures to Probe and Drive Electrocatalytic Reactions
I. Yagi, A. Hayashi, K. Kimijima, H. Notsu and N. Ohta
- 1654 Preparation of Nanosheets Bismuth Trioxide as Supercapacitance Materials
N. Xia, J. Chen, T. Zhou, S. Mo and D. Yuan
- 1655 (Invited) Structural Control of Metal Sulfide and Plasmonic Metal Nanoparticles for Energy Conversion
T. Teranishi
- 1656 Synthesis and Study of Pd-Based Nanomaterials for Electrosorption of Hydrogen
B. Adams, S. Chen, C. Ostrom and A. Chen
- 1657 (Invited) Stacked-Structure-Dependent Photoluminescence Properties of CdTe-Au Multilayer Films
T. Torimoto, T. Kameyama, Y. Ohno, T. Kurimoto, K. Okazaki, T. Uematsu and S. Kuwabata
- 1658 Dual Ionic and Electronic Transport in Nanostructured Poly(ionic liquid)s
S. Lee, G. Becht and M. Firestone
- 1659 (Invited) Effective Photon Scattering from a Single-Molecule at Plasmonic Metal Nano-Gap
K. Murakoshi
- 1660 Energy Level Alignment at Organic-Organic Interfaces in Bulk Heterojunction Solar Cells
P. Sehati, S. Braun, L. Lindell, X. Liu and M. Fahlman
- 1661 (Invited) Plasmon-Assisted Photocurrents in Gold- and Silver-Nanostructures
S. Yamada and T. Akiyama
- 1662 Tuning Electrocatalysis: Platinum-Based Trimetallic Nanostructures from Sequential Electrodeposition and Surface-Limited Redox-Replacement Reactions
T. Mkwizu, M. Mathe and I. Cukrowski
- 1663 (Invited) Nanoparticle Plasmon-Assisted Photochemical Reactions
H. Misawa, K. Ueno, N. Murazawa and Y. Yokota
- 1664 Probing Polymer Photovoltaics: Imaging Photocurrents in Organic Solar Cells
R. Giridharagopal, O. Reid and D. Ginger

- 1665 (Invited) Charge Separation Induced by Near-Infrared Light at the Anisotropic Ag Nanoparticle-TiO₂ Interface
T. Tatsuma, K. Matsubara, E. Kazuma, I. Tanabe and N. Sakai
- 1666 Preparation of Nanoporous Titanium Oxide Electrode by Screen Print and Its Application to Dye-Sensitized Solid-State Solar Cell
A. Konno
- 1667 (Invited) Fabrication of Metal and Semiconductor Nanostructures Based on Ordered Nanohole Array in Anodic Porous Alumina
H. Masuda, T. Yanagishita, T. Kondo and K. Nishio
- 1668 A New Functional Layer Based on Highly Crystalline Inverse Opal for Application in Dye-Sensitized Solar Cells
H. Jung, S. Han and J. Lee
- 1669 Formation Mechanism of Highly Crystallized Titania Nanorods
M. Adachi, T. Kurata, K. Yoshida, K. Tsuchiya, Y. Mori and F. Uchida

II - Physical and Analytical Electrochemistry General Session

Physical and Analytical Electrochemistry

- 1670 Mass Transport and Electrode Kinetics Parameters in Room Temperature Ionic Liquids and in Its Binary Mixture with Organic Solvent
N. Siraj, G. Grampp and S. Landgraf
- 1671 Nonadditivity of Faradaic Currents and Modification of Double Layer Capacitance in the Voltammetry of Mixtures of Solutes in Aprotic and Protic Ionic Liquids
A. Bond, I. Burgar, G. Kennedy, J. Reyna-Gonzalez, M. Shiddiky, A. Torriero and C. Zhao
- 1672 On the Meaning of Electrode Potentials Measured by Kelvin Probe on Coated and Bare Metal Surfaces
M. Rohwerder
- 1673 High Sensitivity Permeation Measurement Set-Up Based on Scanning Kelvin Probe
S. Evers and M. Rohwerder
- 1674 Functionalization of Silicon Surfaces with Redox-Active Organometallic Complexes
B. Fabre, N. Gauthier, G. Argouach, F. Paul, M. Humphrey and P. Hapiot
- 1675 Effect of Ion-Pairing on the Open Circuit Potential of 3 - Mercaptopropanoic Acid Modified Gold Electrodes
M. Anderson and A. Harper
- 1676 Dielectric Relaxation in Dimethyl Sulfoxide/Water Mixtures Studied by Microwave Dielectric Relaxation Spectroscopy
Z. Lu, E. Manias, M. Lanagan and D. Macdonald
- 1677 Experimental Manipulation of Interfacial Molecular Assemblies
M. Anderson
- 1678 Electropolymerization of Phenol on FTO Modified ZrO₂ Nanoelectrode Arrays: Morphology and Electrochemical Properties
J. Mosa, D. Grosso, C. Laberty-Robert and C. Sanchez
- 1679 Methodology for Potentiometric Fluoride Analysis with Improved Sensitivity
T. Aarhaug and K. Nagy
- 1680 Microwave Effects on Electroformation of Metals and Metal Oxides
L. Rassaei, R. Compton and F. Marken
- 1681 Atomistic Simulation of the Aqueous Sulfuric Acid/ Pt(111) Interface as a Function of Potential
J. Santana, C. Cabrera and Y. Ishikawa
- 1682 Cyclic Versus Staircase Voltammetry in Electrocatalysis: Theoretical Aspects
B. Hai, Y. Tolmachev, C. Zanelli and D. Scherson

