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Table of Contents

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

A0 - Special Lectures

- 1 (Olin Palladium Award of the Electrochemical Society) The Use of Renewable Energy in the form of Methane Via Electrolytic Hydrogen Generation
K. Hashimoto

A1 - General Student Poster Session

All Divisions

- 2 Investigation of Lithium-Ion Battery Performance under Applied Mechanical Load
S. D. Trendafilova, I. Kerkamm, and M. Kamlah
- 3 Electrochemical Impedance Spectroscopy of a Porous Graphite Electrode Used for Li-Ion Batteries with EC/PC Based Electrolytes
C. L. Foss, A. Svensson, and F. Vullum-Bruer
- 4 Sonochemically-Synthesized PtNi and PtCu Bimetallic Nano-Electrocatalysts for Oxygen Reduction Reactions in Proton Exchange Membrane Fuel Cells
C. Gümeçi, D. Cearnaigh, C. Korzeniewski, and D. Casadonte Jr.
- 5 Effect of Dispersive Condition and Size for the Activation of ZnS Photocatalysts with Stratified Morphology
M. Sasaki, H. Takahashi, and K. Tohji
- 6 Synthesis of Bi-Te-X (X=Sn, Sb) Tertiary Thermoelectric Alloy Nano Particles by Precise Control of Metal Complexes Structures
M. Muramatsu, T. Yamasuge, H. Takahashi, and K. Tohji
- 7 Synthesis Method of Bi-Te Binary Alloy Nanoparticles by Utilizing the Metal Complex Calculation
M. Muramatsu, T. Yamasuge, H. Takahashi, and K. Tohji
- 8 Effect of the Morphology for the Degradation Ability Against to the Environmental Pollutant Source
M. Sasaki, Y. Suito, T. Hayashi, H. Takahashi, and K. Tohji

- 9 Synthesis of Na_xCoO_2 Phases Via a Combinatorial Solution-Based Method
R. I. Fielden and M. N. Obrovac
- 10 Electrochemical Impedance Study of Two Kinds of Biofuel Cell Cathodes
S. Ogawa, I. Shitanda, M. Itagaki, and K. Watanabe
- 11 Investigation of Immobilized Support Material for Screen-Printed Algal Biosensor
S. Terada, I. Shitanda, M. Itagaki, and K. Watanabe
- 12 Studies on Mass Transport of Additives in Through-Silicon via Filling by Copper Electrodeposition
S. Lurette, M. Maher, and R. Wilson
- 13 Characterization of $\text{Sr}_{1-x}\text{La}_x\text{Ti}_{1-y}\text{Cr}_y\text{O}_{3-\delta}$ -GDC Composite Anodes for Direct Use of CH_4 in SOFC
C. Cho and K. Lee
- 14 Fabrication of Dye Sensitized Solar Cells Using Electrostatically-Injected Droplet Method Induced
A. Ishii, S. Tokunaga, Y. Yano, A. Fukasawa, S. Umezu, and Y. Kunugi
- 15 Effect of Heat Treatment on High Sensitivity of Al_2O_3 Sensing Membrane Using the ALD for pH-ISFET
S. Ryu, S. Lee, Y. Moon, and S. Choi
- 16 Investigation of Thin Film Solar Cell Characteristics with Varying Thickness of a-Si:H and a-SiGe:H in the Intrinsic Layer
A. Kim, S. Lee, W. Son, and S. Choi
- 17 Investigation of a-SiGe:H Thin Film Solar Cell with Graded GeH_4 Flow Rate in the Intrinsic Layer
H. Jung, W. Son, Y. Sohn, and S. Choi
- 18 Synthesis and Characterization of Polymer Anion Exchange Membranes for Fuel Cell Applications
M. A. Vandiver, A. Maes, J. Horan, M. Liberatore, and A. M. Herring
- 19 Preparation of Doped LiFePO_4 with Enhanced Conductivity by Nozzle-Spray-Pyrolysis
M. Jüstel, M. Weiss, H. Krome, and M. Binnewies
- 20 Characterization of Pretreated $\text{Co}(\text{OH})_2$ -Coated $\text{Ni}(\text{OH})_2$ Positive Electrode for Ni-MH Batteries
H. Otsuka, M. Chiku, E. Higuchi, and H. Inoue
- 21 Electrodeposition Process of Pt Ultrathin Layer on Au(111) Electrode Surface
M. Shibata, T. Sakurai, T. Masuda, K. Uosaki, and T. Kondo
- 22 Construction of Sensing System for Atrazine Using Au(111) Electrode Modified with Self-Assembled Monolayer of Mercaptohydroquinone
N. Umezawa and T. Kondo

- 23 Relaxation Phase Analysis for Li Inserted Li-Mn-O Electrode Material
I. Seo, S. Park, and T. Yao
- 24 Formation of Aluminide Coatings by Al Electrodeposition from Dimethylsulfone-Based Electrolyte and Subsequent Annealing
S. Shiomi, S. Tajikara, M. Miyake, and T. Hirato
- 25 Electrochemical Deposition and Dissolution Behavior of Magnesium Metal in Ether-Based Electrolyte Solutions
K. Asaka, F. Sagane, K. Miyazaki, T. Fukutsuka, T. Abe, K. Nishio, and Y. Uchimoto
- 26 Discharge Mechanism of Na/MoS₂ Cell at Room Temperature
J. Kim, J. Park, T. Nam, K. Kim, J. Ahn, G. Wang, and H. Ahn
- 27 Thermal Characteristics of a FeF₃ Cathode via Conversion Reaction Comparison with LiFePO₄
M. Zhou, L. Zhao, S. Okada, and J. Yamaki
- 28 Analysis of Electrochemically Inserted Lithium in Metal Electrodes
P. Bach, A. Seemayer, and F. U. Renner
- 29 Magnetostrictive Fe_xGa_{1-x} Thin Films Fabricated by Electrodeposition
F. Zhao and S. Franz
- 30 Ion Transport in Ionic Polymer Actuators Using In Situ Time-Resolved Infrared Spectroscopy
F. W. Richey and Y. A. Elabd
- 31 Non-Carbon Supports for Energy Applications
Y. Liu and W. E. Mustain
- 32 Evaluation of the Electrokinetic Remediation of the Montmorillonite Polluted with Phenanthrene Using IrO₂ - Ta₂O₅ / Ti
E. Méndez Albores and E. Bustos
- 33 Field Emission and Optical Properties of Sharp Zinc Oxide Nanorods by Oxygen Plasma Treatment
I. Yao, S. Huang, T. Tseng, and P. Lin
- 34 Wet Chemical Synthesis of Nanostructured Molybdenum Disulfide Catalysts for Electrochemical Hydrogen Production
J. Benck, Z. Chen, and T. F. Jaramillo
- 35 Addition and Influence of Zirconia to Transition Metal Oxide Electrocatalysts in Alkaline Media
N. Spinner and W. E. Mustain
- 36 Unipolar Resistive Switching Behaviors of CoO/ZrO₂ Thin Films
D. Lee, J. Wu, and T. Tseng

- 37 Nickel Nitride Thin Film Synthesized in Low-Temperature as a Pt-Free Counter Electrode for DSCs
S. Park, J. Kim, J. Lim, J. Shin, J. Choi, and Y. Sung
- 38 Anodic Etching of InP Substrate through Photoresist Mask Formed by Sphere Photolithography
J. Iwata, H. Asoh, and S. Ono
- 39 Electrochemical Stability of Ta-CNO Electrocatalyst with Carbon for Oxygen Reduction Reaction
Y. Fujita, S. Mitsushima, A. Ishihara, K. Matsuzawa, and K. Ota
- 40 Cu Electrodeposition on Ru Layers Deposited by Physical Vapor Deposition or Atomic Layer Deposition
M. Sin, T. Lim, K. Kim, J. Kim, and O. Kwan
- 41 Characteristics of In Situ Hydrogen Treated SiN_x films for Gate Dielectric of Silicon-Based Bottom Gate TFTs Fabricated at a Low-Temperature(≤ 150 {degree symbol}) by Cat-CVD
K. Keum, K. Lee, J. Hwang, K. No, J. Park, S. Kang, and W. Hong
- 42 Enhanced Ionic Conductivity of Ceria-Based Electrolytes by the Microstructure Control through the Addition of Highly Conducting Phases for Intermediate Temperature SOFCs
J. Kim, N. Kim, K. Kim, and J. Park
- 43 Durability Improvements through Advanced Start-Up and Shut-Down Logics on Polymer Electrolyte Membrane Fuel Cells
K. Park, M. Yang, H. Choi, and J. Park
- 44 Mitigation Techniques of the Reaction Intermediates and By-Products on Direct Methanol Fuel Cells
K. Park, M. Yang, and J. Park
- 45 Electrochemical Behavior of Graphite Negative Electrode in Electrolyte Solutions Containing Anion Receptors
F. Yamane, K. Miyazaki, T. Fukutsuka, and T. Abe
- 46 Preparation of LiMnPO₄ Thin-Film Electrodes and their Electrochemical Properties
T. Nakagawa, K. Miyazaki, T. Fukutsuka, and T. Abe
- 47 Anion Conductivities of Mg-Al Layered Double Hydroxides with Different Cation Compositions
Y. Asada, K. Miyazaki, T. Fukutsuka, and T. Abe
- 48 Electrical and Photoresponse Characteristics of Titanium Contact for n-type N-Face GaN Prepared by ELOG and Laser Lift-Off
D. Kim, C. Lee, Y. Kwon, J. Yun, H. Lee, and S. Hahm
- 49 The Electrochemical Enhancement of LiFePO₄ via Metal Oxide and Carbon Co-Coating
J. Lee and R. Singh

- 50 Node-Free Carbon Nanotube by Multi-Step Growth
C. Chiang, Y. Wei, W. Tsai, and H. Cheng
- 51 Effect of Ethylene Glycol Addition to the Electrolytes on Dielectric Properties of Anodic Films Formed on Niobium
C. Higaki, H. Asoh, and S. Ono
- 52 Hybrid Proton-Conductors Based on 3-Glycidoxypyltrimethoxysilane and Water-Insoluble Heteropolyacid
J. Cho, S. Park, M. Seo, and Y. Park
- 53 Fabrication of Proton Exchange NASICON Thin Film
H. Yoon, S. Park, and Y. Park
- 54 High-Temperature Proton-Conducting ZrO_2 - P_2O_5 Glass Thin Films
J. Kim, S. Park, and Y. Park
- 55 Fabrication of Biodegradable Porous Silica Nanorods
S. Lee, S. Park, W. Ryu, and Y. Park
- 56 High Efficiency and Low Cost Solar Cell Electrode Using Selective Electrode Formation Process
D. Kwon, S. Kim, C. Kim, and S. Pyo
- 57 Investigations on the Activity of Pt(111) Surfaces at Temperatures Down to 120K
T. Brülle and U. Stimming
- 58 Iron Electrodeposition from NTf_2^- Based Ionic Liquids - Effects of the Cation
L. Lodovico, V. L. Martins, T. Benedetti, and R. M. Torresi
- 59 Synthesis and Electropolymerization of a New Ionic Liquid Electropolymerizable
F. R. Scremin, R. Torresi, and F. Camilo
- 60 A Comparative Study of Au Grown by Pb UPD Assisted Methods (Surface Limited Redox Replacement, Surfactant Mediated Growth) and Overpotential Deposition
C. W. Mitchell, M. Fayette, and N. Dimitrov
- 61 Effects of Ga, Mn, and Sn on Corrosion Properties of Aluminum Ternary Alloys for an Anode Material of Aluminum-Air Battery in 4 M KOH Aqueous and Ethanol Solutions
H. Lee and H. Jang
- 62 Deposition of Pt-Ru Catalysts onto Micromesoporous Mo_2C Derived Carbon Support and Electroreduction of Oxygen
K. Vaarmets, E. Härk, J. Nerut, I. Tallo, H. Kurig, J. Eskusson, and E. Lust
- 63 Studying the Cation Ordering before and after Thermal Aging of $Li_yNi_{1-x}Mn_xO_2$ ($y < 1$; $x = 0.3, 0.5, 0.7$)
D. Mohanty and J. Wiley

- 64 Solution Conductivity Measurements of Cationic Moieties: Applications in Alkaline Ion Exchange Membranes for Fuel Cells
H. N. Sarode and A. Herring
- 65 Synthesis and Spectroelectrochemical Characterization of PEDOT:PSS and Gold Nanoparticles Composite Films Prepared by Electrophoretic Deposition
T. Augusto, S. I. Cordoba de Torresi, and M. Vidotti
- 66 Using Activated Esters to Control the Surface Modification of Solid Conducting Surfaces
S. Abbas, C. McTiernan, and M. Chahma
- 67 A Computational Study on the Effect of Water Molecules on Uncatalyzed Ammonia Oxidation
L. Mai, D. A. Daramola, and G. Botte
- 68 On the Theoretical Characterization of Nickel (II) Hydroxide for Hydrogen Production from Urea
D. A. Daramola and G. Botte
- 69 Nickel/Cobalt Bimetallic Hydroxide Catalysts for Urea Electro-oxidation
W. Yan, D. Wang, and G. Botte
- 70 CF/PAni/MWNT Composites Material, A Novel Electrode to Supercapacitor
D. A. Almeida, C. Fonseca, M. Baldan, and N. Ferreira
- 71 Synthesis and Electrochemical Properties of Metal Oxide/Reduced Graphene Oxide Nanocomposites for Electrochemical Capacitor Applications
J. Kim, K. Kim, and K. Kim
- 72 Electrochemical Urea Sensor by Rhodium Plated Ni-Based Electrode
F. Lu, B. Hassler, and G. Botte
- 73 NO₂ Gas Sensing Using a CF/PAni Composite as Electrode
C. Fonseca, D. A. Almeida, M. Baldan, and N. Ferreira
- 74 Predictive Modeling and Inference in Solid Oxide Fuel Cells
N. Galagali and Y. Marzouk
- 75 MoNi Electrodeposition with High Mo Content
S. Sun and E. Podlaha-Murphy
- 76 Lanthanum Titanate Nanosheets as Visible-Light Photocatalyst for CO₂ Conversion
F. Meng and N. Wu
- 77 Electrochemically Fabricated Nickel-Tungsten Nanowires
T. Bairachna and E. Podlaha

- 78 Small Angle X-ray Scattering Study of Perfluorosulfonic Acid Membranes for Fuel Cell Applications
Y. Liu, J. Horan, G. Schlichting, S. Hamrock, G. M. Haugen, S. Seifert, and A. M. Herring
- 79 Studies on the Electrochemical Detection of Dopamine at a Polymer Film Deposited from an Ethanol Solution
P. Moorhead, D. Rooney, and C. Breslin
- 80 Increased Performance Of Alkaline Batteries Modified with Magnetic Micro-Particle
P. Motsegood and J. Leddy
- 81 Formation of Syngas from Mixture of Carbon Dioxide and Methane in Atmospheric Pressure Plasma System
K. Park, S. Kim, H. Son, and W. Lee
- 82 Discharge Properties of Torch-Type Atmospheric Pressure Plasma and its Local Disinfection of Microorganism
H. Son, D. Shin, H. Kwon, and W. Lee
- 83 Effects of Ammonium Fluoride and Ethanolamine in Aqueous Solutions on Dissolution of Copper Oxide
C. Ko and W. Lee
- 84 Charge Storage Mechanism of $\text{FePO}_4 \cdot n\text{H}_2\text{O}$ /Carbon Nanotube Nanocomposite for Hybrid Capacitors
J. Jegal, J. Kim, and K. Kim
- 85 Effects of Contaminants and Crossover on Cathode Performance
M. S. Naughton, G. Gu, and P. Kenis
- 86 A Study on the Buffering Role of Graphene in SnO_2 Nanocomposite Using Electrochemical Dilatometer
Y. Kim and K. Kim
- 87 Noncontact Copper-Electrochemical Mechanical Planarization (ECMP) Characteristics for Defect-Free Process
K. Myung and N. Kim
- 88 High Rate Capability of Spinel LiMn_2O_4 /Graphene Nano-Hybrids for High Power Energy Storage Devices
S. Lee, S. Bak, and K. Kim
- 89 Electron-Accepting Properties of Fullerenes at the Interface of Two Immiscible Electrolyte Solutions
T. Hayashi, T. Okugaki, H. Takahashi, K. Maeda, and K. Tohji
- 90 Metal Composite Electrolyte Using Non-Pd Hydrogen Permeable Alloy for ITFC
S. Park and Y. Park

- 91 Real-Time Gas Analysis of Reaction Products in an Electrochemical Cell
E. Cave, K. Kuhl, and T. F. Jaramillo
- 92 Fabrication of Copper Nanoribbon Arrays in Organic Solution as Novel Substrates for Lithium-Ion Batteries
W. Diao, F. Ke, and X. Zhou
- 93 Mechanistic Studies of Electrochemical Reduction of CO₂
F. Ke, J. Wu, and X. Zhou
- 94 Electrochemical Characterization of Novel Redox Mediating Systems for Potential Application in Dye-Sensitized Solar Cells
D. Marks, I. Rutkowska, and P. Kulesza
- 95 Nanostructured Electrocatalytic Materials for Low-Temperature Fuel Cells: Activation of Palladium Sites with Metal Oxo Species
J. Jedraszko, I. Rutkowska, and P. Kulesza
- 96 Analysis of Methanol Oxidation Reaction on PtMo/C Nanostructures Prepared by Microwave Assisted Chemical Synthesis for DMFC Applications
A. Sandoval González and S. Gamboa
- 97 A Study of Methanol Oxidation by Dynamic Electrochemical Impedance Spectroscopy
P. K. Dahlstrom, D. Harrington, and F. Seland

A2 - Nanotechnology General Session

All Divisions

- 98 Gadolinium Induced Structural and Magnetic Changes in BiFeO₃ Nanocrystallites
A. Gautam, K. Singh, K. Sen, S. Sharma, and M. Singh
- 99 Electro-Synthesis and Characterization of Polythiophene Nano-Wires/Platinum Nano-Particles Composite Electrodes; Electro-Catalytic Study of the Formic Acid Oxidation
M. A. del Valle, M. A. Gacitua, F. Diaz, J. F. Armijo, and J. P. Soto
- 100 Charge Carrier Dynamics for CdSnO₃-Decorated CdS Nanowires
Y. Lin and Y. Hsu
- 101 Nano/Micro-Structured Semiconductors Fabricated by Anodic Etching Using Sphere Photolithography
S. Ono, S. Kotaka, J. Iwata, and H. Asoh
- 102 Modification and Formation Control of Anodic Aluminum Oxide (AAO) Nano-Templates Synthesized in Oxalic Acid Solution
M. Soltani, M. Paydar, M. Moradi, F. Behzadi, F. Homayoon-nia, and M. Noormohammadi

- 103 Formation of Nickel Nanowires by Electroless Deposition
M. Kawamori, S. Yagi, and E. Matsubara
- 104 Formation of the Composite of FePt/Fe₂O₃ Core-Shell Nanoparticles and Carbon Nanotube and their Applications
Y. Baek, Q. Hu, J. Lee, D. Kang, J. Yoo, C. Kang, Y. Lim, H. Lee, and T. Yoon
- 105 Stabilization of Cu Metal Particles Surface by the Formation of Copper Bromide Single Layer Utilizing the Chemical Reaction between Surface Oxide Layer and Halogen Surfactant
S. Yokoyama, H. Takahashi, and K. Tohji
- 106 Metallurgical Preparation of Nano-Sized Cu from a Solid Solution of Rod-Like CuFe₂O₄ : Suitable for Application in High Performance Catalysis
S. Yang, W. Su, and B. Hwang
- 107 Electrocatalysis by Nanoporous Metals from Dealloying of AgAu(Pt) with Systematic Variation of Au to Pt Ratio
A. A. Vega and R. Newman
- 108 Advanced Pt-Bimetallic Electrocatalysts from Organic Solution Synthesis
C. Wang, D. Li, D. van der Vliet, N. Markovic, and V. Stamenkovic
- 109 Synthesis and Electrical Properties of Ultrafine Grained BaCeO₃ Based Proton Conductors
S. Wang, S. Fang, F. Zhao, K. Brinkman, and F. Chen
- 110 Synthesis and Application of Nanostructured Heterogeneous Functional Materials for Energy Systems
Q. Liu, F. Zhao, and F. Chen
- 111 In₂O₃-Decorated Anatase TiO₂ Nanowires with Remarkable Photocatalytic Properties
Y. Chen and Y. Hsu
- 112 Photocatalytic Properties of Cu₂O Polyhedral Nanocrystals
Y. Lin and Y. Hsu
- 113 Reduction of Carbon Dioxide to Liquid Fuel Methanol and Ethanol in CM-n- TiO₂ || Cu and CM-n- TiO₂ || Mo Photoelectrochemical Cells
W. Burke IV, M. Gray, and S. U. Khan
- 114 Ultrasonic Wave Induced Mechanoluminescence
N. Terasaki, H. Yamada, and C. Xu
- 115 Preparation of Silver Nanoparticles Confined in Nafion Membrane by Photoreduction Process
T. Hasegawa, T. Strunskus, V. Zaporozhchenko, F. Faupel, and M. Mizuhata
- 116 Vertical Self-Alignment of Ge/Si/Ge Composite Nanolenses on Si(001)
H. Chang and S. Lee