- 1683 Vaporization Exchange Model for Water Distribution and Fluxes in the Cathode Catalyst Layers of Polymer Electrolyte Fuel Cells
J. Liu and M. Eikerling
- 1684 Dynamic Electrochemical Impedance of the Electrochemical Behavior of Platinum and Palladium in Acidic Solutions
R. Sacci and D. Harrington
- 1685 Density-Functional Theory Study of Interactions Between Water and CO Adsorbed on Pt and Pt-Ru Alloy under Electrochemical Conditions
J. Santana and Y. Ishikawa
- 1686 Electrochemical Oxidation of Ammonia on Platinum Electrodeposited onto Pyrolytic Graphite
S. Le Vot, D. Reyter, L. Roué and D. Bélanger
- 1687 Methods for the Modification of High Surface Area Electrodes with Ruthenium Complexes
R. Smith and P. Pickup
- 1688 Electrochemical Behavior of Molten Alkali Hydroxide-Carbonate Mixtures for Fuel Cell Applications
P. Hsieh and J. Selman
- 1689 Electrodeposition of Platinum Nanowires: Electrochemical Characterization
S. Mahshid, A. Dolati, S. Hashemi Daryan and M. Ghorbani
- 1690 Electrochemical Behaviour of Curium in Chloride Melts
A. Osipenko, A. Mayorshin, M. Kormilitsyn and A. Bychkov
- 1691 Fast Catalytic and Electrocatalytic Oxidation of Sodium Borohydride on Palladium Nanoparticles and Its Application to Ultrasensitive DNA Detection
J. Das, K. Jo and H. Yang
- 1692 Observed Electrochemical Oscillations during the Catalytic Oxidation of Aqueous Sulfur Dioxide on a Platinum Electrode Surface
S. Donne, J. O'Brien and J. Hinkley
- 1693 Three-Dimensional Computational Simulation of Micro-Direct Methanol Fuel Cell
S. Wang, Z. Zou, Y. Qiao, Q. Huang and H. Yang
- 1694 Alternations in Quinone Aqueous Electrochemistry When Confined in a Negatively Charged Nanoporous Material
A. Fitch and T. Nelson
- 1695 Kinetics of H UPD at Noble Metals
B. Losiewicz, R. Jurczakowski, H. Duncan, M. Martin, C. Lebouin and A. Lasia
- 1696 Application of Nanodiamond in Electrochemical Sensing of Neurotransmitters
J. Huang, Y. Tsai, Y. Chen and W. Kang
- 1697 Electrochemical and IR Studies of Coupled Electron/Proton Transfer Studies in Benzoquinone Modified Monolayers
W. Zhang, S. Rosendahl and I. Burgess
- 1698 Enzyme-Amplified Amperometric DNA Hybridization Assay Based on Bioelectrocatalysis Using Redox-Polymer Modified Electrodes
P. Kavanagh, J. Hajdukiewicz, S. Boland and D. Leech
- 1699 Ion Permeation and Association Effects in Cellulose - Poly-(Diallyldimethylammonium) Membranes Immersed in Acetonitrile
S. Shariki, W. Thielemans, L. Rassaei and F. Marken
- 1700 Enzymatic Activity of Papain Determined by Ferrocene Affinity Label Detection
C. Baier, A. Schlichtiger, J. Eppinger and U. Stimming
- 1701 Flame Plasma Electrochemical Sensor for Airborne Particulates: The Case of Pollen
D. Sarantaridis and D. Caruana
- 1702 Large Amplitude/High Frequency Sinusoidal Voltammetry of Surface-Confined Redox Systems
C. Bell, C. Anastassiou, D. O'Hare, K. Parker and J. Siggers

- 1703 Analytical Impedance Model for Electrochemically Driven Conducting Polymer Devices
T. Shoa and J. Madden
- 1704 Utilization of Electrochemical Techniques for Copper Removal, Speciation, and Analysis in Aqueous Systems
J. Gomes, K. Islam, I. Haider, G. Irwin, P. Bernazzani and D. Cocke
- 1705 An XAFS Study of Tantalum Chloride in the Ionic Liquid 1-Ethyl-3-Methyl Imidazolium Chloride/Aluminum Chloride
D. Roeper, W. O'Grady, K. Pandya and G. Cheek
- 1706 Electrochemical Properties of Ferrocene Chalcones in Solution and Immobilized in Nafion
R. Cardona, K. Hernandez, M. Otano, I. Montes and A. Guadalupe
- 1707 Detection of Oxidative Stress Biomarker Homocysteine Utilizing Resonance Elastic Light Scattering
M. Stobiecka, S. Cutler, Z. Reed, A. Prance and M. Hepel
- 1708 Detection of Ultra-Low Concentration of Chiral (R)-di-2-Naphthylprolinol on Ag-Nanoparticles-Modified Ag Electrode by Surface-Enhanced Raman Spectroscopy
Z. Luo, J. Yao and B. Loo
- 1709 Optimization of Pathogen-DNA Biosensor Using Polymeric Films and Electrochemical Labels: Fc-labeled Sequences and Ru-Fc Intercalation Complex
M. Díaz, A. Rosado, J. del Pilar, E. Vega and A. Guadalupe
- 1710 Electrochemical Characterization of Aptamer Modified Electrodes for Protein Detection
A. De Rache, E. Triffaux, T. Doneux and C. Buess-Herman
- 1711 Electrochemical Determination of Massic Diffusivity of Anisidine in Its Polymerization
S. de Souza Pinto, E. Sarmento Gonçalves and M. Cerqueira Rezende
- 1712 New Amperometric Methods for the Trace Determination of Copper(II), Silver(I) and Gold(III)
S. Khatkar and R. Jrf
- 1713 Increases in the Electrochemical Oxidation of Formaldehyde and Ethylene Glycol in Perchloric Acid by Adding Inhibiting Anions
D. Zeng and M. Schell
- 1714 Effects of Anode in the Cu Metallization by Electrochemical Plating
S. Kang, S. Rha, Y. Lee, Y. Ryu and K. Hong
- 1715 Simultaneous Species Determination in Industrial Solutions by Differential Alternative Pulse Voltammetry
J. Valera, R. Zlatev, M. Stoytcheva, B. Valdez and M. Carrillo
- 1716 Study on the Electrochemical Behavior of Esculetin on Glassy Carbon Electrode
Y. Chen, P. He, Y. Liang, X. Yi, J. Sun and Q. Jiang
- 1717 Strategy for Low Background-Current Levels in the Electrochemical Biosensors Using Horse-Radish Peroxidase Labels
H. Kang, K. Jo and H. Yang
- 1718 Interaction of Anticancer Drug Methyl Caffate with DNA Studied by Electrochemical and Spectroscopic Methods
W. Wang, P. He, Y. Liang, X. Yi, Y. Chen, J. Sun and Q. Jiang
- 1719 Selective Determination of Dopamine in Presence of Ascorbic Acid at Indium Tin Oxide Electrode
B. Kim, H. Yang and J. Kwak
- 1720 Charged States at Phenazine Units in Polyaniline: An In Situ ATR-FTIR Spectroelectrochemical Study
A. Kellenberger, E. Dmitrieva and L. Dunsch
- 1721 Spontaneous Grafting of Benzylphosphonic Acid on Steel Surface Through the Aryldiazonium Salt for Application in Corrosion Protection
X. Le and D. Bélanger

I3 - Charge Transfer: Electrons, Protons, and Other Ions

Physical and Analytical Electrochemistry / Sensor / Organic and Biological Electrochemistry