- 117 Electron Transfer Between TiO₂ and ZnO in Nano-Composite Photoanodes for Dye-Sensitized Solar Cells
V. Manthina and A. G. Agrios
- 118 Electrooxidation of Hydrogen Peroxide on Ni/, Ag and Ag-Ni Deposited Carbon Fiber Electrode for Alkaline Fuel Cells
M. Gürbüz, A. Aytac, and A. Sanlı
- 119 Degradation of Dipyrone by Advanced Oxidation Methods Using Cerium Nanostructured Material
M. M. Assumpção, A. Moraes, R. F. de Souza, R. D. Rocha, R. Reis, M. L. Calegari, M. R. Lanza, and M. C. Santos
- 120 Novel Hybrid Nanodiamonds for Solar Cell Applications
Y. Hsiao, T. Fang, L. Ji, and Y. Lee
- 121 High-Purity ZnO Nanoparticles from Fly Ash in Copper Smelting Industry and Its Application as Additive Agent in Alkaline Electrolyte
L. Hsiao and W. Wang
- 122 Trithiapentaceneones, TTPOs: A New Class of Robust Organic Semiconductors
J. Kintigh, J. Hunag, L. Zhou, and G. Milller
- 123 Growth and Morphology of Highly Ordered TiO₂ Nanotube Arrays via Electrochemical Anodization
G. Liu, N. Hoivik, K. Wang, and H. Jakobsen
- 124 Characterization of NiCo, NiFe and NiCoFe Supported on Carbon as Electrocatalysts for Glycerol Oxidation in Alkaline Media
V. L. Oliveira and G. Tremiliosi Filho
- 125 Layer-by-Layer Fabrication of Mixed-Conducting Membranes for Photoelectrochemical Devices
N. R. Davis, M. Walter, N. Lewis, and P. Hammond
- 126 Controlling Biological Activity of Coordination Compounds at Nanoparticle Interfaces
S. Tahmasebi Nick, B. Bejcek, and S. O. Obare
- 127 Synthesis and Potential Application of Nanoalloys by Using Molecular Precursors
H. Choi, S. Lee, S. Lee, T. Chung, and C. G. Kim
- 128 ZnO-Based Transparent Electrodes for LCDs
N. Yamamoto, H. Makino, K. Morisawa, and T. Yamamoto
- 129 Fabrication and Characterization of Fluorine-Doped Tin Oxide (SnO_x:F) Thin Films on Micro-Textured PMMA by Using ECR-MOCVD
X. Liu, J. Park, Y. Kwon, H. Choi, and J. Lee

- 130 Effect of the Preparation Conditions on the Structures and Electrochemical Properties of Pt/C Catalyst
P. Akbal, A. Aytaç, and A. Ata
- 131 Fabrication of Nanostructured Materials for Monitoring Glucose in Blood
I. M. Ismail
- 132 Synthesis of Monodispersed PtAg Porous Alloy Nanocapsules: An Alternative Oxygen Reduction Catalyst for Fuel Cells
X. Gu, R. Wang, H. Wang, and Y. Ding
- 133 Substituent Effects on the Electrochemical Properties of Acenes for the Design of Organic Electronic Devices
J. Hodgson and G. Miller
- 134 Constructing Dye-Sensitized Solar Cells with Novel Titania Architectures via Biotemplated Nanomaterials
R. Ladewski, R. Miller, P. Chen, A. Belcher, and P. Hammond
- 135 Selective Growth and Characterization of a SnO₂ Nano-Wire by Employing DNA-Templated Gold Nanoparticle Chains
J. Heo and H. Kim
- 136 Polymer Membrane with Mixed Proton and Electron Conductivity
J. Liu, N. R. Davis, D. Liu, and P. Hammond
- 137 Electrochemical Properties of Metallic Nanoclusters
L. Ariyadasa, N. Masika, and S. O. Obare
- 138 Processing and Properties of High-Entropy Alloys and Micro- and Nano-Wires
Y. Zhang, X. Yang, Y. Zhao, S. Ma, and W. Liao
- 139 Quantum Confined MoS₂ Nanoparticles for Band Gap Engineered Photoelectrochemical Water Splitting
Z. Chen and T. F. Jaramillo
- 140 Structure and Dynamics of III-V Semiconductor-Water Interfaces for Photoelectrochemical Hydrogen Production
B. C. Wood, T. Ogitsu, and E. Schwegler
- 141 Ambient Atmospheric Stability of Organic Thin Films on Metal Alloys
R. Bhure, T. Abdel-Fattah, and A. Mahapatro
- 142 Magnetic Solid-Core and Hollow Polymeric Nanostructures: Synthesis, Physicochemical Characterization and Biological Applications
K. Kijewska, P. Majewski, M. Mazur, and P. Krysiński
- 143 Carbon Nanotube Nanofluidics
S. Shadmehr and S. Tang

- 144 Chemically Sensitive Imaging of Nanomaterials with Scanning Transmission X-ray Microscopy
A. P. Hitchcock
- 145 Residual Stress Distribution and Reliability Implications in AlGaN/GaN HEMTs
S. Choi and S. Graham
- 146 Atomistic Simulations of Early Stages of Oxidation and Oxide Growth on Ni-Al Metal Alloy Nanoclusters
R. Subbaraman and S. Sankaranarayanan
- 147 Carbon - Silicon Nanocomposite Anodes for Lithium-Ion Batteries
G. Yushin
- 148 Stable Resistive Switching Characteristics in Sol-Gel Derived Bi₄Ti₃O₁₂ Memory Film with Embedded Cr Layer
M. Wu, M. Lin, Y. Huang, C. Huang, and T. Tseng
- 149 The Electrical Properties and Defect Equilibria of Nanoparticulate Powders
J. Engel, S. Bishop, and H. Tuller

A3 - Electrochemical Energy Summit - An International Summit in Support of Societal Energy Needs
All Divisions

- 151 Rechargeable Batteries for the 300-Mile Electric Vehicle and Beyond
K. Abraham
- 152 Hydrogen and Fuel Cell Technology Demonstrations in Developing Countries: Turkey Example
M. Yazici, N. Lymberopoulos, and M. Hatipoglu
- 153 Renewable Hydrogen Production from Carbon-Free Sources
K. E. Ayers, L. Dalton, and E. Anderson
- 154 Electrochemical Processes to Mitigate the Effects of CO₂ Emissions
Y. Kiros, G. Zangari, M. Berrettoni, S. Marini, P. Nelli, R. Pesenti, P. Salvi, and M. Villa
- 155 Electrochemical Energy Storage for Green Grid: Status and Challenges
Z. Yang
- 156 Ethanol as a Fuel for Future Applications in Intermediate Temperature Fuel Cells
N. Kluy, J. Brumbarov, C. Rüdiger, O. Paschos, T. Brülle, F. Maglia, J. Kunze, O. Schneider, and U. Stimming
- 157 Applied Research on Electrochemical Power Sources for the Sustainable Supply of Electrical Energy
J. Tübke, K. Pinkwart, C. Cremers, D. Bayer, T. Berger, J. Noack, and M. Hagen

- 158 Bioelectrocatalysis for Energy Conversion
S. D. Minteer
- 159 StandUp for Energy - Strategic Research for Renewable Electricity Production, Smart Grids and Sustainable Transportation
K. Edström
- 160 Solid Electrolytes to Enable Lithium, Lithium-Sulfur, and Lithium-Air Batteries
N. J. Dudney, W. Tenhaeff, C. Liang, and A. Sabau
- 161 Development of Functional Materials for Electrochemical Science and Energy Technology: Network Films of Carbon and Noble Metal Nanostructures Modified with Inorganic Molecules
P. Kulesza
- 162 Micromagnets in Electrochemical Energy Systems: A Design Paradigm for Generation and Storage
H. Lee, G. G. Lee, W. Gellett, P. Motsegood, and J. Leddy
- 163 Fulleropyrrolidine Derivatives as an Acceptor Molecule in a Thin Layer Organic Solar Cell
K. Matsumoto, K. Yoshimura, Y. Uetani, S. Hayase, M. Kawatsura, and T. Itoh
- 164 A Non-Precious Metal Catalyst for Oxygen Reduction Reaction in Alkaline Solution
X. Zhongping and S. Yujun
- 165 NanoSi-Coated Graphene Granules as Anodes for Li-Ion Batteries
K. Evanoff, A. Magasinski, J. Yang, and G. Yushin
- 166 Counter Electrode Fabrication by Wet Processes for Dye-Sensitized Solar Cells
C. Lin, J. Lan, J. Lin, T. Wei, and C. Wan
- 167 Development and Investigation of a 9-Cell PEM Stack for Water Electrolysis
V. Baglio, S. Siracusano, G. Monforte, N. Briguglio, G. Brunaccini, A. Di Blasi, A. Stassi, R. Ornelas, E. Trifoni, V. Antonucci, and A. Aricò
- 168 Electrochemical Characteristics of Metallic Bipolar Plate Coated with Multi-Layered Metal/Metal Nitrides in Polymer Electrolyte Membrane Fuel Cell (PEMFC)
J. Lee and I. Oh
- 169 Porous Composite Cathodes for Anode Supported Solid Oxide Fuel Cells
J. Kim, H. Jin, Y. Park, and H. Kim
- 170 Study of Alkaline Water Electrolysis
A. Manabe, T. Hashimoto, and M. Kashiwase
- 171 3D Technology Platform for Production of Lithium Batteries
J. Prochazka, L. Kavan, M. Zukalova, and J. Postler

- 172 How to Make Hydrogen from the Sun: Cu₂O and Fe₂O₃ Modified TiO₂ Nanotubes for Photoelectrochemical Solar Cells
L. Tsui, L. Wu, N. Swami, and G. Zangari
- 173 Microbial Tango with *Shewanella Oneidensis*: Design Elements and Application of a Novel Renewable Energy Source Using Wastewater Containing Organic Compounds
H. E. Braustein and J. Rishpon
- 174 Synthesis and Characterization of La_{0.8}Sr_{0.2}MnO₃ Nanoparticles for Solid Oxide Fuel Cells
V. Channu, R. Holze, and E. Walker Jr.
- 175 Developing the High Performance Electrochemical Hydrogen Storage Alloys
M. Anik
- 176 Modifications in Nernst-Planck Equation in Solid State Electrochemistry for the 21st Century
T. Miyashita
- 177 Novel Oxygen Ion Transport Membranes Based on LGBS Materials
V. V. Belousov
- 178 Nanostructured Bioanodes Containing Enzymes and Gold/Pt Nanoparticles for Ethanol Biofuel Cells
S. Aquino Neto, T. Almeida, F. Cardoso, L. Palma, and A. R. De Andrade
- 179 Si Nanowire in Ionic Liquid Electrolyte for Stable, High Capacity Based Li-Ion Battery
V. Chakrapani, F. Rusli, M. Filler, and P. A. Kohl
- 180 Study of Flow Rate and Temperature Variations in a Segmented SOFC
C. Willich, G. Schiller, U. Maier, and K. Friedrich
- 181 A Novel Pathway for Development of Next Generation Li-Ion Cathode Materials
J. Shi and W. Sun
- 182 Material Strategies for High Power, High Energy Density Lithium Based Batteries
E. Takeuchi, A. C. Marschilok, and K. Takeuchi
- 183 Synthesis of Lithium Malonate Difluoro Borate (LiMDFB) and Lithium Bis(Trifluoromethanesulfonyl)Imide (LITFSI) Based Single Ion Conductor and its Electrochemical Performance
L. Yang, P. F. Driscoll, M. Gervais, R. A. Potrekar, J. Cheng, and J. B. Kerr
- 184 Pressurized Solid Oxide Fuel Cells with Reformate as Fuel
C. Willich, C. Westner, S. Seidler, M. Henke, F. Leucht, J. Kallo, W. Bessler, U. Maier, and K. Friedrich
- 185 Optimizing Performance of Dye-Sensitized Solar Module under Fluorescent Light Condition
J. Lan, T. Wei, Y. Chang, W. Hsu, H. Cheng, and C. Wan

- 186 Ionic Mass Transfer Phenomenon in the Vicinity of Li Metal Electrode
Y. Fukunaka, T. Mori, T. Nishida, and K. Nishikawa
- 187 Laccase Immobilization with PAMAM Dendrimers for Biocathode Application
F. Cardoso, S. Aquino Neto, V. Zucolotto, P. Ciancaglini, and A. R. De Andrade
- 188 Multi-Wall Carbon Nanotubes Based Counter Electrodes for Dye-Sensitized Solar Cells by Electrophoretic Deposition
C. Lien, J. Lin, T. Wei, and C. Wan
- 189 Photoelectrochemical Water Splitting by Applying a Reaction Criterion of Photochemical System II in a Plant
K. Fujii, S. Nakamura, S. Yokojima, T. Goto, T. Yao, M. Sugiyama, and Y. Nakano
- 190 Synthesis of New Catalyst Design for Proton Exchange Membrane Fuel Cell
A. Ferrandez, C. Coutanceau, S. Baranton, and P. Buvat
- 191 Improved Power Density of Ni-SDC Anode Supported Solid Oxide Fuel Cells Using Doped LaGaO₃ Electrolyte Film Prepared by Screen-Printing Method
J. Hong, T. Inagaki, S. Ida, and T. Ishihara
- 192 Preparation of Pt/IrO₂ Nanosized Electrocatalysts by a Modified Ultrasonic Polyol Method for Application in a URFC
J. C. Cruz, V. Baglio, S. Siracusano, V. Antonucci, A. Arico, R. Ornelas, and L. Arriaga
- 193 Transparent Oxide Less (TCO-Less) Dye-Sensitized Solar Cells
J. Usakawa, K. Uzaki, T. Kogo, Y. Ogomi, S. Pandey, and S. Hayase
- 194 Importance of Low Coordinating Anion for Developing Lithium Secondary Batteries Using Ionic Liquids
H. Matsumoto, N. Terasawa, H. Sakaebe, S. Tsuzuki, H. Valencia, M. Kohyama, and K. Tatsumi
- 195 Nano Facilitated Charge Transfer for an 11 Electron Redox Couple for Anodic Charge Storage: VB₂
C. Hettige, J. Lau, J. Asercion, H. Wu, B. Wang, and S. Licht
- 196 Investigation of CO₂-H₂O Reduction Systems: Production of Syn-Gas Mixtures
T. E. Lister, E. J. Dufek, and M. McIlwain
- 197 Electrochemical Investigation of Carbonate Selective Catalyst for Room Temperature Carbonate Fuel Cells
J. A. Vega, M. Ignatowich, M. Chhiv, and W. E. Mustain
- 198 Electrodeposition Methods for Copper Indium Gallium Selenide (CIGS) Films
S. Lastella, S. Aksu, A. Kleiman-Shwarscstein, and M. Pinarbasi

- 199 Observation of Li Plating in Thin-Film Rechargeable Lithium Battery
Y. Sabi, S. Hayashi, H. Morioka, M. Adachi, S. Kusanagi, and A. Maesaka
- 200 Computer Modeling of an Energy Storage System Containing Super-Capacitor, Lithium Battery, and Vanadium Redox Flow Battery
K. Hsueh and C. Hsieh
- 201 Dye-Sensitized Solar Cell Fabrication Process by Spray Pyrolysis Deposition as a Thin Film Formation Technique
S. Kaneko, P. Jayaweera, S. Kawasaki, and G. Kumara
- 202 Electrochemical Capacitors for Lower Carbon Energy System
J. Kim
- 203 Novel Electrodes for Supercapacitor Applications
A. Abd El Moneim
- 204 $\text{Pr}_{1.91}\text{Ni}_{0.71}\text{Cu}_{0.24}\text{Ga}_{0.05}\text{O}_4\text{-Ba}_{0.5}\text{La}_{0.5}\text{CoO}_3$ Composite Oxide as an Active Cathode for Intermediate Temperature Solid Oxide Fuel Cells
J. Xie, Y. Ju, S. Ida, and T. Ishihara
- 205 Energy Generation from Seawater
F. Hasan, I. Ahmed Tahiri, H. Muhammad, O. Khaliq, K. Yasmeen, and S. Jahangir
- 206 Sulfone-Based Electrolyte for Aluminum Rechargeable Battery
Y. Nakayama, Y. Senda, K. Takeshi, Y. Kudo, N. Koshitani, H. Kawasaki, and H. Morioka
- 207 Electrochemical Properties of Sodium/Metal Sulfides Cells at Room Temperature
J. Kim, J. Park, T. Nam, K. Kim, J. Ahn, G. Wang, and H. Ahn
- 208 Promising Electrolytes for High Energy and Power Density Supercapacitors
A. Jänes, T. Thomberg, H. Kurig, I. Tallo, and E. Lust
- 209 Nanoscale Metal and Alloy Electrochemical Energy Materials
J. Rohan, N. Holubowitch, M. Hasan, S. Patil, A. Jeyaseelan, D. Casey, and L. Nagle
- 210 Design of Functional Cathode Catalysts for Fuel Cells and Lithium-Air Batteries
C. Zhong
- 211 Effect of the Preparation Methods on the Photoconversion Performance of Ternary Alloys of Cadmium Seleno-Sulfide Sensitizers Used in Nanoporous TiO_2 Solar Cells
A. Sepehrifard, A. Aushana, and S. Morin
- 212 Dye Sensitization of Titanium Dioxide Single Crystals and Study of the Effect of Surface Properties on Photoconversion in Dye-Sensitized Solar Cells
M. Hariri and S. Morin

- 213 Electrochemical Investigation on the Impact of Various Redox Mediators on the Photoresponse of a Photosystem I Modified Electrode
G. Chen, G. LeBlanc, and D. Cliffler
- 214 Oxygen Adsorption and Incorporation Mechanisms on $(\text{La, Sr})_2\text{CoO}_{4+\delta}$ Surfaces
J. Han and B. Yildiz
- 215 Improving Oxygen Reduction Kinetics on Monodisperse Pt_3Ni Nanooctahedra: Towards High Performance Practical Fuel Cell Catalysts
H. Yang, Z. Quan, J. Fang, and S. Zou
- 216 $\text{LiNi}_{0.4}\text{Mn}_{1.6}\text{O}_4$, Carbon Black, Platinum/Electrolyte High Voltage Interfaces: To Evidence the Solvent Effect on the Chemical and Electronic Contributions to the Cathode-Electrolyte Interface Formation
J. Demeaux, M. Caillon-Caravanier, J. Jones, H. Galiano, D. Lemordant, and B. Claude-Montigny
- 217 In Situ Characterization of Ordered Domains of Pt (111) Facets Present in Pt-Carbon Samples by Irreversible Adsorption of Bismuth and its Electrocatalytic Tests
C. Sivakumar and K. Phani
- 218 Selection of Organic Fuels for a Novel Fuel Cell / Flow Battery Energy Storage System
G. Soloveichik, D. Simone, and M. P. Rainka
- 219 Fuel Cell Performances of Bio-Membranes Made of Chitosan-Polyelectrolyte Thin Films and Nanowires into Anodic Alumina Membranes
P. Bocchetta, F. Conciauro, M. Santamaria, and F. Di Quarto
- 220 Carbon Onion Supercapacitors: Influence of Structure and Strategies for Increasing Capacitance
J. K. McDonough, B. Etzold, V. Presser, V. Mochalin, P. Taberna, P. Simon, and Y. Gogotsi
- 221 Novel Electrode Materials for Solid Oxide Fuel Cells
G. Xiao, Q. Liu, and F. Chen
- 222 Mg Recycling from Automotive Mg Scrap
X. Guan, P. Zink, U. B. Pal, and A. Powell
- 223 Eutectic Mixtures of Room Temperature Ionic Liquids for Electrolytes of Electric Double Layer Capacitors
S. Higashiya, T. Devarajan, M. Rane-Fondacaro, and P. Haldar
- 224 Liquid Hydrocarbons Steam Reforming with Nickel-Alumina Spinel Catalyst for Solid Oxide Fuel Cell Application
I. E. Achouri, N. Abatzoglou, and N. Braidy
- 225 Electrochemical Challenges of Hydrogen Production via the Cu-Cl Hybrid Thermochemical Cycle
E. Easton, S. Ranganathan, and P. Edge