- 1722 Concerted Proton-Electron Transfer Reactions
D. Evans
- 1723 Charge Transfer Through Peptide Nucleic Acid Oligonucleotide Molecules and Self-Assembled Monolayers
E. Wierzbinski, K. Davis, D. Waldeck, S. Bezer and C. Achim
- 1724 Theoretical Studies of Interfacial Proton-Coupled Electron Transfer Reactions at Metal Electrodes
A. Soudackov and S. Hammes-Schiffer
- 1725 Mechanistic Aspects of Proton Coupled Electron Transfer: Role of Buffer and Water as Proton Acceptor
C. Costentin, J. Bonin, C. Louault, M. Robert, J. Savéant and A. Teillout
- 1726 Measuring Electron Transfer Kinetics in Room Temperature Ionic Liquids Using the Scanning Electrochemical Microscope
K. Lovelock and D. Walsh
- 1727 Structure and Transport of Hydronium Ions in Bulk Water and in Triflic Acid Hydrate Crystals Probed by Ab Initio Molecular Dynamics and Ab Initio Path Integrals
M. Tuckerman
- 1728 Long-Term Stability and Electrical Performance of Molecular Diodes
R. Popoff and H. Yu
- 1729 Structure and Ion Transport in Ionic Liquids and Liquid Electrolytes from Molecular Dynamics Simulations
O. Borodin, J. Vatamanu and G. Smith
- 1730 Dynamic Impedance Spectroscopy of Peroxide Reduction at a Pt(poly) Rotating Disk Electrode in 0.5 M H₂SO₄
G. Hager and D. Harrington
- 1731 First Principles Molecular Dynamics Simulations of Proton Transport in Phosphoric Acid
L. Vilčiauskas
- 1732 Electrochemistry in Low-Supported Media: Theoretical and Experimental Investigations.
T. Doneux, J. Limon-Petersen, E. Dickinson, N. Rees and R. Compton
- 1733 Molecular Simulation of Electric Double-Layer Capacitors Based on Carbon Nanotube Forests
L. Pratt
- 1734 A Low Overpotential Mechanism for the Efficient Electrochemical Conversion of Carbon Dioxide and Water to Methanol
A. Bocarsly, E. Barton Cole, K. Keets, A. Morris and E. Zeitler
- 1735 The Chemistry and Physics of Thermoelectric Nanowires
A. Hochbaum
- 1736 Charge Transfer in Li-Ion Batteries
J. Jamnik and M. Gaberšček
- 1737 Revisiting the Notion of Electrochemical Potential Gives Access to Simple Models of Electrochemical Reaction
E. Vieil
- 1738 Proton Conduction Phenomena in Membranes and Catalyst Layers of PEM Fuel Cells
A. Roudgar, K. Malek, K. Chan and M. Eikerling
- 1739 Redox Reactions and Electron Transport in Molecular Electronic Devices
R. McCreery, A. Bonifas, L. Shoute and S. Barman
- 1740 Proton Transfer and Water Motion in Low EW PFSA
T. Zawodzinski, M. Maalouf, B. Pyle, C. Sun, M. Schaberg and S. Hamrock
- 1741 Stability of Epitaxial Gold Silicon Electrodeposited Contacts
W. Li, A. Zavareh, R. Popoff, H. Yu, P. Allongue and K. Kavanagh

- 1742 The Effects of Fluorine on Proton Transfer in Perfluorosulfonic Acid Functionalized Carbon Nanotubes
B. Habenicht and S. Paddison
- 1743 Transition of Charge Transfer and Tunneling Effect in Ultrathin Silicon Oxynitride Films
S. Jung, K. Jang, J. Cho and J. Yi
- 1744 Synthesis of TiO₂ Nanostructures by Pulsed Laser Deposition for Organic Photovoltaic Cells
H. Han, J. Noh, J. Park, J. Kim and K. Hong

14 - Progress in Spectro-Electrochemistry and Surface Science of Electrocatalytical Interfaces (In Memory of E. B. Yeager)

Physical and Analytical Electrochemistry

- 1745 Theories for Predicting Reversible Potentials of Reactions on Electrode Surfaces from Internal and Gibbs Energies: Applications to ORR
A. Anderson
- 1746 In Situ Real Time Investigation on the Structure at Electrode/Electrolyte Interfaces by Surface X-Ray Scattering
K. Uosaki, T. Kondo, T. Masuda, H. Fukumitsu and S. Takakusagi
- 1747 In Situ NMR Spectroelectrochemistry of High Sensitivity: A New Inside into the Mechanism of Electrode Reactions
S. Klod, F. Ziegls and L. Dunsch
- 1748 SERS and SFG Studies of Potential Dependent Water Structure on Electrode Surfaces
A. Gewirth and R. Ambrosio
- 1749 A Comparative Spectroelectrochemical Study of the Redox Electrochemistry of N-(polyvinylamine)-Substituted-o-Nitroaniline
A. Jbarah, I. Roth, S. Spange and R. Holze
- 1750 Single Molecule SERS from Electrified Interfaces
A. Brolo, G. Andrade, M. Temperini and D. dos Santos
- 1751 Electrochemical and Fluorescence Microscopy Study of a 1-Octadecanol Layer Doped with a BODIPY-Labeled Phospholipid: Probing Heterogeneity
J. Casanova-Moreno and D. Bizzotto
- 1752 Electrochromic and Voltammetric Responses of Ni-Al-Cl Layered Double Hydroxide in Presences of Different Complex Metal Ions
D. Mondal and G. Villemure
- 1753 In Situ ESR-Vis_NIR Spectroelectrochemistry of Thiophene Oligomers
K. Haubner, E. Jähne, J. Tarabek, V. Lukes and L. Dunsch
- 1754 Quartz-Crystal Microbalance Now Serves as an Indispensable Tool in Characterizing Ionic Fluxes in High-Surface Area Carbons for EDLCs
M. Levi, G. Salitra, N. Levy and D. Aurbach
- 1755 Design Catalytic Properties of Electrochemical Interfaces
D. Strmcnik, K. Kodama, D. Tripkovic, D. VanderVliet, C. Wang, V. Stamenkovic and N. Markovic
- 1756 Surface Structure and Electrochemistry of Model Electrocatalysts
A. Brownrigg, C. Lucas, P. Thompson, M. Cormack, V. Stamenkovic, D. Strmcnik and N. Markovic
- 1757 Catalysis of Electrode Reductions in Salt Electrolytes with Low-Water-Activity
D. Gervasio
- 1758 In Situ IRRAS and XAS Studies of Ternary Pt-Rh-SnO₂/C Electrocatalysts for Ethanol Oxidation
M. Li, K. Sasaki, N. Marinkovic and R. Adzic
- 1759 Electrochemical Oxidation of Dissolved CO on Gold Electrode in Acidic and Alkaline Electrolyte by Using Rotating Disk Electrode
B. Wang, S. Lee and A. Lin

- 1760 Dynamics and Elementary Processes in the Electrooxidation of Small Organic Molecules - Spectro-Electrochemical Adsorption/Reaction Transients
J. Schnaidt, M. Heinen, Z. Jusys and R. Behm
- 1761 Binding Energy Shifts for Cu and Ag UPD on Rh(111) Determined by Online EC-XPS
D. Anjos, M. Rigsby and A. Wieckowski
- 1762 Transition Metal Macrocycles as Cathode Electrocatalysts for Borohydride Fuel Cells
A. Botelho, J. Junior, E. Ticianelli and A. Tanaka
- 1763 The Reduction of Nitrate Ions in Acidic Electrolytes Via Two Heterogeneous Electrocatalysts in Series
Y. Chen, M. Rasmussen and D. Scherson
- 1764 In Situ Decomposing Prussian Blue Analogues to Form Multimetallic Aggregations with Various Surface Ensemble for Pt-Monolayer Electrocatalyst
K. Gong, K. Sasaki, M. Vukmirovic and R. Adzic
- 1765 Electrochemical and Spectroelectrochemical Studies of a Cobalt Porphyrin Pentacoordinated Via a Thiol Monolayer on a Glassy Carbon Electrode for Oxygen Reduction Reaction
H. De Paz, C. Medard, M. Mezour, J. Mauzeroll and M. Morin
- 1766 Catalytic Property and Morphology of Pt Clusters on Graphite Surface
J. Nakamura, T. Kondo, K. Watahiki, Y. Iwasaki, J. Oh, T. Suzuki, Y. Honma and D. Hatake

15 - In Situ Scanning Probe Microscopy and Spectroscopy in Electrochemistry

Physical and Analytical Electrochemistry

- 1767 Assembly Behavior and Monolayer Characteristics of OH-Terminated Alkanethiols and Aromatic Thiols: In Situ Scanning Tunneling Microscopy and Electrochemical Studies
Y. Liu and Y. Lee
- 1768 Electrochemical Scanning Tunneling Microscopy: Adlayer Structure and Reaction at Solid/Liquid Interface
D. Wang and L. Wan
- 1769 Segregation of a Small Amount of Molecule in Self-Spreading Lipid Bilayer Through Metallic Nanogate
H. Nabika and K. Murakoshi
- 1770 Study Electrochemical Gate Controlled Electron Transport in Single Molecules Using STM Break Junctions
N. Tao
- 1771 SECPM Study: Influence of the Tip Material and Its Coating on the Accuracy of Potential Profiling Across Electrical Double Layer at Solid/Liquid Interface
A. Bashir, M. Muglali, F. Hamou and M. Rohwerder
- 1772 Numerical Simulation of Probing the Electric Double Layer by Scanning Electrochemical Potential Microscopy
F. Hamou, P. Biedermann, A. Erbe and M. Rohwerder
- 1773 Properties of Metal Phthalocyanine Monolayers on Au(111) Surfaces
M. Khanfar and S. Morin
- 1774 Surface Reconstruction of Cu(100) Electrodes during Hydrogen Evolution Studied by In Situ Video-STM
H. Matsushima, C. Haak, A. Taranovskyy, Y. Gruender and O. Magnussen
- 1775 In Situ STM Studies in the Development of Electrochemical ALD
J. Stickney and Y. Kim
- 1776 Structure and Dynamics of Self-Assembled Mercaptobenzimidazole Monolayers on Au(111)
L. Ou Yang and T. Moffat
- 1777 Accelerator Surface Phase Associated with Superconformal Cu Electrodeposition
T. Moffat and L. Ou Yang
- 1778 STM as Quantitative Tool in Electrochemical Model Studies
H. Hoster, O. Alves, A. Engstfeld and R. Behm