- 226 Use of Computer Electrochemical Laboratories for Effective Interaction between Funding Agencies, Developers and Users of Electrochemical Devices
A. Z. Shekhtman
- 227 Diagnostics of the Self-Discharge in Electrochemical Power Sources
A. Z. Shekhtman
- 228 Non-Precious Metal Cathode Catalysts for Lithium-Air Batteries
G. Wu, K. More, and P. Zelenay
- 229 Very Low Impedance Battery Architecture for Electrified Vehicles
T. D. Kaun
- 230 Construction of Single Screen-Printed Titania Layer DSC Photoanodes via a Novel Dual-Function Paste Formulation and Process
G. P. Demopoulos, C. Charbonneau, and K. Lee
- 231 The Use of Functionalized Super Acidic Metal Oxides in Photochemistry, Fuel Cells, Electrolyzes, and Supercapacitors - Stable Systems for an Oxidizing World
A. M. Herring
- 232 Sandwich-Structured Sn-C Hybrid as Anode of Lithium Ion-Battery
Z. Wen, H. Kim, K. Yu, G. Lu, P. Hallac, J. Jiang, O. Mao, and J. Chen
- 233 Hollow Carbon Nanospheres: Rapid Charge and Low Temperature Lithium-Ion Battery Anodes
M. J. Wagner
- 234 Mesoporous Carbon/Sulfur Composite Cathode for Lithium Batteries
Z. Lin, Z. Liu, W. Fu, N. Dudney, J. Howe, and C. Liang
- 235 $\text{Li}_2\text{S-P}_2\text{S}_5$ Solid Electrolytes for Lithium-Ion and Lithium Sulfur Batteries
Z. Liu, W. Fu, Z. Lin, N. Dudney, A. Payzant, and C. Liang
- 236 Properties of rf Sputtered Co_3O_4 and Electroplated Porous Ni Electrodes for an Immersion-Type Photoelectrochemical Cell
A. Bidurukontham, N. Chigurupati, and W. B. Ingler
- 237 Electrochemical Synthesis of ClSe_xS_y Photovoltaic Absorbers
D. Lee, S. Yoon, and B. Yoo
- 238 Monitoring Plasmon-Assisted Photoexcitation Processes of a Single Molecule at Metal Nanogap
K. Murakoshi
- 239 Influence of Impurities in TiO_2 Coatings on Electrode Potential of Photocatalytic Anode Assembling to Marine Microbial Fuel Cell
S. Motoda, S. Uematsu, and T. Shinohara

- 240 Factors for the Improvement of DMFC Performance
H. Kim, S. Bong, and I. Kim
- 241 All Solid-State Lithium Battery Using Lithium Borohydride
H. Maekawa, K. Takahashi, K. Hattori, and T. Yamazaki
- 242 Kinetics of Oxygen Reduction Reaction on Carbon Alloy Catalysts
P. Wang, Y. Nabae, T. Okajima, M. Kakimoto, S. Miyata, and T. Ohsaka

A4 - Grand Challenges in Energy Conversion and Storage

Electrodeposition, Energy Technology, Physical and Analytical Electrochemistry, Battery, Industrial Electrochemistry and Electrochemical Engineering, High Temperature Materials, Sensor

- 243 Importance of Photovoltaics to Overcome Problems Occurred by Nuclear Power Plant Accident in Japan
M. Yamaguchi and Y. Ohshita
- 244 Electrodeposition Technology for the Fabrication of $\text{CuIn}_x\text{Ga}_{1-x}(\text{Se}_y\text{S}_{1-y})_2$, and $\text{Cu}_2\text{ZnSnS}_4$ Thin Film Solar Cells
H. Deligianni, S. Ahmed, L. Guo, and L. Romankiw
- 245 Solar Energy Conversion Using Inorganic Oxide Semiconductor-Liquid Interfaces: The Road Travelled and the Path Forward
K. Rajeshwar
- 246 Production of Solar-Grade Si from High-Purity SiO_2
T. Nohira, T. Toba, K. Kobayashi, K. Yasuda, R. Hagiwara, K. Masuda, and K. Miura
- 247 Templated Electrodeposition of Si Nanowires from Ionic Liquid
T. Homma, J. Komadina, Y. Nakano, T. Ouchi, T. Akiyoshi, Y. Iishibashi, Y. Nishimura, T. Nishida, and Y. Fukunaka
- 248 Production of Compensation Free SOG Silicon Feedstock by Metallurgical Refinement
Y. Kishida
- 249 Energy Conversion from Heat into Electricity Using Oxide Ceramics
I. Terasaki
- 250 Challenges and Opportunities in Thermoelectric Energy Conversion
G. Chen
- 251 Nearinfrared Dye Sensitization in Bulk Heterojunction Polymer Solar Cells
S. Ito, H. Ohkita, H. Benten, and S. Honda
- 252 Ubiquitous Photovoltaics - Limits and Benefits of Practical Nanostructured Solar Cells
V. Bulovic

- 253 Energy Conversion at Nano Scale
F. Prinz
- 254 Green Hydrogen and Fuel Cells for Future Sustainable Growth
K. Ota
- 255 Important Role of Molten Salt Electrochemical Processes for Energy Conversion and Storage
Y. Ito
- 256 Prospects for Conversion of Elemental Carbon from Fossil or Renewable Sources in Fuel Cells
J. F. Cooper and J. Selman
- 257 Study of an Innovative Energy Storage and Recovery System based on the W/WO₃ Oxidoreduction Reaction
R. Haboury, P. Zink, U. B. Pal, S. Gopalan, and S. Basu
- 258 Challenges of Oxygen Electrocatalysis for Electrochemical Energy Storage
J. Suntivich and Y. Shao-Horn
- 259 Electrodeposition of Pt-(Ni, Co, Cu, Pb) Alloys and Intermetallics for Fuel Cell Applications
T. Moffat, Y. Liu, C. M. Hangarter, L. Yang, S. Hwang, J. Kim, U. Bertocci, J. Bonevich, L. Bendersky, V. Oleshko, J. Shin, and G. Stafford
- 260 Hydrogen Infrastructure Challenges and Solutions
K. E. Ayers, L. Moulthrop, and E. Anderson
- 261 Development of Novel Proton Conductors Consisting of the Solid Acid/Pyrophosphate Composite for the Application in Intermediate-Temperature Fuel Cells
T. Matsui
- 262 Rechargeable Alkaline Metal Batteries with Mixed Amide Electrolytes
R. Hagiwara, T. Nohira, K. Numata, T. Koketsu, T. Yamamoto, T. Fujimori, T. Ishibashi, A. Fukunaga, S. Sakai, K. Nitta, and S. Inazawa
- 263 In Situ Diagnostic Techniques for Energy Storage Devices
D. Scherson and I. Treufeld
- 264 Advanced Diagnostics of Li-Ion Batteries
R. Kostecki
- 265 The Li-Air (O₂) Battery
P. G. Bruce
- 266 Advances in Power Sources for Portable Electronics
P. A. Kohl

- 267 Renaissance of Flow-Battery Technology
M. L. Perry
- 268 Ionic Liquid Doped PVDF Membranes for Electrochemical Applications
V. Channu, R. Holze, and B. Rambabu
- 269 Light Induced H₂O Splitting: Device and Materials Science Issues
W. Jaegermann and B. Kaiser
- 270 New Corrin Catalyst as as Non-Precious Catalyst for Enhanced Oxygen Reduction Reaction
S. Chang, C. Wang, H. Du, L. Chen, and K. Chen
- 271 Performance of a Short Stack for High Temperature Steam Electrolysis Using Solid Oxide Electrolyzer
Y. Yoo, M. Choi, and T. Lee
- 272 Sulfonated Polystyrene-Block-(Ethylene-Ran-Butylene)-Block-Polystyrene (SPSEBS)/SiO₂ Composite Membrane for Water Electrolysis to Generate Hydrogen
S. Parveen J, S. Elamathi, D. Sangeetha, J. Lakshmi, A. Sankari, S. Vasudevan, D. Davidson, G. Sozhan, and S. Ravichandran
- 273 Microwave-Assisted Modified Pechini Method for the Preparation of Nano-Sized, Aluminium-Doped, Carbon Nanotube-Coated Li[Li_{0.2}Mn_{0.54}Ni_{0.13}Co_{0.13}]O₂ Cathode Material for Lithium-Ion Battery
K. I. Ozoemena, O. Fashedemi, C. Jafta, and M. Mathe
- 274 High-Energy Cathode Material for Long-Life and Safe Lithium Batteries
Y. Sun and K. Amine
- 275 Electrocatalytic Reduction of Oxygen on Carbon-Supported Manganese Oxide and Silver-Based Nanoparticles in Alkaline Media
A. Queiroz and F. H. Lima
- 276 Electrochemical Hydrogen Production from Ammonia Borane
H. Inoue, T. Yamazaki, T. Kitamura, M. Shimada, M. Chiku, and E. Higuchi
- 277 In Situ Fabrication of Porous Carbon Supported α -MnO₂ Nanoparticles for Rechargeable Li-Air Battery
Y. Qin, J. Lu, Z. Chen, Y. Ren, and K. Amine
- 278 Insights into the Lithiation of Nano-Sized α -Fe₂O₃: A Combined X-ray Absorption Spectroscopy and Pair Distribution Function Study
B. Shyam, K. Chapman, S. Pol, R. Klingler, S. Heald, M. Balasubramanian, G. Sandi-Tapia, G. Srajer, and P. Chupas
- 279 Photocatalyzed Excited-State Acid-Base Conversion of CO₂ to CH₄ with Visible Light
E. G. Look, H. Gafney, and N. Borrelli

- 280 Power Module Technologies for Efficient Energy Conversion
H. Ohnishi and G. Majumdar

A5 - Pioneering Women in Electrochemistry

All Divisions

- 281 In-Situ Generation of Electrically Conductive Nanoparticles in Bimetallic Phosphate Materials for High Power Lithium Batteries
E. Takeuchi, A. C. Marschilok, and K. Takeuchi
- 282 Carbon-Conductive Polymer-Silver Composite Air Electrodes for Metal-Air Batteries
A. C. Marschilok, E. Takeuchi, and K. Takeuchi
- 283 Recent Advances in Cell Cost and Efficiency for PEM-Based Water Electrolysis
K. E. Ayers, C. Capuano, and E. Anderson
- 284 Electrode Reaction Mechanisms Using Cyclic Square Wave Voltammetry
M. A. Damm and L. Bottomley
- 285 Magnetic Effects on Electron Transfer: Evolution of the Model and Technologies
S. D. Minteer and J. Leddy
- 286 The Privilege of Working with Ladies
E. Traversa

B1 - Battery / Energy Technology Joint General Session

Battery, Energy Technology

- 287 Designing of New Wet Solar Cell Constructed by Sulfur Semiconductors and Carbon Cluster
T. Hayashi, H. Takahashi, and K. Tohji
- 288 α -Fe₂O₃/Ni-Based Thin Film Electrocatalytic Interface for Photoelectrochemical Water Oxidation
Y. Liu and D. Nocera
- 289 Investigation of Ni-Al-Layered Double Hydroxide as Alternative Cathode Material for Rechargeable Nickel Hydride Batteries
D. Mondal and G. Villemure
- 290 Overdischarge Resistance of Co-Free Ni-MH Battery
M. Saito, T. Takasaki, K. Nishimura, T. Iwaki, K. Tsutsumi, and T. Sakai
- 291 Investigating the Reaction Mechanism for Electrochemical Oxidation of Urea on Ni-Hydroxide Modified Electrodes in Alkaline Medium
V. Vedharathinam and G. Botte

- 292 Properties of Calcium-Doped Lanthanum Cobalt Oxide Perovskite Electrocatalysts for Oxygen Evolution in Alkaline Medium
S. Malkhandi, A. Manohar, B. Yang, G. Prakash, and S. Narayanan
- 293 Catalytic Activities for Oxygen Reduction Reaction of Group 4 and 5 Transition Metal Oxide-Based Compounds in Alkaline Solution
T. Matsui, A. Ishihara, Y. Ohgi, K. Matsuzawa, S. Mitsushima, K. Ota, M. Matsumoto, H. Imai, and Y. Sato
- 294 Reversibility of Zinc Anode in Aqueous/Non-Aqueous Mixed Electrolyte
A. Nakata, T. Hirai, and Z. Ogumi
- 295 Highly Active and Stable Core-Corona Structured Bifunctional Catalyst for Rechargeable Metal-Air Battery Application
Z. Chen and Z. Chen
- 296 Rotating Disk Electrode Study of MnO₂ Electrode
A. Gaikwad, J. W. Gallaway, and D. Steingart
- 297 Anode Performances of NASICON-type ATi₂(PO₄)₃ (A:Li, Na) for Aqueous Alkali-Ion Batteries
S. Okada, S. Park, K. Nakamoto, I. D. Gocheva, A. Kitajou, E. Kobayashi, and J. Yamaki
- 298 Effect of Transport on the Performance of a Hydrogen-Bromine Flow Battery
T. V. Nguyen and H. Kruetzer
- 299 Mathematical Modeling of Redox Flow Batteries
Y. Wang and P. Mukherjee
- 300 Progress of Non Fluorinated Ion Exchange Membranes for VRB Application in DICP
H. Zhang and X. Li
- 301 A Two-Dimensional Model of Electrolyte Charge Transport Using the Maxwell-Stefan Equations
T. Farrell and S. Psaltis
- 302 Analytical Approaches to an Electrochemical System Including Forced Convection
S. Kim and C. Monroe
- 303 Electrochemical Properties of Carbonyl Iron Electrodes for Iron-Air Batteries
A. Manohar, S. Malkhandi, B. Yang, G. Prakash, and S. Narayanan
- 304 Bipolar Membrane Modeling
N. P. Craig and J. Newman
- 305 Electrodeposition of Copolymer Electrolyte into 3D Titania Nanotubes: Towards the Electrochemical Fabrication of Microbatteries
T. Djenizian

- 306 Evaluation of a $\text{LiSi}/\text{Cu}_3\text{V}_2\text{O}_8$ Thermal Battery
J. Dai, M. Lai, and J. McKee
- 307 Enhanced Anodic Dissolution of Magnesium in Ionic Liquid Containing a Small Amount of Water
K. Murase, I. Sasaki, T. Ichii, Y. Uchimoto, and H. Sugimura
- 308 A New Class of Hybrid Aluminum-Lithium-Ion Batteries
H. Liu, X. Sun, M. P. Paranthaman, and G. Brown
- 309 Analysis of the Use of a Porous Cathode in a SOFC Cell
K. Song and H. Knickle
- 310 Comparison of Mechanism of Oxygen Reduction Kinetics of $\text{La}_{0.85}\text{Ca}_{0.15}\text{MnO}_3$ and $\text{La}_{0.6}\text{Sr}_{0.4}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_3$ Cathodes
L. Miara, S. Basu, U. B. Pal, and S. Gopalan
- 311 Hard X-ray Fluorescence Measurements of Heteroepitaxial Solid Oxide Fuel Cell Cathode Material
J. N. Davis, L. Miara, L. Saraf, T. Kaspar, S. Gopalan, U. B. Pal, J. Woicik, S. Basu, and K. Ludwig
- 312 $\text{La}_{1-x}\text{Sr}_x\text{CoO}_{3-\delta}$ and $\text{Pr}_{1-x}\text{Sr}_x\text{CoO}_{3-\delta}$ Micro-Meso-Porous Cathodes for Medium-Temperature Solid Oxide Fuel Cells
E. Lust, I. Kivi, K. Tamm, P. Möller, E. Anderson, R. Kanarbik, H. Kurig, M. Vestli, and G. Nurk
- 313 Cathode Contact Materials for Solid Oxide Fuel Cells
M. Tucker and L. Cheng
- 314 Bi-layered YSZ Electrolyte Using Combined CVD and PVD Methods for Thin Film Solid Oxide Fuel Cell
S. Ha, I. Chang, Y. Lee, and S. Cha
- 315 Study on the Thin-Film Solid Oxide Fuel Cells Using Bi-Layer Y-Doped $\text{BaZr}_{1-x}\text{Y}_x\text{O}_{3-\delta}$
I. Chang, S. Ji, Y. Lee, S. Kim, and S. Cha
- 316 Fabrication and Characterization of Thin-Film Fuel Cell with Bi-Layer Solid Electrolyte
S. Ji, I. Chang, W. H. Tanveer, S. Ha, and S. Cha
- 317 The Comparison of the Functional Layers via Several Thin Film Deposition Techniques for Ceria Based SOFCs
Y. Jee, G. Cho, J. Choi, J. Son, and S. Cha
- 318 Study on Characteristics Variation of Segmented Solid Oxide Fuel Cells in Electrical Load Environment
H. Choi, K. Ahn, and S. Cha

- 319 In Situ Characterization of Solid-Oxide Fuel Cell Electrode Microstructure during High-Temperature Operation Using X-Ray Computed Nanotomography
P. Shearing, R. Bradley, F. Tariq, J. Gelb, P. Withers, and N. Brandon
- 320 Computational Study of Ammonia Oxidation on Platinum Clusters
D. A. Daramola and G. Botte
- 321 Functionalized Graphene Supported Platinum with Highly Catalytic Activity for Proton Exchange Membrane Fuel Cell
T. Hung, B. Wang, C. Tsai, M. Tu, G. Wang, and R. Liu
- 322 Improving Oxygen Reduction Activity of the Iron-Nitrogen-Carbon Catalysts by Formation of Fruitful Active Sites
K. Ramanujam
- 323 High Activity and Capability Graphene Based Support Materials for Fuel Cell Anode Against CO Poison Tolerance
S. Hou, M. Wietecha, and M. Kasner
- 324 Effects of Operating Parameters on the Cell Performance of PEMFC under CO-Poisoning Situation
K. Hsueh, L. Sung, B. Hwang, and B. Chern
- 325 Performance Stability in Alkaline Direct Methanol Fuel Cell
P. S. Khadke and U. Krewer
- 326 Intermediate-Temperature Alkaline Methanol Fuel Cell
J. Jiang and T. Aulich
- 327 Model of A Direct Methanol Fuel Cell-Internal Combustion Engine Hybrid System for Automotive Propulsion
O. S. Suslu, M. Civelekoglu, and I. Becerik
- 328 Enhancement of Cathode Current Density by a Novel Microorganism
P. Zhang
- 329 A Microbial Fuel Cell for Starch Oxidation
S. Ghosh, S. Chatterjee, S. Ghosh, and I. Basumallick
- 330 The Correlation of the Anodic and Cathodic Open Circuit Potential (OCP) and Power Generation in Microbial Fuel Cells (MFCs)
C. Santoro, A. G. Agrios, B. Li, and P. Cristiani
- 331 Effects of Anode and Cathode Areas on Organic Compounds Removal and Power Generation in Membraneless Microbial Fuel Cell (MFC)
C. Santoro, P. Cristiani, A. G. Agrios, and B. Li
- 332 Carbonate Fuel Cell Matrix and Electrolyte Developments
A. Hilmi, C. Yuh, and M. Farooque

- 333 Long-Lived Power Source With Anti-Tamper Capability
D. Peramunage, A. Smirnov, J. Ehrlich, T. Plante, S. Ilacqua, P. Troyk, and S. Cogan
- 334 Optimization and Characterization of the Thermal Treatment of Manganese Dioxide for Li/MnO₂ Cells
W. M. Dose and S. Donne
- 335 CO₂ Assisted Li-Air Battery: Radical Trapping Strategy for Capacity Enhancement
K. Takechi, T. Shiga, and T. Asaoka
- 336 TFSI-Based Ionic Liquids as Electrolytes for Lithium-Air Secondary Batteries
M. Hayashi, H. Minowa, and K. Saito
- 337 A Combined Computational and Experimental Study of Solvent Reactivity towards Superoxide
V. Bryantsev, V. Giordani, W. Walker, M. Blanco, S. Zecevic, K. Sasaki, J. Uddin, D. Addison, and G. Chase
- 338 Nonaqueous Electrolytes with Improved Solubility of Lithium Oxides for Use in Lithium Air Batteries
O. Crowther, B. Meyer, and M. Salomon
- 339 Preparation and Electrochemical Evaluation of Porous Carbon-Sulfur Composite Cathode Materials for High Performance Lithium/Sulfur Cells
L. Ji, M. Rao, E. J. Cairns, and Y. Zhang
- 340 New Insight into the Discharge Mechanism of Lithium/Sulfur Cells
C. Barchasz, F. Molton, C. Duboc, J. Lepretre, F. Alloin, and S. Patoux
- 341 Porous Hollow Carbon Sulfur Composites for High Power Lithium-Sulfur Batteries
J. Navaneedhakrishnan, J. Shen, S. Moganty, A. Corona, and L. Archer
- 342 Using Isothermal Calorimetry to Measure Heat Flow in Cycling Li-Ion Cells
P. J. Ralbovsky
- 343 Electrode Optimization for High Performance Li-Ion Cells
A. Benmayza, V. Ramani, J. Prakash, and W. Lu
- 344 Discovery of 5V Cathode and Electrolyte Materials via High Throughput Methods
B. Li, V. Bhat, J. Shan, and S. Kaye
- 345 Diffusion of Ions Within Micro Pores of the Separator as Measured by Pulsed Field Gradient NMR (PFG-NMR)
A. Yoshino, T. Morikawa, H. Otake, A. Yamamoto, and Y. Hashimoto
- 346 Composite Separator\Electrolyte for Enhanced Low Temperature Performance
C. M. Lang, M. McAllister, and J. Lennhoff