- 1779 Development of New Nanoscale Electrochemical Method Using Scanning Tunneling Microscope
H. Kyoko and K. Mabuchi
- 1780 The Use of Scanning Electrochemical Microscopy to Study Corrosion Processes
H. He, C. Nowierski, J. Noël, Z. Ding and D. Shoesmith
- 1781 Heterogeneous Cathodic Activity on Model Al-Cu Alloy Electrodes
N. Missert, R. Copeland, P. Kotula and J. Rivera
- 1782 Electrochemical SPM Measurement of Charge Storage Processes in Nanoscale Model Oxides
K. Zavadil
- 1783 Nanoscale Investigation of Localized Corrosion on Metal Surfaces by In Situ Electrochemical Scanning Probe Microscopy
V. Maurice and P. Marcus
- 1784 High Resolution Study of Hydrogen Permeation Through Metals by Scanning Kelvin Probe Force Microscopy
C. Senoz and M. Rohwerder
- 1785 Lithium Diffusion Mapping in Cathode Materials for Li-Ion Batteries
N. Balke, S. Jesse, A. Morozovska, E. Eliseev, D. Chung, Y. Kim, L. Adamczyk, E. Garcia, N. Dudney and S. Kalinin
- 1786 Proton Conducting Domains in PEM Fuel Cells Imaged under Operating Fuel Cell Conditions with Atomic Force Microscopy
J. O'Dea, H. Metiu and S. Buratto
- 1787 ECSTM Investigation on the Stability of Pt Nanoparticles/HOPG in an Alkaline Electrolyte Solution
Q. Xu, R. Cheng, D. Chu and R. Chen
- 1788 Characteristics of 3,3'-thiobis-1-propanesulfonic Acid Monolayer Self-Assembled on an Au(111) Surface and Its Effect on the Electrochemical Deposition of the Copper
P. Lin and Y. Lee
- 1789 In Situ Analysis of Pb Electrodeposition on Polycrystalline Cu Using Ellipsometry
Y. Wang, W. Li and S. Liao

J1 - Sensors, Actuators, and Microsystems General Session

Sensor

- 1790 Application of Pulsed Discharge Technique for Reliable Detection of Exhaust Gas Components
P. Sekhar, B. Farber, E. Brosha, R. Mukundan, M. Nelson and F. Garzon
- 1791 An Alumina Substrate-Supported Diesel Particulate Matter Sensor Based on $\text{Sn}_{0.9}\text{In}_{0.1}\text{P}_2\text{O}_7$ Proton Conductor
Y. Shen, T. Takeuchi, S. Teranishi, T. Hibino and C. Coumbe
- 1792 Sensors Based on Electrochemically Deposited Titania Studied by AFM and EIS Techniques
M. Sánchez, C. Cuevas-Arteaga and M. Rincón
- 1793 Long-Term and Temperature Cycling Stability of Impedancemetric NO_x Gas Sensors Based on Porous Yttria-Stabilized Zirconia
L. Woo, R. Glass, R. Novak and J. Visser
- 1794 Electrode Stability in Hydrogen Sensors Based on Yttria-Stabilized Zirconia Electrolyte
L. Woo, R. Glass, P. Sekhar, E. Brosha, R. Mukundan, M. Nelson and F. Garzon
- 1795 Investigation of a Mixed Potential Sensor Prototype for Reliable Detection of Hydrocarbons and NO_x for Emissions Control
P. Sekhar, M. Nelson, E. Brosha, R. Mukundan, T. Williamson and F. Garzon
- 1796 Sensing Mechanism of Nonequilibrium Solid Electrolyte Based Chemical Sensors
J. Fergus
- 1797 Cobalt Doped $\text{Sm}_{0.95}\text{Ce}_{0.05}\text{FeO}_{3\pm\delta}$ for Detection of Reducing Gases
S. Bukhari and J. Giorgi