- 347 Electronic Conductivity Optimization of Lithium-Ion Battery Electrode
W. Lu, N. Liu, and D. Dees
- 348 Impedance Characterization of SEI-Type Passivating Films Using Ferrocene
M. H. Tang and J. Newman
- 349 Electrochemical and Thermal Studies of Fluorinated Electrolytes in Li-Ion Cells
A. Benmayza, V. Ramani, J. Prakash, and W. Lu
- 350 Ionic Liquid Batteries: Novel Chemistry for Primary and Secondary Energy Storage
T. E. Sutto and T. Duncan
- 351 Dry Polymer/Sulfur-Based Ionic Liquid Hybrid Electrolytes for Lithium Batteries
A. Fisher, M. Khalid, M. Widstrom, and P. Kofinas
- 352 Ionic Liquid Electrolytes of Azepanium Imide Salts for Lithium Ion Batteries
N. Salem, Y. Abue-Lebdeh, and I. Davidson
- 353 Effect of Alkaline Metal Ions Addition on Structure and Conductive Properties of Strontium Vanadate Oxide as Anode Materials for Solid Oxide Fuel Cell Application
C. Liu, C. Ni, and K. Fung
- 354 Characteristics of Lithium-Ion Batteries Containing Flame-Retardant in Cathode
T. Tsujikawa, K. Yabuta, T. Matsushita, M. Arakawa, T. Isobe, and K. Hayashi
- 355 Synthesis and Electrochemical Properties of TiO₂/Carbon Composites by Microwave Process
Y. Chun and Y. Ahn
- 356 Effects of Operating Conditions on the Temperature Distribution in a SOFC Short Stack
S. Celik, B. Timurkutluk, and M. Mat
- 357 First Principles Studies on Stabilities of Reactive Products of Li/S and Li/O Batteries
M. Masedi and P. E. Ngoepe
- 358 Numerical Analysis of the Electrochemical Performance of a Zinc-Air Fuel Cell with an Electrolyte Flow
J. Kim, H. Lee, T. Oh, and S. Park
- 359 Thermokinetic and Electrochemical Characteristics of Mg-Ni (95:5) Alloy Synthesized Using Hydriding Combustion
M. Chourashiya, D. Yang, S. Kim, C. Park, and C. Park
- 360 Application of α -methylstyrene/PE Composite Membrane with Enhanced Stability in the All-Vanadium Redox Flow Battery
J. Shim, M. Park, S. Park, J. Jeon, K. Shin, M. Jeon, and C. Jin
- 361 Anode-Supported Micro-Tubular SOFC: Effect of Pore-Former on Support Structure and Performance
H. Kim, J. Lee, T. Lim, S. Lee, S. Park, R. Song, and D. Shin

- 362 Balance of Plant Control of a DMFC/Battery Hybrid Power Source for Portable
Y. Cho, B. Lee, D. Peck, B. Lee, and D. Jung
- 363 Effect of Charge Current Density on Electrochemical Performance of Fe/C Electrodes with Sulfur Additives in Electrolyte Composition
H. Kitamura, E. Kobayashi, S. Okada, and J. Yamaki
- 364 Study on Thermal Behavior of Delithiated $\text{Li}_{1-x}\text{MnPO}_4$ ($0 \leq x < 1$) Structure for Lithium-Ion Batteries
J. Yoshida, S. Nakanishi, K. Nobuhara, Y. Kawamura, and H. Iba
- 365 Preparation and Characterization of Nano LiFePO_4/C for Lithium-Ion Batteries
Y. Wu, W. Pu, J. Ren, and Y. Xiao
- 366 Synthesis and Characterization of Pt Nanoparticles Deposition on MWCNT for Oxygen Reduction Reaction
B. Escobar, R. Barbosa, and Y. Verde
- 367 Electrochemical Property of LiMn_2O_4 Synthesized from Various Types of MnO_2 Precursors
J. Kim, I. Yeo, W. Cho, and S. Mho
- 368 Morphology Effects of Graphene Nanosheets on Si/Graphene Composite Anode for Lithium-Ion Batteries
W. Liu, S. Kuo, J. Tsai, Y. Chou, Y. Chen, C. Su, and H. Wu
- 369 Charge Transport and Discharge Mechanism in $[\text{PVA}+\text{PVP}+\text{Mg}(\text{NO}_3)_2]$ Polymer Electrolyte Films
A. R. Polu and R. Kumar
- 370 Effect of Fe_2O_3 Addition on Nanocarbon Fabrication and Electrochemical Properties of $\text{LiMn}_2\text{O}_4/\text{Nanocarbon}$ Composites
T. Hirai, A. Nakata, and Z. Ogumi
- 371 Electrochemical Characteristics of LiMnPO_4 with Various Morphologies
H. Dinh, S. Mho, W. Cho, and I. Yeo
- 372 Properties of the SOFC According to AFL Thickness with Fabricate Unit Cell Using Decalcomania Method
M. Lee, B. Kim, B. Choi, and S. Kim
- 373 Electrochemical Lithiation and Delithiation of Stoichiometric Cu_6Sn_5 and Cu_3Sn Prepared Using Reduction-Diffusion Method
N. Fukuda, K. Murase, T. Ichii, and H. Sugimura
- 374 High Lithium Storage in Hybrid Sn-MWCNT Nanocomposite Electrodes
S. Seo, S. Lee, I. Hwang, H. Shim, and D. Kim

- 375 Simulation of Diffusion Induced Stress Using Real Cathode Particle Structures Generated by Micro-CT
C. Lim, Y. Bo, and L. Zhu
- 376 X-ray Absorption Studies of MnO₂ Nanosheets as a Potential Cathode Material for Mg Secondary Battery during Electrochemical Cycling
T. Okado, T. Kamijo, K. Kai, Y. Orikasa, T. Fukutsuka, H. Kageyama, T. Abe, and Y. Uchimoto
- 377 Modeling of Microstructure Evolution in SOFC Anode
J. Park, J. Choi, H. Choi, G. Cho, and S. Cha
- 378 Structural and Electrochemical Analysis of Natural Bamboo Charcoal Activated by KOH Solution
D. Yang, H. Jadhav, C. Park, and C. Park
- 379 Electrochemical Characterization of Ti-Cr-V-Fe and Ti-Cr-V-Fe-Mn Hydrogen Storage Alloys
H. Lee, H. Park, C. Park, and C. Park
- 380 Effects of Electrolyte Additives on Cycling Performance of LiFePO₄ Cells
T. Yang, C. Chien, C. Lin, and S. Wu
- 381 Electrochemical Performance of Silicon-Copper Alloy Nanopowders for Li-Ion Batteries Application
C. Jordy, T. Hézèque, G. Caillon, M. Leparoux, C. Jäggi, S. Put, D. Nelis, V. Colombo, E. Ghedini, W. Grählert, T. Kuntze, and M. Dvorak
- 382 Solid-State NMR and Electrochemical Study of Sodium Iron Carbonophosphates as Cathode Materials for Sodium Ion Batteries
O. Zivkovic, H. Chen, G. Hautier, L. Du, G. Ceder, and C. Grey
- 383 Mesoporous TiO₂ Sphere with Nitrogen Adsorption for Lithium-Ion Batteries
S. Yoon, C. Bridges, and M. Paranthaman
- 384 In Situ XRD Characterization of Thin Film Electrodes for Lithium Ion Batteries
K. Rhodes, M. Kirkham, R. Meisner, E. Payzant, N. Dudney, and C. Daniel
- 385 Tin Based Alloys as the High-Rate and Long-Life Anode for Lithium-Ion Batteries
F. Ke, G. Wei, B. Zhang, L. Xue, Y. He, L. Huang, J. Li, S. Sun, and X. Zhou
- 386 Electrochemical Stability of a Carbonate Ester Electrolyte Containing Alkoxyboroxine
Y. Tanaka, S. Onoda, K. Yamashita, T. Horino, Y. Iriyama, and T. Fujinami
- 387 Enabling High Nitrile Concentration Electrolytes for Li-Ion Batteries
A. J. Gmitter and G. Amatucci
- 388 Nanocrystalline-Amorphous Silicon Composite Anode by Chemical Reduction of Silicon Salts
R. Epur, R. Kuruba, A. Manivannan, and P. N. Kumta

- 389 Analysis of the Lithium-Ion Insertion Silicon Composite Electrode / Separator / Lithium Foil Cell
R. Chandrasekaran and T. Fuller
- 390 Production of Si-O-C Nano Composites by Plasma Spray for Negative Electrode of Li-Ion Batteries
K. Homma, T. Hideshima, M. Kambara, and T. Yoshida
- 391 Micro-Mechanisms of Capacity Fade in Amorphous Silicon Thin Film Anode: A Computational Approach
S. Maiti, S. Pal, S. Patel, S. Damle, M. Datta, and P. N. Kumta
- 392 Understanding the Reaction Mechanism of Amorphous SnCo-C Anode in Lithium Ion Batteries
S. Upreti, R. Zhang, N. Chernova, F. Wang, L. Du, J. Syzdek, F. Alamgir, C. Burger, J. Wang, C. F. Petersburg, E. Lin, J. Graetz, K. Chapman, O. Brokiewicz, P. Chupas, R. Kostecki, C. Grey, and M. Whittingham
- 393 Comparative Study on Dimensional Deformation of Sn and SnSb Alloying Anodes for Li-Ion Batteries as Revealed by In-Situ Transmission X-Ray Microscopy
N. Wu
- 394 Li-Ion Anodes by Atomic Layer Deposition on Carbonized Nanofibers
A. J. Loebl, C. Oldham, G. Parsons, and P. Fedkiw
- 395 Ultra-Thin, Flexible, Free Standing Hybrid Graphene-Single Wall Carbon Nanotube Films for Lithium-Ion Battery Electrodes
Z. Chen and A. Yu
- 396 Characterization of the Conversion Reaction of NiO by Li at Multiple Length Scales
U. Boesenberg, F. Meirer, A. Mehta, Y. Liu, J. Andrews, P. Pianetta, M. Marcus, A. Shukla, P. Glans, J. Guo, and J. Cabana
- 397 In Situ Synchrotron X-Ray Diffraction Studies of the Phase Transitions in $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ Cathode Materials
J. Li, W. Wen, Y. He, and Z. Ma
- 398 Controlled Surface Modification of $\text{LiMn}_{1.5}\text{Ni}_{0.5}\text{O}_4$ Spinel Cathode Materials for Lithium-Ion Batteries
M. P. Paranthaman, S. Yoon, and C. Bridges
- 399 Inhomogeneous Distribution of Ni and Mn Ions in $\text{Li}[\text{Ni}_{1/2}\text{Mn}_{3/2}]\text{O}_4$: A Microscopic Point of View Investigated by Muon Spin Rotation/Relaxation (μSR)
K. Mukai, Y. Ikedo, K. Kamazawa, J. Brewer, E. Ansaldò, K. Chow, M. Månsson, and J. Sugiyama
- 400 Three Dimensional Simulation of Galvanostatic Discharge of LiCoO_2 Cathode Electrode Based on Micro CT Images
B. Yan, C. Lim, H. He, and L. Zhu

- 401 Battery Characteristics of Nanocrystalline V_2O_5 and Conductive Polymer Composite Film Cathodes
S. Hong, D. Yoo, H. Song, I. Yeo, and S. Mho
- 402 Lithiation of Manganese Dioxide for Rechargeable Li-ion Batteries
J. Lehr and S. Donne
- 403 Growth Mechanism of $Ni_{0.3}Mn_{0.7}CO_3$ Precursor with Continuous Stirred Tank Reactor (CSTR) for High Capacity Cathodes
D. Wang, I. Belharouak, G. M. Koenig Jr., G. Zhou, and K. Amine
- 404 Solvothermal Synthesized $Li(Fe,Mn)PO_4$
J. Hong and J. Graetz
- 405 Influence of Al Foil Surface Energy and Mixing Method on $LiFePO_4$ Cathode Fabrication
J. Li, B. Armstrong, J. Kiggans, C. Daniel, and D. Wood
- 406 Preparation and Characterization of $LiFe_{0.95}V_{0.05}PO_4$ Cathode Materials
S. Wu and M. Chen
- 407 High-Energy Cathode Materials - $Li_2(Mn, Co, Fe)P_2O_7$
H. Zhou, S. Upreti, N. Chernova, M. Whittingham, G. Hautier, and G. Ceder

B2 - Battery Safety and Abuse Tolerance

Battery

- 408 Increasing the Scale of Lithium-Ion Batteries and the Importance of Inherent Cell Safety
C. Orendorff
- 409 Prevention of Thermal Runaway in a Li-Ion Battery Pack for Electric Vehicle
P. Strøm, A. K. Srivastava, and L. Valøen
- 410 A Fail-Safe Design for Large Capacity Lithium-Ion Batteries
G. Kim, K. Smith, and A. Pesaran
- 411 In Situ High Energy X-ray Diffraction to Study Thermal Stability of Electrode Materials
Z. Chen, Y. Ren, and K. Amine
- 412 The Correlation of Aging Effect and Safety for Li-Ion Batteries
J. Cheng, A. Wu, B. Hwang, and C. Wang
- 413 Factors that Influence Thermal Runaway during a Nail Penetration Test
Y. Hyung, A. Mankame, M. Rona, B. Barnett, and S. Sriramulu
- 414 Failure Investigation of Li-Ion Batteries under Different Operating Conditions
F. Xu, H. He, Y. Ren, and J. Xie
- 415 Growth of Internal Short Circuits in Lithium-Ion Cells Implanted with Metallic Particles
D. Ofer, C. H. McCoy, B. Barnett, and S. Sriramulu

- 416 Examination of Techniques for Internal Short Circuit Testing on Lithium-Ion Batteries
J. Lamb, C. Orendorff, and W. Averill
- 417 Internal Short Circuit Methods for Lithium-Ion Cells
K. R. Fenton, G. Nagasubramanian, and C. Orendorff
- 418 Substituent Effects on the Redox Potentials and Reaction Kinetics of Overcharge Protection Reagents for Li-Ion Batteries
M. Ates, C. Allen, S. Mukerjee, and K. Abraham
- 419 AC Impedance Behavior of Lithium-Ion Batteries with Temperature Jump Method
S. Koike, M. Shikano, H. Sakaebe, and H. Kobayashi
- 420 Simulating Overcharge Reactions in a Lithium-Ion Cell
S. Santhanagopalan, G. Kim, K. Lee, K. Smith, and A. Pesaran
- 421 Thermal Runaway and Nail Penetration Testing of 18650 Li-Ion Cells Using Adiabatic Calorimetry
P. J. Ralbovsky
- 422 A Compact Laboratory Safety Chamber for Confinement of Li-Ion Elements during Forming and Testing
P. lupotto and J. Hognon
- 423 Thermal Studies on LIB Cathode Materials
Z. Shi, A. Thurston, S. Sheargold, and C. Orendorff
- 424 Phosphazene Based Additives for Improvement of Safety and Battery Lifetimes in Lithium-Ion Batteries
M. K. Harrup, K. L. Gering, H. Rollins, S. Sazhin, M. Benson, D. Jamison, and C. Michelbacher
- 425 Ionic Liquids and Phosphorous Derivatives for Improvement of Safety in Lithium-Ion Secondary Battery
S. Han, W. Shin, N. Choi, D. Chernyshov, A. Tereshchenko, J. Yu, T. Bae, M. Lee, M. Lee, P. Shatunov, and Y. Kim
- 426 Deformation of Polymer Separators Beyond Thermal Shutdown
C. T. Love
- 427 Highly Filled Lithium-Ion Battery Separators for HEV/PHEV/EV Applications
R. Waterhouse, Y. Patil, J. Emanuel, S. Peddini, and R. Pekala
- 428 Study of the Reactivity of Na/Hard Carbon in Different Solvents and Electrolytes
X. Xia, M. N. Obrovac, and J. Dahn
- 429 Investigation of High-Temperature Endurance and Dewing Tests for Lithium-Ion Batteries in Vehicles
K. Maeda, M. Takahashi, and K. Komatsu

- 430 Investigation of Overcharge Test for Lithium-Ion Batteries in Vehicles
M. Takahashi, K. Komatsu, and K. Maeda
- 431 Bismaleimide-Based Oligomer as Electrode Additives for Improving Self-Discharge of Lithium-Ion Batteries
J. Lo, C. Cheng, H. Wu, C. Yang, J. Pan, and A. Peng
- 432 EVA-Based PTC Used as an Effective Thermal Regulator of Lithium-Ion Battery
H. Zhong, C. Zhan, Y. Zhou, D. Yang, and H. Zhan
- 433 Influence of Anions on Propylene Carbonate Oxidative Decomposition Pathways from DFT Calculations
L. Xing, O. Borodin, G. D. Smith, and W. Li
- 434 Structural Changes and Thermal Stability of Charged Ni-Based Layered Cathode Materials for Li-Ion Batteries Studied by In Situ TEM
W. Chang, S. Bak, B. Cho, K. Chung, and E. Stach

B3 - Challenges for Transportation Batteries

Battery, Energy Technology

- 435 Thermally Stable Electrolytes Using Non-PF₆ Salt for Transportation Applications
G. Nagasubramanian and C. Orendorff
- 436 $x\text{Li}_2\text{MnO}_3 \cdot (1-x)\text{LiMO}_2$ Blended with LiFePO₄ for High Energy Density with Pulse Power Capability
K. G. Gallagher and S. Kang
- 437 Real-Life Performance Modeling of Lithium-Ion Battery Packs in Electric Vehicles
V. Klass, M. Behm, and G. Lindbergh
- 438 Translating High Capacity Materials into High Energy Density, High Performance Transportation Batteries
J. Rempel, A. Pullen, S. Dalton-Castor, D. Ofer, B. Barnett, and S. Sriramulu
- 439 Path Dependence of Aging in Commercial Lithium-Ion Cells Chosen for PHEV Duty Cycle Protocols - Part 2
K. L. Gering, S. Sazhin, D. Jamison, C. Michelbacher, M. Dubarry, C. Truchot, and B. Liaw
- 440 HEV Lithium-Ion Battery Testing - Results from a Heavy Truck Field Study
P. I. Svens, J. Lindström, M. Behm, and G. Lindbergh
- 441 Development of a Hybrid Rechargeable Zinc-Air Battery for the Electric Vehicle
G. Toussaint, P. Stevens, R. Rouget, and F. Fourgeot
- 442 Advanced Nickel Zinc Batteries for Micro Hybrid Electric Vehicles (HEVs)
M. Geng, L. Wang, G. Xu, and J. Phillips

- 443 Safety, Configuration and Battery Management System of Tata Indica Vista EV
A. K. Srivastava and L. Valøen
- 444 Cycling of Lithium Metal in an Aqueous Lithium-Air Battery
P. Stevens, G. Toussaint, P. Vinatier, and L. Puech
- 445 Study of Li^+ Effect on Oxygen Reduction Reaction in Sulfuric Acids for Li-Air Battery
H. Liu and Y. Xing
- 446 Impact of Current Collector on High-Rate Performance of Li-Ion Battery Electrodes
N. Wu
- 447 The Effect of Surface Treatment on the Irreversibility of Si-Based Anodes
D. Munaò, M. Valvo, J. van Erven, E. Kelder, J. Hassoun, and S. Panero
- 448 Investigation of Graphite Anodes for Li-Ion Batteries Operating at Low Temperatures
A. Svensson, C. L. Foss, A. Fossdal, S. Rørvik, J. Kvello, E. Sheridan, and F. Vullum-Bruer
- 449 PF_6^- Intercalation into Graphitic Carbon in High Concentration LiPF_6 Electrolyte for High Energy Density Dual Carbon Battery
T. Ishihara, H. Nagano, and R. Tokunaga
- 450 In Situ Stress Measurements on Composite Gen2 PHEV Anodes during Electrolyte Wetting and Electrochemical Cycling
V. A. Sethuraman, N. Van Winkle, D. Abraham, and P. Guduru
- 451 Water Permeation Free $\text{Li}_{1.4}\text{Al}_{0.4}\text{Ti}_{1.6}(\text{PO}_4)_3$ Thin Plates Prepared by a Tape Casting Method for Water Stable Lithium Electrodes in Lithium/Air Batteries
K. Takahashi, P. Johnson, T. Zhang, A. Hirano, N. Imanishi, Y. Takeda, O. Yamamoto, and N. Sammes
- 452 Air Electrodes for Alkaline Aqueous Electrolyte Lithium/Air Secondary Batteries
H. Ohkuma, Y. Shimonishi, T. Zhang, A. Hirano, N. Imanishi, Y. Takeda, and O. Yamamoto
- 453 Development of a Metal Hydride/Air Secondary Battery with Multiple Electrodes
M. Mizutani, M. Morimitsu, and K. Takano
- 454 Improvement of Cycleability for Li-Si Alloy Anodes Using Si Thin Flakes for Li-Ion Batteries
T. Yamada, M. Saito, C. Yodoya, A. Kamei, M. Hirota, T. Takenaka, A. Tasaka, and M. Inaba
- 455 Experimental Validation of 3D Electrochemical/Thermal Models of Large-Format Li-Ion Cells
K. Smith, S. Santhanagopalan, K. Lee, G. Kim, and A. Pesaran

B4 - Electrochemical Utilization of Solid Fuels
High Temperature Materials, New Technology Subcommittee

- 456 Coal and Biomass Utilization in Fuel Cells
R. Mitchell
- 457 Recent Developments in the SECA Program
S. D. Vora
- 458 Solid Fuel Utilization in High Temperature Fuel Cells
T. M. Gür
- 459 Direct Conversion of Carbon in a SOFC System
P. Desclaux, M. Rzepka, R. Hempelmann, and U. Stimming
- 460 Study of a Coal-Powered Solid Oxide Fuel Cell
A. C. Chien and K. Huang
- 461 Model of Carbon Utilization in a Solid Carbon Fuel Cell
B. R. Alexander, R. Mitchell, and T. M. Gür
- 462 Power Generation Characteristics of Pulse Jet Rechargeable Direct Carbon Fuel Cells at Different Isooctane Fuel Supply Frequency
A. Yabuki, F. Ohba, H. Shimada, S. Sakamoto, H. Tanaka, and M. Ihara
- 463 Direct Biomass Fuel Cells: Performance and Degradation Mechanisms
B. Cantero-Tubilla, C. Xu, J. Zondlo, K. Sabolsky, and E. M. Sabolsky
- 464 Model of Integrated SCFC and Carbon-Steam Fuel Cell for CO-Free Hydrogen Production
B. R. Alexander, R. Mitchell, and T. M. Gür
- 465 Investigation of Carbonaceous Fuels for Gasification Fuel Cell System
J. Kim, Y. Chang, J. Song, and C. Jeon
- 466 Fe-Air Battery Using Solid Oxide Fuel Cells with LaGaO₃ Electrolyte
A. Inoishi, S. Ida, and T. Ishihara
- 467 Development of La_{0.6}Ca_{0.4}Fe_{0.8}Ni_{0.2}O₃ Cathode for Solid Oxide Fuel Cell (SOFC) Application
N. Ortiz-Vitoriano, I. Ruiz de Larramendi, C. Bernuy-Lopez, R. Knibbe, K. Thyden, A. Hauch, P. Holtappels, J. Ruiz de Larramendi, and T. Rojo
- 468 Chemical Degradation Behavior of SOFC Anode due to Trace Impurities of ppm Order Contained in A Coal Derived Syngas
K. Kuramoto, T. Fukushima, K. Matsuoka, Y. Suzuki, H. Kishimoto, K. Yamaji, T. Horita, M. Brito, and H. Yokokawa
- 469 Electrolyzer for Waste to Energy Conversion
S. Pati, U. B. Pal, and S. Gopalan

- 470 Electrochemical Characterization of Liquid Metal Anode Solid Oxide Fuel Cell
M. LaBarbera, S. Khurana, M. Fedkin, S. Lvov, H. Abernathy, and K. Gerdes
- 471 Liquid Tin Anode SOFC For Direct Coal Conversion
T. Tao, M. Koslowske, J. Brodie, and J. Bentley
- 472 Operation of Liquid Tin Anode Fuel Cell on Multiple Biomass Feedstocks
T. Tao, M. Koslowske, J. Brodie, and J. Bentley
- 473 Carbon Oxidation in Fuel Cells and H₂ Production
M. Colet Lagrille, U. Doraswami, and G. Kelsall
- 474 Power Generation from Solid Fuels in Solid Oxide Fuel Cells with a Molten Antimony Anode
A. Jayakumar, R. Küngas, S. Roy, A. Javadekar, D. Buttrey, J. Vohs, and R. Gorte
- 475 Determination of Efficiency in Direct Carbon Fuel Cells
J. F. Cooper
- 476 Carbon Oxidation with Electrically Insulated Carbon Fuel in a Coin Type Direct Carbon Fuel Cell
C. Lee and M. Song
- 477 Direct Carbon Fuel Cell Research
S. Crouch-Baker
- 478 Hybrid Direct Carbon Fuel Cells
J. T. Irvine
- 479 Development of Tubular Hybrid-DCFC
A. D. Bonaccorso and J. Irvine
- 480 Waste Medium Density Fiberboard (MDF) as a Fuel in Hybrid Direct Carbon Fuel Cells
C. Jiang and J. Irvine
- 481 Feasibility Studies on Electrolyte Recycling During Coal Electrolysis to Produce Hydrogen
S. Vijapur, A. Valenzuela-Muñiz, and G. Botte

B5 - Electrochemical Capacitors: Fundamentals to Applications

Battery, Energy Technology

- 482 Carbon Nanomaterials for Electrochemical Capacitors
Y. Gogotsi
- 483 Low-Cost Carbons Hydrothermally Synthesized from Biowaste for Electrochemical Capacitors
R. Chen, I. Kunadian, S. Lipka, and C. Swartz

- 484 Performance of Electrical Double Layer Capacitors Based on Different Micro- and Mesoporous Carbide Derived Carbon Electrodes
A. Jänes, T. Thomberg, I. Tallo, H. Kurig, A. Laheäär, K. Tõnurist, and E. Lust
- 485 Micro-Patterning of Vertically-Aligned Multi-Walled Carbon Nanotube Supercapacitor Electrodes to Improve Energy Density
A. S. Raut, C. Parker, B. Stoner, and J. Glass
- 486 Charge Storage Mechanisms in MnO₂-Based Electrochemical Capacitors
O. Ghodbane, F. Ataheria, N. Wu, and F. Favier
- 487 Formation and Characterisation of Electrodeposited Manganese Dioxide Supercapacitor Electrodes
A. Cross, M. Drozd, A. Morel, A. F. Hollenkamp, and S. Donne
- 488 Metal Oxide Supercapacitor Electrodes Prepared by Electrostatic Spray Deposition
S. Behdad, M. Beidaghi, W. Jones, and C. Wang
- 489 Enhanced Supercapacitor Using 3-D CNT/MnO₂ Webs Hanging on Silicon Micro-Pillars
S. Raina, N. Ghosh, W. Kang, and J. Davidson
- 490 CNT/MnO₂ Supercapacitor Electrodes on Flexible Graphite Current Conductor Foil
S. Wei, W. Kang, J. Davidson, B. Rogers, and J. Huang
- 491 Large Format High Voltage Aqueous Hybrid Devices for Low Cost Scaled Energy Storage
J. Whitacre, S. Shanbhag, W. Yang, A. Mohamed, and E. Weber
- 492 Anomalous Energy Storage in Asymmetric PbO₂/H₂SO₄/C Electrochemical Capacitors
J. R. Miller and S. Butler
- 493 NanoHybrid Capacitor: The Next-Generation Supercapacitors
K. Naoi
- 494 NiMH Supercapacitor Design, Modeling and HEV Applications
L. J. Song and F. Chen
- 495 Lithiation of Anode for Lithium-Ion Capacitor
G. Gourdin, P. H. Smith, T. Jiang, T. Tran, and D. Qu
- 496 Pseudocapacitance Effects Originated from Electrolytic Solution
E. Frackowiak, K. Fic, and G. Lota
- 497 Hybrid Nanostructured Materials for Electrochemical Supercapacitors
P. Gomez-Romero
- 498 Pros and Cons of Metal Nitrides as Electrode Materials for Electrochemical Capacitors
R. Lucio Porto, J. Ducros, R. Frappier, C. Aucher, H. Mosqueda, S. Bouhtiyya, J. Pierson, F. Capon, F. Tessier, F. Cheviré, and T. Brousse

- 499 Carbon Coated Textiles for Flexible Energy Storage in Smart Garments
K. Jost, C. Perez, J. McDonough, V. Presser, M. Heon, G. Dion, and Y. Gogotsi
- 500 Composite Electrodes for Electrochemical Supercapacitors
I. Zhitomirsky
- 501 Real-Time NMR Investigation of Electrochemical Double Layer Capacitors
T. Köster, H. Wang, N. M. Trease, J. Ségalini, P. Simon, Y. Gogotsi, and C. Grey
- 502 Thin Film Graphene Supercapacitor Electrodes Produced by Aqueous Exfoliation and Spray Deposition
B. Mendoza-Sanchez, V. Nicolosi, and P. Grant
- 503 Three-Dimensionally Ordered Carbon/Conducting Polymer Composite Electrode for Electrochemical Capacitors
K. Dokko, S. Woo, K. Kanamura, and M. Watanabe
- 504 Improving the Performance of Aqueous Asymmetric Electrochemical Capacitors via a Redesign of the Electrode Architecture
M. B. Sassin, J. W. Long, B. Willis, A. Mansour, S. Greenbaum, K. Pettigrew, and D. Rolison
- 505 Electrochemical Soft Actuator Using Soft Material Derived from Room-Temperature Ionic Liquid
T. Tsuda, M. Baba, K. Matsumoto, R. Hagiwara, and S. Kuwabata
- 506 Electrochemical Behavior Modeling of C-MnO₂ Hybrid Supercapacitors
P. Guillemet, Y. Dandeville, O. Crosnier, L. Athouël, Y. Scudeller, and T. Brousse
- 507 Investigation of Lamellar Oxides for High Rate Energy Storage
X. Petrissans, D. Giaume, Q. Zhao, S. Rano, P. Barboux, L. Sicard, and J. Piquemal
- 508 Performance of Non-Aqueous Electrochemical Capacitor Utilizing Halogen Redox Reaction
S. Yamazaki, T. Ito, M. Yamagata, and M. Ishikawa
- 509 Temperature Effects on Charge Redistribution and Self-Discharge in Electrochemical Capacitors
H. A. Andreas, S. Chandler, and A. Oickle
- 510 Polysaccharide-Based Gel Electrolytes Containing Hydrophobic Ionic Liquids for Electric Double-Layer Capacitors
M. Yamagata, K. Soeda, S. Yamazaki, and M. Ishikawa
- 511 Spectroelectrochemistry of MnO₂ Electrodes in Protic Ionic Liquid Electrolytes
D. Rochefort, C. Castro Ruiz, and D. Bélanger

- 512 Study of Ion Adsorption in Microporous Carbons for Capacitive Storage Applications
J. Ségalini, P. Taberna, E. Iwama, P. Simon, C. Perez, V. Presser, and Y. Gogotsi
- 513 Development of High Voltage Electrochemical Capacitors Operating in Neutral Aqueous Electrolyte
L. Demarconnay, E. Raymundo-Piñero, and F. Béguin
- 514 New Concept to Boost Energy and Power Performance of Practical Electrochemical Devices
L. Madec, A. Bouvrée, P. Blanchard, C. Cougnon, T. Brousse, B. Lestriez, D. Guyomard, and J. Gaubicher
- 515 Investigation of Charge Storage Mechanism of Nanostructured Metal Nitrides and Carbides Electrodes for Electrochemical Capacitors
P. Pande, P. Rasmussen, and L. Thompson
- 516 Electrode Properties of Various Nano-Fibrous Carbons
M. Egashira, M. Tokita, M. Itoh, N. Yoshimoto, and M. Morita
- 517 Carbon in Energy - Porous Carbon for Electric Double Layer Capacitors
T. Kirschbaum, A. Rota, and C. Wurm
- 518 Study of Mesoporous Carbon Based Solid State EDLCs at High Sweep Rates
C. Subramaniam, K. Cheralathan, G. Velayutham, and S. Bollepalli
- 519 Functionalized All-Carbon Electrodes for Nonaqueous Electrochemical Capacitors
B. M. Gallant, S. Lee, H. Byon, P. Hammond, and Y. Shao-Horn
- 520 Development of a High Energy Hybrid Graphite/Carbon Capacitor in Organic Electrolyte
G. Lota, C. Decaux, E. Raymundo-Piñero, E. Frackowiak, and F. Béguin
- 521 Electrochemical Characteristics and Potential Stability of LTO//AC Hybrid Capacitor with Cell Design
S. Park, J. Yang, H. Seo, and H. Kim
- 522 Synthesis and Characterization of Li_2MO_3 as a Lithium Source for Lithium-Ion Capacitors
J. Kim, J. Park, Y. Lim, M. Park, and Y. Kim
- 523 Selected Aspects of High-Voltage, Liquid-Electrolytic Capacitors in Implantable Defibrillators
J. Hossick-Schott
- 524 The Effect of Temperature on Capacity and Power in Cycled Lithium-Ion Capacitors
P. H. Smith, T. Tran, T. Jiang, M. Wartelsky, and G. Zoski
- 525 All Solid Electrochemical Capacitors and Hybrid Systems
K. K. Lian and H. Gao

- 526 The Development of Pseudocapacitance in Nanostructured Transition Metal Oxide Materials
V. Augustyn, J. Kim, T. Quickel, S. Tolbert, and B. Dunn
- 527 Large Area Fabrication of 1D and 2D Nanostructured Thin Films for Supercapacitor Applications
X. Zhao, B. Mendoza-Sanchez, L. O'Neill, A. Huang, M. Jiang, and P. Grant
- 528 Fabrication of a Transparent Supercapacitor Cell Including Mn-Mo Oxide/CNT Nanocomposite Film
K. Okamura, M. Nakayama, L. Athouël, O. Crosnie, and T. Brousse
- 529 Transition Metal Oxide/Carbon Nanotube Hetero-Structures for Supercapacitor Applications
P. Jampani Hanumantha, A. Manivannan, and P. N. Kumta
- 530 Temperature Dependence of Key Performance Indicators for Aqueous Supercapacitors Containing Nanostructured Birnessite MnO₂
R. Slade and A. Roberts
- 531 Fabrication of Micro-Supercapacitor Using Electrodeposited Mesoporous RuO_x on IDA Electrode
S. Makino and W. Sugimoto
- 532 Cycling Stability and Widening Operating Voltage Window of Aqueous Manganese Oxide Supercapacitors
F. Ataherian and N. Wu
- 533 First-Principles Study of RuO₂ as Supercapacitor Electrode
F. Zhou, Y. Liu, and V. Ozolins
- 534 New Electrode Materials for Electrochemical Capacitors
D. Bélanger, M. Lechasseur, T. Bordjiba, and T. Brousse
- 535 High-Power and High-Energy-Density Flexible Pseudocapacitor Electrodes Made from Porous CuO Nanobelts and SWCNTs
X. Zhang, R. Yazami, H. Hng, and Q. Yan
- 536 Thin Film Deposition of Manganese Oxide on CNT for Electrochemical Capacitors Application
R. Kavian, A. Vincenzo, and M. Bestetti
- 537 Synthesis and Characterization of High-Performance Polypyrrole/TiC/C Composite Supercapacitors
Y. Weng and N. Wu
- 538 High Performance Supercapacitors Containing Carbon Black as Active Material and Ionic Liquid/Organic Carbonate Mixture as Electrolyte
A. Krause, P. Kossyrev, M. Oljaca, S. Passerini, M. Winter, and A. Balducci

- 539 Carbon Synthesized from Photocatalytic Reduction of Graphite Oxide for Electrochemical Capacitors
H. Huang, C. Huang, and H. Teng
- 540 Use of an Electrochemical Quartz Crystal Microbalance For Study of Polypyrrole-Manganese Oxide for Supercapacitor Electrodes in an Aqueous Environment
P. Ningsih and S. Donne
- 541 Overpotentials of Capacitor Electrode with Various Li Salts
F. Xu, J. Kim, and C. Jung
- 542 Electrochemical Behavior of Li-Predoping on Carbon Materials for Lithium-Ion Capacitor
S. Park, C. Choi, H. Kim, and Y. Yuk
- 543 Flexible Nano-Felts of Carbide-Derived Carbon with Ultra-High Power Handling Capability
V. Presser, L. Zhang, Y. Gao, J. Niu, J. K. McDonough, C. Perez, H. Fong, and Y. Gogotsi
- 544 Intrinsic Limitations of Impedance Measurements in Determining Equilibrium Electric Double Layer Capacitances
H. Wang and L. Pilon
- 545 Carbon/Li₄Ti₅O₁₂ Hybrid Composite Nanotubes for Battery-Supercapacitor Hybrid Energy Storage Devices
H. Choi, J. Im, and C. Park
- 546 Electrodeposition of Ni-Mn Oxides Thin Films on a Carbon Sheet for Electrochemical Supercapacitors
H. Lee and C. Kim
- 547 Effect of pH and Temperature on the Electrodeposition of Co-Mn Oxide Thin Films
D. Hong, H. Lee, and C. Kim
- 548 Polyaniline Modified-SnO₂ Nanocomposite for Supercapacitors
V. Channu and R. Holze
- 549 Fabrication of Hybrid Capacitor Composed of Vertically-Aligned Multilayered Manganese Oxide Film
R. Inoue and M. Nakayama
- 550 Hybrid Electrochemical Capacitors by Incorporating Redox Materials in Random Carbon Nanotube Networks and Vertically Aligned Carbon Nanofiber Arrays
J. Li, J. Liu, J. Essner, and Y. Fang
- 551 Carbon/Co₃O₄ Nanocomposite Electrodes Prepared by Chemical Grafting for Hybrid and Asymmetric Devices
A. Morel, C. Ramirez-Castro, C. Martin, D. Larcher, D. Bélanger, and T. Brousse

- 552 Electrochemical Properties of Layered (Ni, Co, Mn) Oxide as an Electrode for Electrochemical Capacitors
M. Yano, S. Suzuki, and M. Miyayama
- 553 Electrodeposition of Nanostructured Oxide Films for Supercapacitors Electrodes
M. J. Carmezim, T. M. Silva, and M. Montemor
- 554 High Surface Area Nanostructured Graphene Composites and their Application in Supercapacitors
M. Wang and J. Xie
- 555 Nitrogen-Modified Porous Carbon for Supercapacitors
S. Candelaria, D. Liu, B. Batalla Garcia, and G. Cao
- 556 Hybrid Graphene-Carbon Nanotube Films as Supercapacitor Electrodes
M. Beidaghi, S. Behdad, and C. Wang
- 557 Hierarchical Porous Carbon Obtained from Crab Shell Using a Natural Template
S. Jiang, S. Wei, Y. Huang, H. Zhang, and W. Wang
- 558 Physical Interpretation of Cyclic Voltammetry for Measuring Electric Double Layer Capacitances
H. Wang and L. Pilon
- 559 Perception of Supercapacitor and Supercapattery
G. Z. Chen
- 560 Electrochemical Capacitors Based on Novel Designs of Electrode-Electrolyte Interface
M. Ishikawa, M. Yamagata, and S. Yamazaki
- 561 Development of High-Voltage Electrolytic - Electrochemical Solid Polymer Electrolyte-Based Capacitors for Implantable Defibrillators
B. Dweik, B. Rasimick, and M. Moulai
- 562 Synthesis of Reduced Graphene Oxide and Reduced Graphene Oxide/Ruthenium Oxide for Supercapacitors
Y. Chen, X. Zhang, and Y. Ma
- 563 Cold Temperature Optimization of Supercapacitors
C. G. Cameron
- 564 Molecular Theory of Solvation and Electrical Double Layer in Nanoporous Carbon Electrodes
A. Kovalenko
- 565 Influence of Surface Topography on the Electric Double Layer Structure and Differential Capacitance of Electrode/Ionic Liquid Interfaces
G. D. Smith, J. Vatamanu, and D. Bedrov

- 566 Pore Size Effects in Supercapacitor Discharge
D. W. Kirk and J. Graydon
- 567 Accurate Simulation of Electric Double Layer Capacitance For Ultramicroelectrodes
H. Wang and L. Pilon
- 568 Micro-Supercapacitors Using Carbide-Derived Carbon Thin Films
M. Heon, V. Presser, Y. Gogotsi, P. Huang, P. Taberna, P. Simon, M. Brunet, S. E. Lofland, and J. Hettinger
- 569 Foamed Current-Collector and Functionalized Activated-Carbon for EDLC
S. Shiraishi
- 570 High Voltage Electrochemical Double Layer Capacitors Containing Mixtures of Ionic Liquid and Organic Carbonate as Electrolyte
A. Balducci, A. Krause, S. Menne, S. Passerini, and M. Winter
- 571 Studies on Chitosan Hydrogel Membrane Electrolyte for Application in Electrochemical Capacitors
N. A. Choudhury and V. Subramanian
- 572 Electrochemical Studies of Dual-Solvent Supercapacitors Involving Microporous Electrodes at Ultra-Low Temperatures
Y. Korenblit, A. Kajdos, W. C. West, M. C. Smart, E. J. Brandon, A. Kvit, J. Jagiello, and G. Yushin
- 573 Engineering Carbon Surface Chemistry for High Energy Density Supercapacitors
G. Cao
- 574 Electrochemical Double Layer Capacitance of Metallic and Semiconducting SWCNTs and Single Layer Graphene
M. H. Ervin and B. Mailly
- 575 Reduced Graphite Oxide Nanocomposites for Electrochemical Capacitor Applications
K. Kim, I. Kim, J. Kim, and J. Kim
- 576 Performance Evaluation of Graphene / Activated Carbon Composite Electrodes in EDLCs with Non-Aqueous Electrolyte
J. Chung, I. Do, D. Carruthers, M. Petruska, E. Sturm, and D. Totir
- 577 Nanostructured Multilayer Electrodes of Polyaniline Nanofibers and Carbon Nanotubes
M. Hyder, S. Lee, Y. Shao-Horn, and P. Hammond
- 578 Design Principles for Pseudocapacitive Polymer-Pendant Cathodes from First Principles
S. E. Burkhardt and H. D. Abruña