- 1798 Applications of Coulometric Solid Electrolyte Sensors
U. Guth, J. Zosel, F. Gerlach, K. Ahlborn and V. Vashook
- 1799 Development of Thermal Conductivity Type Hydrogen Sensor
M. Watanabe, K. Furusaki, R. Inoue and D. Ichikawa
- 1800 Nanoporous Metal-Organic Framework Coated Microcantilever Sensors for Water and Methanol Detection
J. Lee, R. Houk, A. Robinson, S. Thornberg, M. Allendorf and P. Hesketh
- 1801 Quantum Dot Beads for Cell Sensing
H. Xu, Z. Aguilar, H. Wei and Y. Wang
- 1802 Biological Applications of Engineered Nanoparticles
Z. Aguilar
- 1803 Boronic Acid Modified Electrochemical Sensors for Fructosyl-Valine: A Model Compound of Glycosylated Hemoglobin
H. Chien and T. Chou
- 1804 Electrochemical Impedance Spectroscopy Studies of *hippuricase* Gene Hybridization for *Campylobacter jejuni* Specific Detection
T. Gnanaprakasa, V. Pedrosa, E. Olsen, O. Oyarzabal and A. Simonian
- 1805 Detection of the Liver Disease Related Biomarkers Adenosine Deaminase and Alkaline Phosphatase Using an Ir/C Printed Biosensor
B. Bartling, J. Wang and C. Liu
- 1806 Detection of Salmonella on Tomatoes Using Phage-Based Magnetoelastic Biosensors
S. Li, S. Huang and B. Chin
- 1807 A pH Sensor Based on Ionophore Chitosan for Acidic Mediums
I. Isa
- 1808 Studies on Microbial Toxicity of Quantum Dots
H. Xu, Z. Aguilar, H. Wei and Y. Wang
- 1809 Resonance Elastic Light Scattering and Plasmonic Phenomena in Glutathione-Mediated Gold Nanoparticle Assembly
A. Prance, Z. Reed, M. Stobiecka and M. Hepel
- 1810 Preparation and Characterization of CeF₃ Thin Film for Oxygen Sensor
A. Dorai, S. Subramanian, N. Hellar, S. Ayyasamy and H. Muthusamy
- 1811 Simple Sensor with Amperometric Detection Based on Tyrosinase for the Determination of Phenolic Compounds in Water
P. Nowak, J. Adamski and J. Kochana
- 1812 Improved DNA Biosensor Performance by Using Polysilicon Wire Modified with 3-aminopropyltriethoxysilane and Polydimethylsiloxane-treated Hydrophobic Fumed Silica Nanoparticle Mixture Coating
P. Hsu, J. Lin, Y. Wu, W. Hung and A. Cullis
- 1813 Geometric and Conformational Considerations in Biotransistors
W. Shinwari, M. Deen and P. Selvaganapathy
- 1814 A Model for Mechanical Force Sensing in Conducting Polymers
T. Mirfakhrai, T. Shoa and J. Madden
- 1815 Modeling and Simulation of Transient Phenomena in Electrochemical MHD
D. Sen, K. Isaac and N. Leventis
- 1816 Towards Printable Open-Air Microfluidic Devices
A. Collord, E. Branson, K. Fenton, A. Cook, P. Clem and C. Apblett
- 1817 Development, Optimization and Evaluation of a CF₄ Pretreatment Process to Remove Unwanted Interfacial Layers in Stacks of CVD and PECVD Polycrystalline Silicon-Germanium for MEMS Applications
G. Bryce, S. Severi, R. van Hoof, B. Guo, E. Kunnen, A. Witvrouw and S. Decoutere

- 1818 CIGSS Thin Film Solar Cells by Simple Powder Evaporation Process
J. Suh, K. Song, C. Ham, J. Cho and E. Bae
- 1819 Characterization and On-Chip Device Integration of Energetic Porous Silicon
C. Becker, L. Currano, W. Churaman and C. Stoldt
- 1820 Optimisation of Chemical Sensors Using the Continuous Gradient - High Throughput Screening
Macroscope - CG-HTSM
W. Moritz, A. Tausche, R. Werner, T. Wirth, W. Unger and S. Linke
- 1821 Novel Ruthenium Oxide Based Ambient Temperature Carbon Monoxide Gas Sensor
A. Adeyemo and P. Dutta
- 1822 Comparison Between Nafion and Polybenzimidazole (PBI) Membranes for Fuel Cell CO Sensor
K. Mochizuki, T. Kikuchi, M. Sudoh, Y. Ishiguro and T. Suzuki
- 1823 A Comprehensive Study on the Effect of Thin Film Microstructure on Vapor Sensing Behavior of Carbon-
Based Polymeric Conductive Nanocomposites
P. Molla-Abbasi, E. Danesh and S. Ghaffarian
- 1824 Proton Motion in a Polyelectrolyte: A Probe for Wireless Humidity Sensors
O. Larsson, X. Wang, M. Berggren and X. Crispin

J2 - Electrochemical Nano/Bio Sensors 2

*Sensor / Physical and Analytical Electrochemistry / Organic and Biological Electrochemistry /
High Temperature Materials*