B6 - Intercalation Compounds for Rechargeable Batteries

Battery, Energy Technology

- 579 Crystal Structure Change of $\text{Li}(\text{Ni},\text{Co},\text{Cu})\text{O}_2$ Cathode for Li-Ion Battery during Charge of Coin-Type Cell Observed by Ex Situ Time-of-Flight Neutron Diffraction
Y. Idemoto, Y. Tsukada, and N. Kitamura
- 580 Novel Cathode Structures from Li_2MnO_3 Precursors for Li-Ion Batteries
J. R. Croy, S. Kang, M. Balasubramanian, and M. Thackeray
- 581 Synthesis and Characterization of O2-type Layered Li-Excess Manganese Oxides, $\text{Li}_x[\text{Li}_y\text{Mn}_{1-y}]\text{O}_2$, as Positive Electrodes for Rechargeable Li-Ion Batteries
N. Yabuuchi, M. Kajiyama, Y. Kawamoto, R. Hara, and S. Komaba
- 582 Lithium and Transition Metal Ordering in the Lithium-Ion Electrode $\text{Li}_{1.2}\text{Co}_{0.4}\text{Mn}_{0.4}\text{O}_2$
J. Bareño, J. Wen, S. Kang, C. Lei, S. Pol, M. Balasubramanian, I. Petrov, and D. Abraham
- 583 Effect of Cr Doping on the Electrochemical Performance of the Composite Cathode $0.7\text{Li}_2\text{MnO}_3 \cdot 0.3\text{LiNi}_{0.5}\text{Mn}_{0.5}\text{O}_2$
G. Singh and R. Katiyar
- 584 Studies of Surface Modified $\text{Li}_{1.2}\text{Ni}_{0.17}\text{Co}_{0.07}\text{Mn}_{0.56}\text{O}_2$ as Cathode Material for Lithium-Ion Batteries
X. Yu, K. Zhong, X. Meng, K. Nam, H. Li, X. Sun, and X. Yang
- 585 Understanding the Cathode Electrolyte Interface of (Un)Coated Lithium Manganese Nickel Oxide Cathodes Using Atom Probe and Transmission Electron Microscopies
L. Baggetto, M. Chi, M. Miller, E. Payzant, N. Dudney, and G. Veith
- 586 Effect of CuO on the Electrochemical Activity of Li_2MnO_3
Y. Arachi, K. Hinoshita, and Y. Nakata
- 587 Investigations on Cellulose-Based High Voltage Cathodes for Lithium-Ion Batteries
J. Li, R. Klöpsch, M. Winter, and S. Passerini
- 588 Synthesis and Characterization of $\text{Mn}_x\text{M}_{(1-x)}\text{O}_2$ for High Capacity Rechargeable Lithium-Ion Batteries
J. Moon, H. Munakata, and K. Kanamura
- 589 Developing High Power-Density Anode and Cathode Materials for Next-Generation Lithium-Ion Batteries
H. Zhang, J. Fold von Bulow, and D. E. Morse
- 590 Influence of Surface Modifications on Graphite Surface Properties and their Impact on Anode Performance in Lithium-Ion Batteries
T. Placke, V. Siozios, R. Schmitz, P. Bieker, S. Lux, H. Meyer, S. Passerini, and M. Winter

- 591 In Situ X-ray Absorption Study of Li Interaction with Single Layer Graphene
E. Pollak, L. Zhang, C. O'Laoire, B. Geng, U. Boesenberg, J. Cabana, J. Guo, and R. Kostecki
- 592 Dry Coating Using Turbulent Mixing: A Solvent Free Method to Coat Graphite with Nanoparticles
C. Engelhardt, S. Lux, T. Placke, H. Meyer, K. Wirth, and M. Winter
- 593 Nanostructured TiO₂ and its Application to Lithium-Ion Storage
S. Myung, K. Amine, and Y. Sun
- 594 Microscale Spherical Carbon-Coated Li₄Ti₅O₁₂ as High Power Anode Material for Lithium Batteries
H. Jung, S. Myung, C. Yoon, K. Amine, B. Scrosati, and Y. Sun
- 595 Some NiTiOPO₄-Based Anode Materials - Structural Dynamics and Electrochemical Performance
K. Edström, K. Maher, R. Eriksson, H. Hollmark, L. Duda, M. Mansori, T. Gustafsson, and I. Saadoune
- 596 TiO₂ - Amorphous Silicon Nano-Porous Structures as a Novel Anode Materials for Energy Storage Applications
S. D. Ivanov, H. Wulfmeier, M. Schulz, H. Fritze, A. Ispas, and A. Bund
- 597 Enhanced Electrochemical Performance of Metal Oxide Coatings on Graphite in Combination with Fluorine-Free, Aqueous Processable Binder
P. Bieker, T. Placke, S. Lux, C. Engelhardt, S. Nowak, U. Rodehorst, H. Meyer, S. Passerini, K. Wirth, and M. Winter
- 598 Olivine Coated Spinel : 5V System for High Energy Lithium Batteries
D. Liu, A. Guerfi, P. Hovington, J. Trottier, M. Dontigny, P. Charest, A. Mauger, C. Julien, and K. Zaghib
- 599 Three-Dimensional Morphology of Secondary Fe-Rich Phases in Polycrystalline LiFePO₄
S. Chung
- 600 In Situ Investigation of Delithiation/Lithiation in LiFePO₄
Y. Zhu, C. Wang, and J. Huang
- 601 Electrochemically Driven Phase Transformation Pathways in Li_{1-x}(Mn_yFe_{1-y})PO₄
Y. Kao, N. Meethong, J. Bai, W. Carter, and Y. Chiang
- 602 Synthesis and Characterization of the LiFePO₄-LiMnPO₄ Solid Solution
M. Jüstel, D. Schünemann, T. Langer, R. Pöttgen, and M. Binnewies
- 603 LiCoPO₄ as Li-Ion Cathode
J. L. Allen, T. Jow, and J. Wolfenstine
- 604 Ultrasonic Spray Pyrolysis of Hierarchically Structured Cathode Materials
K. C. Kam, A. Chern, and M. M. Doeff

- 605 Nano-Carbon Embedded LiFePO₄ Nanocomposite with Excellent High Rate Capability
J. Jegal, J. Kim, and K. Kim
- 606 Can Vanadium Substitute into LiFePO₄
F. Omenya, N. Chernova, S. Upreti, and M. Whittingham
- 607 Doped Spinel as Positive Electrode Materials for Lithium Batteries
M. V. Tran and M. Le
- 608 Spinel LiMn₂O₄/Graphene Nano-Hybrids for Cathode Materials in Lithium-Ion Batteries
S. Lee, S. Bak, and K. Kim
- 609 Oxide Electrodes for Na-Ion Batteries
M. Slater, H. Xiong, T. Rajh, and C. Johnson
- 610 Na-Ion Versus Li-Ion Battery Chemistries: Insights from First Principles Calculations
S. Ong, V. Chevrier, A. Jain, G. Hautier, C. Moore, S. Kim, X. Ma, and G. Ceder
- 611 Electrochemical Behavior of Na_xCoO₂ Prepared by Hydrothermal Reaction
R. Ruffo, M. D'Arienzo, F. Morazzoni, and C. Mari
- 612 (Student Research Award of the Battery Division) Characterization of Structural Changes in Layered Li-Excess Nickel Manganese Oxides in High Voltage Lithium-Ion Batteries during the First Electrochemical Cycle
C. R. Fell, M. Chi, and Y. Meng
- 613 Synthesis and Electrochemical Property of Na₂FePO₄F for Rechargeable Na-Ion Batteries
Y. Kawabe, N. Yabuuchi, Y. Yamakawa, M. Kajiyama, T. Inamasu, R. Okuyama, I. Nakai, and S. Komaba
- 614 Synthesis and Structural Characterization of a New Family of Intercalation Compounds: The Carbonophosphates
H. Chen, G. Hautier, and G. Ceder
- 615 Microstructural Effects on the Mg-Ion Intercalation Mechanism in MnO₂/Acetylene Black Composite Cathodes for Magnesium-Ion Rechargeable Batteries
S. Rasul, S. Suzuki, S. Yamaguchi, and M. Miyayama
- 616 Electrochemical Behavior of α-Mg₂Bi₃ Zintl Phase as an Anode Active Material for Mg-Ion Battery
M. Matsui, T. Arthur, N. Singh, and T. Tani
- 617 Electrochemical Properties of Amorphous TiO₂-B Prepared from Lepidocrocite Type Precursors
H. Noguchi, S. Miyazaki, Y. Tanaka, T. Iida, and Y. Furuya
- 618 Lithium-Graphite- Intercalation Compounds Synthesis in Propylene Carbonate-Based Solutions Containing Lithium and Calcium Ions
S. Takeuchi, K. Miyazaki, F. Sagane, T. Fukutsuka, and T. Abe

- 619 Chemical Lithiation for New and Better Performing Electrode Materials: A Review
Y. P. Mettan and R. Nesper
- 620 Synthesis and Electrochemistry of Nanocrystalline Iron and Manganese Oxide Materials
K. Takeuchi, A. C. Marschilok, and E. Takeuchi
- 621 Manganese-Enriched Gradient Lithium-Ion Battery Cathodes from Carbonate Precursors
G. M. Koenig Jr., I. Belharouak, and K. Amine
- 622 New Complex Lithium Iron Oxides with Layered, α - and β -LiFe₂O₃, and Tunnel Structures as Cathode Materials for Lithium-Ion Batteries
V. V. Poltavets, S. Bruno, and C. Blakely
- 623 Enhanced Cycle Life of Cathode Materials for Lithium-Ion Battery by Surface Modification
D. Lee, B. Scrosati, and Y. Sun
- 624 A Computational Study of Tavorite-Structured Cathode Materials
T. Mueller, G. Hautier, A. Jain, and G. Ceder
- 625 Recent Advances in Orthosilicate Cathode Materials
R. Dominko, C. Sirisopanaporn, G. Mali, D. Hanzel, and C. Masquelier
- 626 High Rate Capability of Li(NiCoMn)_{1/3}O₂ Electrode for Li-Ion Batteries
S. Wu, W. Zhang, G. Liu, V. S. Battaglia, and V. Srinivasan
- 627 Performance Improvement of Lithium Lanthanum Titanate (LLT) coated LiNi_{0.8}Co_{0.15}Al_{0.05}O₂ - A Combination of First-Principles Calculations and Experimental Studies
D. Qian, B. Xu, K. Carroll, and Y. Meng
- 628 NMR Studies of the Local Structure and Motion of Li in Iron Phosphates
J. Cabana, J. Shirakawa, G. Chen, T. Richardson, M. Nakayama, M. Wakihara, and C. Grey
- 629 ⁶Li NMR Studies of Ion Dynamics in Lithium Vanadium Phosphates and Fluorophosphates
L. Davis, X. He, X. He, A. Bain, and G. R. Goward
- 630 Lithium Cobalt Oxide/Reduced Graphene Oxide Nanocomposite with Excellent High Rate Capability
J. Kim, K. Kim, and K. Kim
- 631 Analysis of Lithium-Ion Battery Materials Using Extraordinary Solid-State NMR Methods
T. Spencer, R. Adam, V. Thangadurai, and G. R. Goward
- 632 Co K-Edge XANES of Lithium Cobalt Oxides by Density Functional Calculations
Y. Koyama, H. Arai, I. Tanaka, Y. Uchimoto, and Z. Ogumi

- 633 In Situ X-ray Absorption Spectroscopic Study on Electrode / Electrolyte Interface of Li_xCoO_2 Thin-Film Electrode
D. Takamatsu, T. Nakatsutsumi, S. Mori, Y. Orikasa, H. Yamashige, K. Sato, T. Fujimoto, Y. Takanashi, M. Oishi, H. Murayama, H. Tanida, H. Arai, Y. Uchimoto, and Z. Ogumi
- 634 In Situ FT Raman Spectroelectrochemistry on Highly Polarized LiCoO_2 for Lithium Ion Batteries
T. Itoh and A. Kasuya
- 635 The Different Behaviors of Lithium Iron Phosphate Cathodes during Cycling as Revealed by X-ray Absorption Spectroscopy
A. Korovina, C. T. Love, D. E. Ramaker, and K. Swider-Lyons
- 636 Nonequilibrium Phase Transition Behavior of $\text{LiFePO}_4 / \text{FePO}_4$ Studied by Time Resolved X-ray Diffraction
Y. Orikasa, T. Maeda, H. Murayama, M. Oishi, Y. Takanashi, T. Fujimoto, K. Sato, H. Yamashige, D. Takamatsu, H. Tanida, H. Arai, E. Matsubara, Y. Uchimoto, and Z. Ogumi
- 637 In Situ Raman Study of the Mechanism of Li Interaction with Graphene
E. Pollak, N. S. Norberg, and R. Kostecki
- 638 XRS Investigation of Lithium Intercalation into Graphitic Carbons
U. Boesenberg, D. Sokaras, T. Weng, D. Nordlund, J. Cabana, T. Richardson, and R. Kostecki
- 639 Cycling Stability of 5V $\text{LiMn}_{1.5}\text{Ni}_{0.5}\text{O}_4$ Spinel Particles Coated with a Thin Film Mixed Conductor
Y. Kim, M. Chi, C. Liang, and N. Dudney
- 640 A Study of Staking Faults in O4-Type Li_2CoO_2
N. Yabuuchi, Y. Kawamoto, M. Yonemura, T. Ishigaki, A. Hoshikawa, T. Kamiyama, and S. Komba
- 641 High Capacity Magnesium-Carbon Composite Anodes for Li-Ion Batteries
J. Benson, I. Kovalenko, and G. Yushin
- 642 Rate-Dependent Structural Changes and Surface Chemistry on Li-, Al-, F-Cosubstituted Spinel Cathodes for Lithium-Ion Batteries
J. Song, C. Nguyen, Y. Bae, K. Lee, J. Min, H. Ko, T. Kim, and S. Song
- 643 Hydrothermally Prepared Mesoporous Anatase TiO_2 Anode Material and its Cycling Ability in Ionic Liquid-Based Battery Electrolyte
K. Lee and S. Song
- 644 Effect of Surface Modification of LiCoO_2 Thin-Film Model Electrode Prepared by PLD
S. Mori, D. Takamatsu, Y. Orikasa, H. Tanida, H. Arai, Y. Uchimoto, and Z. Ogumi

- 645 Electrochemical Performance of Off-Stoichiometric Olivine Cathode
S. Masuda, T. Nakamura, Y. Yamada, H. Miyauchi, S. Hashimoto, and K. Abe
- 646 Effects of Cation Substitution on LiMnPO₄ Cathode Materials Studied by Synchrotron Based X-ray Techniques
J. Kim, D. Jang, J. Yoon, Y. Choi, K. Park, and W. Yoon
- 647 In Situ X-ray Diffraction Study on LiFePO₄ Olivine Cathode
T. Nakamura, S. Masuda, Y. Yamada, H. Takahara, and W. Yashiro
- 648 The Driving Force for the Relaxation of Reaction Distribution in LiCoO₂ and LiFePO₄ Electrodes
Y. Gogyo, H. Yamashige, M. Oishi, Y. Takanashi, T. Fujimoto, K. Sato, D. Takamatsu, Y. Oriksa, H. Murayama, H. Tanida, H. Arai, Y. Uchimoto, and Z. Ogumi
- 649 Synthesis and Characterization of Na_x(Fe_{1-y}Mn_y)O₂ as Positive Electrodes for Rechargeable Na-Ion Batteries
N. Yabuuchi, J. Iwatate, M. Kajiyama, Y. Yamamoto, S. Hitomi, R. Okuyama, and S. Komaba
- 650 Time-Resolved X-ray Diffraction Measurement for LiFePO₄ Positive Electrode
T. Maeda, Y. Oriksa, M. Oishi, H. Murayama, H. Arai, E. Matsubara, Y. Uchimoto, and Z. Ogumi
- 651 Structural and Electrochemical Study on Li_{1+x}[Mn,Ni,Co]_{1-x}O₂ Composite Cathode Materials for Lithium-Ion Batteries
S. Lee, H. Kim, Y. Lee, D. Kim, and W. Yoon
- 652 Synthesis and Characterization of Nano-Sized Lithium Manganese Oxide Dispersed on Carbon Nanotubes
A. Choi, S. Choi, and W. Yoon
- 653 Deeper Insights into the Electrochemical Properties, Electronic and Local Structures of Li₂FeSiO₄
T. N. Masese, Y. Oriksa, M. Oishi, H. Arai, Y. Uchimoto, and Z. Ogumi
- 654 Sn-Ge-S Composites Prepared by Melt-Quenching Method as an Anode Material for Li-Secondary Batteries
S. Bae, Y. Lee, Y. Kang, and W. Chung
- 655 Structural and Electrochemical Properties of LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ Cathode Material Modified by Coating with Al Oxides
Y. Sasaki, Y. Kikuzono, N. Fukiya, K. Araki, K. Okamura, K. Kojima, F. Kita, T. Takeuchi, H. Sakaebe, K. Tatsumi, and Z. Ogumi

- 656 Relationship between Electrochemical Pre-Treatment and Cycle Performance on Li-Rich Solid-Solution Layered $\text{Li}[\text{Ni}_{0.18}\text{Li}_{0.20}\text{Co}_{0.03}\text{Mn}_{0.58}]\text{O}_2$ Cathode Materials for Li-Ion Secondary Battery
A. Watanabe, F. Matsumoto, G. Kobayashi, M. Fukunishi, Y. Sato, A. Ito, and Y. Ohsawa
- 657 An All-Solid-State Lithium-Ion Battery with In Situ Formed Negative Electrode Material
Y. Iriyama, Y. Amiki, H. Miyahara, and F. Sagane
- 658 Electrochemical Property and Morphology of Li_2S -Nanocarbon Composite Electrode in All-Solid-State Rechargeable Lithium Batteries with Sulfide Solid Electrolyte
M. Nagao, A. Hayashi, and M. Tatsumisago
- 659 Ultra-Thick Silicon-Coated Vertically Aligned Carbon Nanotube Anodes for Lithium Ion Batteries
K. Evanoff, B. Hertzberg, A. Magasinski, W. Ready, T. F. Fuller, and G. Yushin
- 660 Electrochemical Performance of Silicon Whisker and Carbon Nanofiber Composite Anode
C. M. Lang, A. Cheimets, and J. Lennhoff
- 661 High Capacity Copper Oxide Thin Films for a Use in Lithium Microbatteries
D. Poinot, B. Pecquenard, F. Le Cras, and J. Manaud
- 662 Effect of the Carbon Additives on the Performance of High Voltage Cathodes in Lithium-Ion Batteries
F. La Mantia, R. A. Huggins, and Y. Cui
- 663 Investigation of the Electrochemical Behavior of Nano $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_{4-\delta}$ by TEM, EELS and XAS
F. Wang, X. Wang, L. Zhang, L. Wuj, X. Yang, J. Graetz, and Y. Zhu
- 664 Interfacial Reactivity of the $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ Spinel Cathode
N. S. Norberg, J. Syzdek, and R. Kostecki
- 665 Cation-Deficient Spinel Ferrite Architectures for Electrochemical Charge Storage
J. W. Long, B. Hahn, K. Pettigrew, and D. Rolison
- 666 Stability of LiMn_2O_4 Electrospun Fibers
N. Missert, N. Bell, R. Garcia, and J. Rivera
- 667 Understanding Changes to the Cathode-Electrolyte Interface of High Voltage Spinel with Neutron Reflectometry and Surface Spectroscopy
G. Veith, J. Browning, L. Baggetto, C. Bridges, and N. Dudney
- 668 Phosphates as Lithium-Ion Battery Cathodes: An Evaluation Based on High-Throughput Ab Initio Calculations
G. Hautier, A. Jain, S. Ong, B. Kang, C. Moore, R. Doe, and G. Ceder

- 669 Polaron Formation in Olivine LiMPO_4 Materials: Why Fe Works and Co, Mn, and Ni Do Not
M. Johannes, K. Hoang, and J. L. Allen
- 670 Strategies for Enhancing Electrical Conductivity in LiFePO_4 : Insights from First-Principles Calculations
K. Hoang and M. Johannes
- 671 Modeling Li^+ Diffusion in Materials for Li-Ion Batteries
G. Dathar, D. Sheppard, and G. Henkelman
- 672 Coupling of Kinetic Monte-Carlo Simulations with Continuum Level Models to Examine Capacity Fade
P. Northrop, V. Subramanian, and R. Braatz
- 673 Molecular Dynamics Simulations Study of Mechanisms of SEI Formation and Interfacial Resistance in Lithium-Ion Batteries
D. Bedrov and G. D. Smith
- 674 Computational Modeling of Graphite Intercalation Compounds With Solvated Lithium-Ion
K. Tasaki
- 675 Influence of the Architecture and Surface Effects on the Electronic Transport in Materials for Lithium Batteries
J. Badot, K. Seid, O. Dubrunfaut, S. Levasseur, D. Guyomard, and B. Lestriez
- 676 Comparison of Single Particle and Equivalent Circuit Analog Models for a Lithium-Ion Cell
S. Khaleghi Rahimian, S. Rayman, and R. E. White

B7 - Large Scale Energy Storage for Smart Grid Applications

Industrial Electrochemistry and Electrochemical Engineering, Battery, Energy Technology, Electronics and Photonics