- 1825 Novel DNA-Hybridization Biosensors for Studies of DNA Underwinding Caused by Herbicides and
Pesticides
M. Stobiecka, K. Coopersmith, S. Cutler and M. Hepel
- 1826 Designing a New Generation of Electrochemical Biosensors for the Detection of *Pseudomonas aeruginosa*
Y. Enríquez, Y. Negrón and A. Guadalupe
- 1827 Highly Sensitive Amperometric Biosensors for Phenols Based on Polyaniline/carbon Nanotube Composite
Modified Electrodes
V. Branzoi, F. Branzoi, B. Cioaca and L. Pilan
- 1828 Comprehensive Study of Pd/GaN Metal-Semiconductor-Metal Hydrogen Sensors with Metal-Oxide
Mixture
T. Huang, S. Chen, K. Huang, Y. Chu, H. Chang, Y. Lee, C. Wu, W. Lour and M. Wu
- 1829 Cadmium-Free Quantum Dots for Cell Imaging
H. Xu, L. Li, Z. Aguilar, H. Wei and Y. Wang
- 1830 Multilayer Silver Nanoparticles Modified Optical Fiber Tip for High Performance SERS Remote Sensing
M. Fan, G. Andrade and A. Brolo
- 1831 Spectroelectrochemical Investigation of the Heterogeneity of DNA Monolayers on Gold Using In Situ
Fluorescence Microscopy
J. Murphy, A. Cheng, H. Yu and D. Bizzotto
- 1832 Evaluation of Electrochemiluminescent Metabolic Toxicity Screening Arrays with Multiple Compounds
S. Pan, L. Zhao and J. Rusling
- 1833 Design Tools for Characterization of Microeddy Hydrodynamic Tweezers
T. House, V. Lieu, B. Lutz and D. Schwartz
- 1834 Nanomaterial Interfaces at Electrochemical Carbon-Based Sensors for DNA Damage Detection
J. Labuda, D. Simkova, K. Benikova, A. Ferancova and V. Vyskocil
- 1835 Morphological Study and Utilization of Galvanostatically Deposited Ultra-thin Polypyrrole-Glucose
Oxidase Film for Potentiometric Detection of Glucose
J. Ayenimo and S. Adeloju

- 1836 Enhancement of Electrocatalytic Activity of DNA-Conjugated Gold Nanoparticles and Its Application to DNA Detection
J. Das, K. Jo and H. Yang
- 1837 Impedance-Based Sensor Using Gold Nanoparticle-Ar h 2-2 Film for Detection of Anti-Peanut IgE Allergy Biomarkers
H. Liu, R. Malhotra, M. Peczuh and J. Rusling
- 1838 Direct Electrochemistry Based H₂O₂ Biosensors
C. Li, C. Guo and S. Bao
- 1839 Glassy Carbon Paste Composite Electrodes for the Electroanalytical Determination of Ciprofloxacin Antibiotic
A. Alsharaa
- 1840 Electrochemical Biosensor Utilizing Nitrogen-Incorporated Nanodiamond Ultra-Microelectrode Array
S. Raina, W. Kang, J. Davidson and J. Huang
- 1841 Size- and Shape-Dependent Electrochemical Stability and Biosensing Properties of Surface-Attached Metal Nanostructures
F. Zamborini, O. Ivanova and S. Beeram
- 1842 Nanofabrication of Robust Nanoelectrodes for Electrochemical Applications
K. Dawson, J. Strutwolf, D. Arrigan, A. Quinn and A. O'Riordan
- 1843 Graphene Nanosheet Composed Functional Electrodes for Biosensing Applications
S. Alwarappan and C. Li
- 1844 Electrochemical Gene-Function Analysis for Single Cells with Addressable Microelectrode/Microwell Arrays
T. Matsue, Z. Lin, Y. Takahashi, K. Ino and H. Shiku
- 1845 Multianalyte Microphysiometry: Electrochemistry in Very Small Volumes
D. Cliffl, J. McKenzie and L. Hiatt
- 1846 Magnetic Bead Detection Spin Valve Sensors for Cellular Analysis
J. Suh, K. Song, C. Chae, J. Kang and K. Kim
- 1847 SERS Sensor Design for Extracellular Product Detection
I. Nwaneshiudu, Q. Yu and D. Schwartz
- 1848 Microeddy Single-Cell Trapping with Embedded SERS Nanosensors for Extracellular Product Detection
V. Lieu, I. Nwaneshiudu, T. House, Q. Yu, B. Lutz and D. Schwartz
- 1849 Growth of ZnO Nanorods and Its Potential Application as Intracellular Potentiometric Selective Ion Sensor
M. Asif, N. Alvi, O. Nur, M. Willander, P. Strålfors and F. Elinder