- 677 Renaissance of Flow Battery Technology
M. L. Perry and R. Zaffou
- 678 Simulation and Optimization of a Flow Battery in an Area Regulation Application
J. Mellentine and R. F. Savinell
- 679 Development of Advanced All Vanadium and V-Fe Redox Flow Battery Systems at Pacific Northwest National Laboratory
L. Li, W. Wang, S. Kim, V. Murugesan, Z. Nie, B. Chen, Q. Luo, F. Chen, J. Liu, J. Hu, and Z. Yang
- 680 Investigation of Performance Limiting Issues in Vanadium Redox Flow Batteries: A Macroscopic Modeling Approach
E. Agar, K. Knehr, C. Dennison, and E. C. Kumbur

- 681 Unraveling Performance Losses in Flow Batteries
T. A. Zawodzinski Jr., T. Zhijiang, D. Aaron, J. S. Lawton, R. M. Counce, M. Moore, J. Watson, M. Mench, and A. Papandrew
- 682 Monitoring the State of Charge of Operating Vanadium Redox Flow Batteries
T. Zhijiang, D. Aaron, A. B. Papandrew, and T. Zawodzinski Jr.
- 683 Redox Flow Battery Simulations for Optimizing Separator Membrane Performance
D. Sing, P. Michael, and J. P. Meyers
- 684 Proton Exchange Membrane Performance in Vanadium Redox Flow Battery
T. Zhijiang, D. Aaron, R. Keith, A. Papandrew, and T. Zawodzinski Jr.
- 685 A Thin Film Rotating Disc Electrode Analysis of Carbon Felt for Redox Flow Battery Application
K. L. Hawthorne and R. F. Savinell
- 686 In Situ Single Electrode Studies of an All-Vanadium Redox Flow Battery
D. Aaron, T. Zhijiang, A. Papandrew, and T. Zawodzinski Jr.
- 687 Electron Spin Resonance Investigation of the Effects of Vanadium Ions in Ion Exchange Membranes for Uses in Vanadium Redox Flow Batteries
J. S. Lawton, D. Aaron, T. Zhijiang, and T. A. Zawodzinski Jr.
- 688 Organo-Sulfur Additives for Suppressing Hydrogen Evolution in Iron-Air Battery
S. Malkhandi, B. Yang, A. Manohar, G. Prakash, and S. Narayanan
- 689 Exploratory Research of Non-Aqueous Flow Batteries for Renewable Energy Storage
F. R. Brushett, A. Jansen, J. Vaughey, Z. Zhang, and F. Dogan
- 690 Aqueous Electrolyte Sodium Ion Based Energy Storage Batteries for Stationary Storage
J. Whitacre, S. Shanbhag, W. Yang, A. Mohamed, and E. Weber
- 691 The Physical and Chemical Properties of Rechargeable Electrodes for Semi-Solid Flow Cells (SSFCs)
B. Ho, N. Baram, Y. Dong, V. Wood, P. Limthongkul, M. Duduta, V. E. Brunini, W. Carter, and Y. Chiang
- 692 Factors Affecting the Cycle Life of Non-Aqueous Vanadium Flow Batteries
A. Shinkle, A. Sleightholme, L. Griffith, L. Thompson, and C. Monroe
- 693 Hydrogen-Bromine Flow Battery for Grid-Scale Energy Storage
K. Cho, A. Z. Weber, P. Ridgway, V. S. Battaglia, and V. Srinivasan
- 694 Initial Performance and Durability of Ultra-Low Loaded NSTF Electrodes for PEM Electrolyzers
M. K. Debe, S. M. Maier-Hendricks, G. Vernstrom, J. Willey, M. Hamden, C. K. Mittelsteadt, C. Capuano, K. E. Ayers, and E. Anderson

- 695 Redox Kinetics of the Bromine-Bromide Reaction for Flow Batteries
P. Ridgway, K. Cho, V. S. Battaglia, A. Z. Weber, and V. Srinivasan
- 696 Synthesis of Composite Metal Oxide Catalyst for Li-Air Battery
J. Gomez, E. E. Kalu, R. Nelson, M. Weatherspoon, and J. Zheng
- 697 Insertion Reaction Electrodes with Rapid Kinetics and Long Cycle Life for Grid Scale Energy Storage
C. Wessells, R. A. Huggins, and Y. Cui
- 698 Cycle Life of Manganese Dioxide Electrodes for Grid-Scale Batteries
J. W. Gallaway, N. Ingale, M. Nyce, Y. Ito, L. Sviridov, A. Gaikwad, S. Lever, A. Firouzi, S. Banerjee, and D. Steingart
- 699 Analysis of Thermally-Treated Graphite Felt Electrodes for Vanadium Redox Flow Batteries
A. Turhan, A. B. Papandrew, M. Grim, T. Zawodzinski Jr., and M. Mench
- 700 Zinc Morphology in Zinc Nickel-Oxide Batteries
Y. Ito, D. Desai, X. Wei, D. Steingart, and S. Banerjee
- 701 Enhancement of Energy Efficiency by Metal Oxide Doping on Carbon Felt Electrodes for Vanadium Redox Flow Batteries
J. Kim, K. Kim, M. Park, U. Hwang, N. Lee, and Y. Kim
- 702 Hydrogen-Bromine Flow Battery for Grid-Scale Energy Storage
K. Cho, A. Z. Weber, P. Ridgway, V. S. Battaglia, and V. Srinivasan
- 703 Novel Alloy Oxide Electrocatalysts for Use in Halogen Flow Batteries
B. Huskinson and M. Aziz

B8 - Lead-Acid Batteries and Capacitors, New Designs, and New Applications *Battery*

- 704 The Challenge of High-Rate Partial-State-of-Charge Operation of Lead-Acid Batteries
P. T. Moseley
- 705 Mild HEV Performance at Micro Hybrid Cost - A Low Voltage Lead-Acid Approach
A. Cooper
- 706 Simulation of SLI Lead-Acid Batteries for SOC, Aging and Cranking Capability Prediction in Automotive Applications
G. Pilatowicz, H. Budde-Meiwes, D. Schulte, J. Kowal, D. Sauer, Y. Zhang, N. Tong, M. Salman, D. Gonzales, and J. Alden
- 707 Carbon Loaded Lead Acid Cell Design for Micro Hybrid Application
N. Maleschitz, H. Diermaier, and T. Häupl

- 708 Experimental Studies of Carbon Enhanced Lead-Acid Cells: Pulse Tests and Related Mechanisms
A. F. Burke
- 709 The Beneficial Role of Carbon in the Negative Plate of Advanced Valve-Regulated Lead-Acid Batteries
B. Monahov
- 710 Lead-Carbon Electrode with Inhibitor of PbSO₄ Recrystallization in Lead-Acid Batteries Operating on HRPSoC Duty
D. Pavlov, P. Nikolov, and T. Rogachev
- 711 Carbon Corrosion Mechanisms in VRLA Batteries during High-Rate, Partial State-of-Charge Cycling
K. R. Bullock
- 712 Carbon Corrosion and Oxidation Lessons Learned from Fuel Cells: Relevance to Lead-Carbon Batteries
M. L. Perry
- 713 Axion PbC Batteries: A Lead-Carbon Asymmetric Solution to the Charge Acceptance Limitation of Lead-Acid Batteries
E. Dickinson V, P. Westreich, and M. R. Romeo
- 714 A 12V Substrate-Integrated PbO₂-Activated Carbon Asymmetric Hybrid Ultracapacitor with Silica-Gel-Based Inorganic Polymer Electrolyte
A. Banerjee, M. K. Ravikumar, A. K. Shukla, and S. Gaffoor
- 715 Lead Acid Hybrid Batteries of Differential Ionic Interfaces
C. Li, G. Weng, H. Li, and K. Chan
- 716 The Influence of Grid Structure on Lead-Acid Battery Performance
J. N. Harb
- 717 Electrochemical Principles as applied to Grid Corrosion in Lead-Acid Batteries
S. S. Misra
- 718 Lead Acid-NiMH Hybrid Battery System Using Gel Electrolyte
C. Li, G. Weng, and K. Chan

B9 - Mathematical Modeling of Lithium Ion Batteries and Cells
Battery, Industrial Electrochemistry and Electrochemical Engineering

- 719 Quantifying Batch to Batch Variations in Lithium-Ion Batteries
S. Santhanagopalan, G. Kim, K. Lee, K. Smith, and A. Pesaran
- 720 Electrochemical Modeling of Single Particle Intercalation Battery Materials with Different Thermodynamics
W. Lai

- 721 A Virtual Reference Electrode Suitable for the Non-Destructive Determination of SOC Dependent Half Cell Potentials
J. Schmidt, J. Richter, D. Klotz, and E. Ivers-Tiffée
- 722 Current-Voltage Relationships for Batteries
J. Marcicki, A. Conlisk, and G. Rizzoni
- 723 The Influence of Geometry in Simulation Studies of Charge/Discharge Processes of Li-Ion Batteries
S. Elul, Y. Cohen, and D. Aurbach
- 724 Charge–Discharge and Impedance Spectroscopy Simulations of All-Solid-State Battery Cells
M. Landstorfer, S. Funken, and T. Jacob
- 725 Solid-State Transport of Lithium in Lithium-Ion-Battery Positive Electrodes
D. M. Bernardi, R. Chandrasekaran, and J. Go
- 726 Impact of a Particle Size Distribution on Battery Voltage
M. B. Pinson and M. Z. Bazant
- 727 Theory of Intercalation Kinetics in Li-Ion Batteries
M. Z. Bazant
- 728 Mathematical Modeling of Phase Separation Behavior in LiFePO_4 Using Phase-Field Models
S. Dargaville and T. Farrell
- 729 The Effect of Electrolyte Transport Properties on the Behavior of Non-Uniform Electrodes
K. E. Thomas-Alyea
- 730 Particle Morphology and Interactions in the Lithium-Ion Battery Electrode
P. P. Mukherjee, S. Pannala, S. Allu, J. Nanda, N. Dudney, and J. Turner
- 731 Diffusion Induced Stress and Strain Energy in a Phase-Transforming Spherical Particle
R. D. Deshpande, Y. Cheng, M. Verbrugge, and A. Timmons
- 732 Li Transport Properties in $\text{Li}_y\text{FeSO}_4\text{F}$
C. Delacourt, M. Ati, and J. Tarascon
- 733 Modeling the Zero Current Voltage Gap in LiFePO_4
T. Ferguson and M. Z. Bazant
- 734 The Influence of Surface Reactions, Bulk Diffusion, and Coherency Strain on the Kinetics of Intercalation in LiFePO_4
D. Cogswell and M. Z. Bazant
- 735 Effect of Solvent Properties on Limiting Currents and Concentration Profiles in Non-Aqueous Electrolytes
J. Liu and C. Monroe

- 736 Continuous and Discrete Approaches for Modeling Capacity Fade in Lithium-Ion Batteries
V. Ramadesigan, P. Northrop, V. Subramanian, and R. Braatz
- 737 Utility of Differential Voltage Spectroscopy for Battery State of Health Monitoring and Life Predictions
J. Wang, P. Liu, and M. Verbrugge
- 738 One Dimensional Modeling of Cycle Performance of Lithium-Ion Batteries
G. Cho, J. Choi, and S. Cha
- 739 A Thermodynamics-Based Approach to Predicting Path Dependence of Aging in Electrochemical Cells
K. L. Gering
- 740 Lifetime Evaluation and Modeling of Li-Ion Modules and Cells
P. J. Vie and R. Fotedar
- 741 Prediction of Li-Ion Battery Life under Real-World Automotive Duty-Cycles
K. Smith, M. Earleywine, S. Santhanagopalan, and A. Pesaran
- 742 Mechanisms and Modeling of Lithium-Ion Battery Aging for a Vehicle Usage
Q. Badey, G. Cherouvrier, Y. Reynier, and S. Franger
- 743 Ex Situ Depth-Sensing Indentation Measurements of Electrochemically Produced Si-Li Alloy Films
B. Hertzberg, J. Benson, and G. Yushin
- 744 Mathematical Modeling of Volume Changes in Porous Electrodes
J. Moraveji, P. Gomadam, and J. Weidner
- 745 Mathematical Modeling of LiAl/FeS₂ Molten Salt High Temperature Battery System
T. Yang, L. Cai, and R. E. White
- 746 Modeling Non-Uniform Current Density during Slow Flow Rate Operation of Semi-Solid Flow Cells (SSFCs)
V. E. Brunini, W. Carter, and Y. Chiang
- 747 Multiscale Modeling and Simulation of Lithium-Ion Batteries from Systems Engineering Perspective
V. Ramadesigan, P. Northrop, S. De, S. Santhanagopalan, R. Braatz, and V. Subramanian
- 748 Microstructural Modeling of LiFePO₄ Granular Cathodes: Toward Enhanced Ion Transport
K. C. Smith, P. Mukherjee, and T. S. Fisher
- 749 An Efficient Multiscale Model of a Spirally-Wound Li-Ion Cell
J. Christensen, S. Patnaik, P. Albertus, and D. Cook

- 750 Simulations of Li-Ion Intercalation Dynamics in 3D Microstructures
B. Orvananos, H. Yu, M. Z. Bazant, and K. Thornton
- 751 A Multi-Physics Model for the Stress Analysis of a Lithium-Ion Cell
W. Wu, X. Xiao, and X. Huang
- 752 Physics Based Modeling of a 40 Ah Li-Ion Battery for Geosynchronous Earth Orbit Satellite Applications
R. Spotnitz and M. Isaacson
- 753 Lithium Redistribution in Lithium-Metal Batteries
A. Ferrese and J. Newman
- 754 A Multi-Scale Lithium-Ion Battery Model with Orthotropic Continuum Modeling of Cell Composites
G. Kim, K. Lee, K. Smith, S. Santhanagopalan, and A. Pesaran
- 755 Pack Level Modeling of Lithium-Ion Batteries
S. Rayman and R. E. White
- 756 Computational Design and Synthesis of New Ternary Solid Li⁺ Superionic Conductors
J. G. Myrdal, D. Sveinbjornsson, and T. Vegge
- 757 Non-Equilibrium Phase Transformation and Particle Shape Effect in Li-Ion Battery Materials
N. Siddique, F. Liu, and P. P. Mukherjee

B10 - Polymer Electrolyte Fuel Cells 11

Energy Technology, Physical and Analytical Electrochemistry, Battery, Industrial Electrochemistry and Electrochemical Engineering, Corrosion

- 758 Multi-Scale Modelling of the PEMFC Catalyst Layer: Coupling Microstructure to Performance
D. B. Harvey, M. Khakbazbaboli, B. Jayasankar, C. Chueh, C. Bellemare-Davis, J. Pharoah, and K. Karan
- 759 Pore Network Modeling of a Fuel Cell Electrode Using a Random Network Based on Delaunay and Voronoi Tessellations
J. T. Gostick
- 760 A Representative Volume Element Approach for Pore-Scale Modeling of Fuel Cell Materials
E. A. Wargo, A. C. Hanna, A. Cecen, S. R. Kalidindi, and E. C. Kumbur
- 761 Incorporation of Evaporation and Vapor Transport in Pore Level Models of Fuel Cell Porous Media
E. F. Medici and J. S. Allen

- 762 Single Pore Modeling of Ultrathin Catalyst Layers in PEFCs
K. Chan and M. Eikerling
- 763 Kinetics of CO_{ads} Oxidation on Pt Black
A. Engstrom, E. Lim, J. Reimer, and E. J. Cairns
- 764 Effect of Particle Size on CO-Tolerance at Pt₂Ru₃/C Anode Catalysts Analyzed by In-Situ ATR-FTIR
H. Uchida, T. Sato, K. Okaya, H. Yano, K. Kunimatsu, and M. Watanabe
- 765 Mesoporous Carbon as Support for PtRu Catalyst Electrochemical and Fuel Cell Characterization
F. A. Viva, M. M. Bruno, and H. R. Corti
- 766 Investigation on the Stability of Pt/C and Pt-RuO_x/C Catalysts
É. C. Rufino, F. L. Purgato, and P. Olivi
- 767 Enhanced Methanol Electro-Oxidation on Pt-Ru Decorated Self-Assembled TiO₂-Carbon Hybrid Nanostructure
K. G. Nishanth, P. Sridhar, S. Pitchumani, and A. K. Shukla
- 768 N-Modified Carbon Supported Pt-Ru Direct Methanol Fuel Cell Catalyst Performance and Durability
T. Olson, P. Joghee, A. Dameron, A. Corpuz, S. Pylypenko, K. Hurst, D. Ginley, T. Gennett, R. O'Hayre, and H. Dinh
- 769 Development Trends and Popularization Scenario for Fuel Cell Vehicle
K. Kojima, T. Yoshida, T. Yokoyama, and S. Sekine
- 770 Electrons to Go: Electrochemistry and the Future of the Automobile
F. T. Wagner, B. Lakshmanan, and M. F. Mathias
- 771 Application of Neutron Imaging in PEFC Research
P. Boillat, P. Oberholzer, R. Perego, R. Siegrist, A. Kaestner, E. H. Lehmann, G. G. Scherer, and A. Wokaun
- 772 Characterization of Heat and Water Transport in Gas Diffusion Layers and Associated Interfaces
M. Mench
- 773 Visualization of O₂, CO₂, and Water Droplets/Blockages in PEFC under Operation
J. Inukai, Y. Nagumo, H. Nishide, and M. Watanabe
- 774 PEMFC MEA and System Design Considerations
S. Knights, R. Bashyam, P. He, M. Lauritzen, C. Startek, V. Colbow, J. Kolodziej, and S. Wessel

- 775 In Situ XAS Studies of Core-Shell PEM Fuel Cell Catalysts: The Opportunities and Challenges
A. E. Russell, S. W. Price, A. Wise, A. Rose, B. Tessier, S. Ball, B. Theobald, D. Thompsett, and E. M. Crabb
- 776 Oxygen Electrocatalysis on Select Catalysts in Aqueous and Nonaqueous Solutions and Implications for Fuel Cells and Li-Air Batteries
Y. Shao-Horn
- 777 Structure-Performance Relationship Study of Alkaline Polymer Electrolytes
J. Pan, C. Chen, L. Zhuang, and J. Lu
- 778 Structure and Transport Properties in Nafion Membranes
G. Gebel, S. Lyonard, A. Guillermo, H. Mendil-Jakani, and A. Morin
- 779 Role of Micro-Porous Layer for Water Transfer Phenomena in PEFC
K. Kadowaki, Y. Tabe, and T. Chikahisa
- 780 The Influence of Micro Structure of the GDL and MPL on the Mass Transport in PEFC
T. Kotaka, O. Aoki, T. Shiomi, Y. Fukuyama, N. Kubo, and Y. Tabuchi
- 781 Influence of Anode GDL on PEMFC Ultra-Thin Electrode Water Management at Low Temperatures
A. J. Steinbach, M. K. Debe, M. J. Pejsa, D. M. Peppin, A. T. Haug, M. J. Kurkowski, and S. M. Maier-Hendricks
- 782 Image Measurement of Water Droplets in Cathode of PEFC Based on Background Subtraction Method
K. Nishida, S. Tanaka, S. Tsushima, and S. Hirai
- 783 Detachment of Liquid-Water Droplets from Gas-Diffusion Layers
P. K. Das and A. Z. Weber
- 784 Effect of Titanium Powder Loading in Microporous Layer on a Polymer Electrolyte Unitized Reversible Fuel Cell
H. Ito, T. Maeda, A. Nakano, C. Hwang, M. Ishida, A. Kato, and T. Yoshida
- 785 Investigation of Water Droplet Interaction with the Side Wall of the Gas Channel in the PEM Fuel Cell in the Presence of Gas Flow
P. Gopalan and S. G. Kandlikar
- 786 Effect of Temperature on In-Plane Permeability of Water Vapor in the Gas Diffusion Layer of PEM Fuel Cells
R. Banerjee and S. G. Kandlikar
- 787 Microstructure and Capillarity in the Polymer Electrolyte Fuel Cell Gas Diffusion Layer
P. P. Mukherjee, J. Hinebaugh, and A. Bazylak

- 788 Modeling the Effects of MPL on the Transient Response of Proton-Exchange Membrane Using Experimentally Measured Capillary Pressure
P. O. Olapade and J. P. Meyers
- 789 Numerical Prediction of Permeability through Gas Diffusion Layers
S. Didari, W. Huang, S. Tassier, Y. Wang, and T. Harris
- 790 Stainless Steel Based Metal Bipolar Separate Plates for PEM Fuel Cell Applications
L. Zhang, G. Gontarz, and C. Wang
- 791 Interfacial Contact Resistance of Metallic Bipolar Plates
L. Bonville, H. R. Kunz, J. McCabe, M. Mahapatra, L. Lipp, and P. Singh
- 792 Metal Coated Polycarbonate Bipolar Plates for Air Breathing Polymer Electrolyte Fuel Cells
Y. Lee, T. Park, and S. Cha
- 793 Development of Metal Bipolar Plate for PEMFCs Using Through-Mask Electro-Etching Process
S. Shimpalee, V. Lilavivat, J. Van Zee, H. McCrabb, and E. Taylor
- 794 Effect of Chemical Treatment on Interfacial Contact Resistance of Ferritic Stainless Steel as Bipolar Plate for PEMFC
K. Kim, S. Kim, J. Kim, and K. Kim
- 795 Expanded Graphite Epoxy Composite Bipolar Plates for Proton Electrolyte Membrane Fuel Cells
B. Unveroglu, F. Dundar, F. Ay, S. Yazici, and A. Ata
- 796 The Case of Lambda: How a Simple Parameter can Shape our Approach and Understanding
T. A. Zawodzinski Jr.
- 797 The Importance of Water Content (λ) on Electroosmotic Drag and Degradation in PEMFCs
T. Fuller
- 798 Water Sorption and Related Structure-Function Properties of Nafion at Multiple Time- and Length-Scales
A. Kusoglu and A. Z. Weber
- 799 Morphological Factors Affecting the Behavior of Water in Proton Exchange Membrane Materials
R. B. Moore, G. M. Divoux, A. Osborn, J. K. Park, and M. Zhang
- 800 Simultaneous Water Uptake, Diffusivity and Permeability Measurement of Perfluorinated Sulfonic Acid Polymer Exchange Membranes
C. K. Mittelsteadt and J. Staser

- 801 Impact of Relative Humidity on Nafion 212 Surface Ion Conductivity and Mass Transport Properties
Q. He, I. T. Lucas, A. Kusoglu, A. Z. Weber, and R. Kostecki
- 802 U.S. Department of Energy Polymer Electrolyte Membrane Fuel Cell Catalyst Development Activities
J. P. Kopasz, K. E. Martin, T. G. Benjamin, N. L. Garland, D. L. Ho, D. Papageorgopoulos, and W. F. Podolski
- 803 Highly Efficient Synthesis of Supported Platinum Nanoparticles for Proton Exchange Membrane Fuel Cell by Homogeneous Deposition
M. Song, M. Kim, J. Kim, D. Yang, and J. Yu
- 804 Influence of Pt Catalyst Nanoparticle Size on the Electrochemical Performance of PEM Fuel Cells
D. J. Groom, S. Rajasekhara, S. Matyas, Z. Yang, M. Gummalla, S. Ball, and P. Ferreira
- 805 Nanostructured Thin Film Electrocatalysts - Current Status and Future Potential
M. K. Debe, R. T. Atanasoski, and A. J. Steinbach
- 806 Pt-Loaded Carbon Supports with Controlled Pore Depth as Oxygen Reduction Catalysts
D. Banham, F. Feng, S. Ye, and V. Birss
- 807 Incorporation of Carbon with Unsupported Pt Electrocatalysts
K. Neyerlin, B. Larsen, J. Zack, S. Kocha, and B. Pivovar
- 808 Electrochemically Available Surface Area and Mass and Specific Activities of Extended Surface Pt Nanostructures
K. Neyerlin, B. Larsen, T. Olson, S. Pylypenko, J. Zack, S. Kocha, and B. Pivovar
- 809 In Situ Investigation of Surface Metal Atom Coordination on Highly Dispersed Pt for Enhanced Electrocatalytic Oxygen Reduction Activity
S. St. John and A. P. Angelopoulos
- 810 Rotational Drying Method for High-Quality, Reproducible Thin Films for Rotating Disk Electrode Evaluation of Electrocatalysts
Y. Garsany, O. Baturina, and K. Swider-Lyons
- 811 Influence of Ionomer on a Platinum Disk Electrode to the Oxygen Transport Resistance
Y. Ono, A. Ohma, K. Shinohara, and K. Fushinobu
- 812 The Impact of Electrochemical Interface Structure on Electrocatalytic Reactions in Alkaline Media
D. Strmcnik, K. Kodama, M. Uchimura, V. Stamenkovic, and N. Markovic
- 813 Oxygen Electroreduction on $\text{Pt}_x\text{Co}_{1-x}$ and $\text{Pt}_x\text{Cu}_{1-x}$ Alloy Nanoparticles in Alkaline and Acid Fuel Cells
M. Oezaslan, F. Hasché, and P. Strasser

- 814 Electrochemical Promotion of Oxygen Reduction on Gold with Aluminum-Phosphate Overlayer
Y. Park, S. Nam, Y. Oh, H. Choi, J. Park, and B. Park
- 815 Core-Shell Structures as Oxygen Reduction Reaction Catalysts for Fuel Cells
Q. Xu, Y. Zhang, W. Sheng, and Y. Yan
- 816 Investigation into the Mechanism of Ethanol Electrooxidation in Alkaline Media with BB-SFG
R. Kutz, B. Braunschweig, P. Murkerjee, D. Dlott, and A. Wieckowski
- 817 Electrochemical Oxidation of Ethylene Glycol on Pt-Based Catalysts in Alkaline Solutions and Quantitative Analysis of Intermediate Products
K. Miyazaki, T. Matsumiya, T. Abe, H. Kurata, T. Fukutsuka, K. Kojima, and Z. Ogumi
- 818 The Electro-Oxidation of Ethanol in Alkaline Medium at Different Catalyst Metals
D. Bayer, C. Cremers, and J. Tübke
- 819 Nanostructured PtRu Catalyst for Oxidation of Ethylene Glycol and Glycerol in Alkaline Media
A. Falase, K. Garcia, and P. Atanassov
- 820 Pt₇Sn₃ Catalysts for Ethanol Electro-Oxidation: Correlation between Surface Structure and Catalytic Activity
E. A. Baranova, T. Amir, K. Artyushkova, B. Halevi, U. Martinez, and P. Atanassov
- 821 Bimetallic Alloy Electrocatalysts for Ethanol Oxidation in Alkaline Media
U. Martinez, B. Halevi, T. Olson, S. Pylypenko, A. Datye, P. Atanassov, and B. Kiefer
- 822 Catalyst Layer Analysis: Nanoscale X-ray CT, Spatially-Resolved In Situ Microscale Diagnostics, and Modeling
S. Litster, K. Hess, W. Epting, and J. Gelb
- 823 STXM Study of the Ionomer Distribution in the PEM Fuel Cell Catalyst Layers
D. Susac, V. Berejnov, A. P. Hitchcock, and J. Stumper
- 824 The Effectiveness of Platinum/Carbon Electrocatalysts: Dependence on Catalyst Layer Thickness and Pt Alloy Catalytic Effects
M. Uchida, M. Lee, D. Tryk, H. Uchida, and M. Watanabe
- 825 Investigation of the Interaction between Nafion Ionomers and Carbon in Catalyst Ink Using Ultra Small Angle X-ray Scattering and Cryo-TEM
F. Xu, H. Zhang, J. Ilavsky, L. Stanciu, and J. Xie
- 826 Effect of Carbon Black Aggregate Structure on Transport Phenomena of PEFC
G. Inoue, T. Matsuoka, Y. Matsukuma, and M. Minemoto

- 827 Platinum Utilization in Thickness Controlled Catalyst Layers Prepared by Piezoelectric Printer
D. Malevich, J. Suryana, E. Halliop, B. Peppley, J. Pharoah, and K. Karan
- 828 High Performance Plasma Sputtered Fuel Cell Electrodes with Ultra Low Catalytic Metal Loadings
C. Coutanceau, P. Brault, A. Caillard, M. Mougnot, S. Baranton, A. Ennadjaoui, and M. Cavarroc
- 829 Structure-To-Property Relationship across Different Length-Scales for Non-PGM ORR Electrocatalysts
K. Artyushkova, B. Halevi, A. Serov, N. Ramaswamy, S. Mukerjee, and P. Atanassov
- 830 Water Uptake in PEMFC Catalyst Layers
A. Kwong, H. Gunterman, J. T. Gostick, K. T. Clark, A. Kusoglu, and A. Z. Weber
- 831 Modeling the Coupling of Water Fluxes in Cathode Catalyst Layer with Adjacent Media in PEM Fuel Cells
M. Baghalha, J. Stumper, and M. Eikerling
- 832 Portable Direct Methanol Fuel Cell System: From Materials and Stack Design to System Evaluation
H. Chang, C. Pak, H. Cho, and K. Choi
- 833 Anode Catalysts for the Direct Dimethyl Ether Fuel Cell
Q. Li, G. Wu, C. M. Johnston, and P. Zelenay
- 834 Impact of Catalyst Structure and Operating Conditions on Ruthenium Crossover in Direct Methanol Fuel Cells
C. M. Johnston, A. Trendewicz, Q. Li, G. Wu, H. T. Chung, N. Mack, F. Garzón, and P. Zelenay
- 835 Effect of CO₂ on the Alkaline Membrane Fuel Cell
K. N. Grew, X. Ren, and D. Chu
- 836 Development of an Alkaline Anion Exchange Membrane Direct Ethylene Glycol Fuel Cell Stack
C. Cremers, A. Niedergesäß, F. Jung, D. Müller, and J. Tübke
- 837 Use of Electrochemical Methods for Evaluation of Components for Liquid Fuel Cells
L. Krishnan, T. Huang, D. Simone, M. Doherty, G. Soloveichik, G. Zappi, M. P. Rainka, O. Siclovan, T. Miebach, J. B. Kerr, and J. Stein
- 838 Electrochemical Behavior of Direct Methanol Fuel Cells Based on Acidic Silica - Sulfonated Polysulfone Composite Membranes
V. Baglio, F. Lufrano, O. Di Blasi, P. Staiti, V. Antonucci, and A. Aricò

- 839 A Simple Model for Methanol Crossover and its Striking Effect on the Performance of Passive DMFCs
N. S. Rosenthal, S. Vilekar, and R. Datta
- 840 Evaluation of Current Output in *Pseudomonas Aeruginosa* Microbial Fuel Cells Using Glycerol as Substrate and Nafion 117 as Proton Exchange Membrane
A. S. Gomes, C. E. La Rotta, M. Nitschke, and E. R. González
- 841 Super Proton Conductive Nafion Nanofibers: Discovery, Fabrication, Properties, and Fuel Cell Performance
B. Dong, H. Chen, J. Snyder, and Y. A. Elabd
- 842 Nanofiber Composite Membranes for High-Temperature/Low-Humidity Fuel Cells
J. B. Ballengee and P. Pintauro
- 843 On Electrospinning of PFSA: A Comparison between Long and Short-Side Chain Ionomers
S. Subianto, S. Cavalière, J. Rozière, and D. Jones
- 844 Performance and Durability of ePTFE Reinforced Membranes for Fuel Cells
R. Jiang, W. Gu, and S. Brawn
- 845 Ultra-Thin Reinforced Ionomer Membranes to Meet Next Generation Fuel Cell Targets
M. Crum, J. Kolde, and B. Kienitz
- 846 R and D for Improvement on Polymer Electrolyte Membrane and Ionomer Dispersion
Y. Iizuka, Y. Inoue, A. Kato, M. Honda, N. Miyake, T. Yoshimura, T. Ino, and M. Kondo
- 847 Effects of Annealing Condition on the Performance of Solution Casting Nafion Membranes
X. Ding, T. F. Fuller, and T. Harris
- 848 Influence of Heat Treatment, Temperature, and Long Term Hygrothermal Aging on Sorption and Transport Properties of Nafion Membranes
L. Maldonado, J. Perrin, J. Dillet, and O. Lottin
- 849 Proton Conductivity and Partial Molar Volume of Different Polymer Electrolyte Membranes
Y. Bai, M. Maalouf, and T. A. Zawodzinski Jr.
- 850 Mesoporous Nafion Membranes for Fuel Cell Applications
S. Jiang and J. Lu
- 851 Investigation of Heteropolyacid Based Composite Membranes
J. Rajeswari, Z. Ziegler, G. M. Haugen, S. Hamrock, and A. M. Herring
- 852 In Situ Observation of Nafion-Model Molecular Behaviors at Metal Electrodes by SEIRAS
I. Yagi, K. Nomura, H. Notsu, K. Kimijima, and N. Ohta

- 853 Pt-Oxide Coverage-Dependent Oxygen Reduction Reaction (ORR) Kinetics
N. P. Subramanian, T. Greszler, J. Zhang, W. Gu, and R. R. Makharia
- 854 Intermediate Coverage in Oxygen Reduction Reaction by First Principles-Based Mean Field Model
R. Jinnouchi, K. Kodama, T. Hatanaka, and Y. Morimoto
- 855 Transient Platinum Oxide Formation and Oxygen Reduction on Carbon Supported Platinum and Platinum Alloy Catalysts
Y. Huang, J. Zhang, Y. Liu, N. P. Subramanian, F. T. Wagner, J. Jorne, and J. Li
- 856 The Active Surface Area of Nanoporous Metals during Oxygen Reduction
J. Snyder and J. Erlebacher
- 857 Oxygen Reduction Activity of Thin Pt/W Overlayer Electrocatalyst
P. A. Shirvanian, P. Pietrasz, M. Sulek, and K. Sun
- 858 Structural Origins of Catalytic Activity in Dealloyed Pt₃Ni & PtNi₃ Thin Films Prepared by Electrodeposition
C. M. Hangarter, Y. Liu, V. Oleshko, L. Bendersky, and T. Moffat
- 859 Comparison of the ORR Activity of Carbon Supported PtCo and PtSnCo Electrocatalysts for PEM Fuel Cells
S. Ozenler, N. Sahin, B. Akaydin, J. Léger, T. Napporn, and F. Kadirgan
- 860 X-ray Absorption Spectroscopy Investigation on High Activity Dealloyed PtCo₃ Cathodic Catalysts
K. M. Caldwell, S. Mukerjee, J. Qingying, J. Ziegelbauer, and D. E. Ramaker
- 861 Effect of the Thermal Treatment Condition on Pt-Fe/C Alloy Catalyst Performance by Pulse-Microwave Assists Chemical Reduction
J. Zheng, R. Fu, D. Yang, H. Lv, and J. Ma
- 862 Structural Correlation of Electrocatalytic Properties of Nanoengineered Bimetallic Catalysts for Oxygen Reduction Reaction
R. Loukrakpam, J. Luo, B. Wanjala, B. Fang, J. Yin, and C. Zhong
- 863 Designing Alkaline Exchange Membranes from Scratch
A. M. Herring, E. Coughlin, D. Knauss, Y. Yan, G. A. Voth, T. Witten, and M. Liberatore
- 864 Direct Methanol Alkaline Fuel Cell Using Crosslinked Hydrocarbon Backbone Polymer Membranes
R. Stanis, A. Wagner, C. Q. Fan, and D. Chu
- 865 Cross-Linked Polymer Electrolyte Membranes with Enhanced Mechanical Stability for Alkaline Fuel Cells
Y. Luo, J. Guo, C. Wang, and D. Chu

- 866 Novel Synthetic Approach and their Properties for Alkaline Exchange Polysulfone Membranes
Y. Lee, H. Lee, and C. Bae
- 867 Anion Conductive Membrane Prepared by Plasma Polymerization for Direct Methanol Alkaline Fuel Cell
M. Sudoh, S. Niimi, T. Kurozumi, and Y. Okajima
- 868 Multiscale Simulation of Hydroxide Solvation and Transport in Anion Exchange Membranes
G. A. Voth
- 869 Computational Modeling of Polymer Hydroxide Exchange Membranes for Alkaline Fuel Cell Applications
B. Merinov and W. Goddard III
- 870 Partially Fluorinated Copoly(Arylene Ether) Alkaline Ionomers for Alkaline Electrodes
J. Zhou, M. Ünlü, I. Anestis-Richard, K. Joseph, and P. Kohl
- 871 Anion Exchange Membranes (AEMs) with Perfluorinated and Polysulfone Backbones with Different Cation Chemistries
C. G. Arges, M. Jung, G. Johnson, J. Parrondo, and V. Ramani
- 872 Self-Crosslinking for Dimensionally Stable and Solvents-Resistant Quaternary Phosphonium Based Hydroxide Exchange Membranes
S. Gu, R. Cai, and Y. Yan
- 873 Improvement of PEMFC Performance by Optimization of the Decal Process
H. Cho, H. Jang, S. Lim, E. Cho, J. Jang, H. Kim, and T. Lim
- 874 Electrochemical Analysis of Thickness-Controlled PEMFC Cathode Catalyst Layer in Faradaic and Non-Faradaic Condition
J. Lim, D. Chung, N. Jung, Y. Cho, O. Kim, Y. Cho, and Y. Sung
- 875 Fuel Cell Electrodes Based On Electrospun Nanofibres
S. Cavalière, I. Savych, S. Subianto, J. Rozière, and D. Jones
- 876 Electrode Compositions for High-Temperature Polymer Electrolyte Fuel Cell (HT-PEFC)
T. Kaz and J. A. Kerres
- 877 ASAXS Measurement for Membrane Electrode Assembly (MEA)
C. Yu, R. Srivastava, R. Yang, M. Toney, and P. Strasser
- 878 Permeability of a PEMFC Gas Diffusion Layer Based on Morphology
E. Nishiyama and T. Murahashi
- 879 Modeling the Variation of Relative Humidity along the Cathode Feed Channel of a PEM Fuel Cell
M. Baghalha

- 880 A Half Cell Numerical Model of a Proton Exchange Membrane Fuel Cell (PEMFC) Cathode
N. Akhtar and P. Kerkhof
- 881 Multi-Scale Study of Liquid Water Profiles in the Cathode Gas Diffusion Layer of Polymer Electrolyte Fuel Cells
Y. Wang and P. P. Mukherjee
- 882 Stochastic Reconstruction at Two Scales and Experimental Validation to Determine the Effective Electrical Resistivity of a PEMFC Catalyst Layer
R. Barbosa, B. Escobar, U. Cano, R. Pedicini, R. Ornelas, and E. Passalacqua
- 883 Performance Degradation and Microstructure Changes in Freeze-Thaw Cycling for PEMFC MEAs with Various Initial Microstructures
J. Jang, S. Lee, H. Kim, E. Cho, H. Dirk, K. Lee, M. Cho, I. Hwang, and T. Lim
- 884 Membrane Electrode Assembly Fabrication Effects in PEMFC Subzero Characteristics
A. O. Pistono and C. Rice-York
- 885 Structure Alteration and Activity Improvement of PdCoAu/C Catalysts for the Oxygen Reduction Reaction
Y. Wei and K. Wang
- 886 Effect of the Content of Platinum and Carbon Support in Cathode Catalyst on the Cell Performance under Low and High Relative Humidity
H. Nakajima, K. Matsutani, T. Kaieda, and T. Tada
- 887 Effect of Ammonia Contained in Hydrogen Fuel on PEMFC Performance
D. Imamura, Y. Matsuda, Y. Hashimasa, and M. Akai
- 888 Influence of Oxygen on SO₂ Adsorption on Pt/VC Catalysts at 0.1-0.9 V
O. Baturina, B. Gould, R. Stroman, and K. Swider-Lyons
- 889 Mass-Balance of Sulfuric Impurities through an Electrolyte Membrane in PEMFC and their Impact on the Reduction in Cell Voltages
Y. Oono, K. Kobayashi, and M. Hori
- 890 Effect of Nafion Ionomer and Catalyst in Cathode Layers for the Direct Formic Acid Fuel Cell with Complex Capacitance Analysis on the Ionic Resistance
J. Jang, S. Kim, J. Han, Y. Kwon, S. Kim, B. Lee, K. Lee, S. Nam, and T. Lim
- 891 A Biologically Inspired Organometallic Fuel Cell (OMFC) that Converts Renewable Alcohols into Energy and Chemicals
F. Vizza, M. Bevilacqua, J. Filippi, A. Lavacchi, A. Marchionni, W. Oberhauser, C. Bianchini, S. Annen, and H. Grützmacher
- 892 Performance Analysis of a PEM Fuel Cell System with Methanol Reformer
T. Oh and H. Lee

- 893 Improvement in Durability of Carbonaceous and Aluminum Bipolar Plate by Tin Oxide Coating for PEMFC and URFC
T. Kinumoto, K. Nagano, Y. Yamamoto, T. Tsumura, and M. Toyoda
- 894 Multinuclear NMR Study of the Effect of Acid Concentration on Ion Transport in Phosphoric Acid Doped Polybenzimidazole Membranes
S. Suarez, N. Kodiweera, P. Stallworth, S. Greenbaum, and B. C. Benicewicz
- 895 Blend Membranes of Highly Phosphonated Polysulfone and Polybenzimidazoles for High Temperature Proton Exchange Membrane Fuel Cells
R. A. Potrekar, K. T. Clark, X. Zhu, and J. B. Kerr
- 896 Intermediate (IT) and High-Temperature (HT) Proton Exchange Membranes (PEMs) for PEMFC Applications
M. Hattenberger, B. Pollet, and K. Miyatake
- 897 Membranes with Phosphonic Acid Moieties for High Temperature PEMFC
L. Ghil and H. Rhee
- 898 Incorporation of Sulfated Zirconia in Improved Low Humidity Operation in Polymer Electrolyte Fuel Cells
W. E. Kelley, S. Beravelli, A. S. Bauskar, and C. Rice-York
- 899 Ionic-Crosslinked Interpenetrating Polymer Network (IPN) Membranes for Anhydrous High Temperature Polymer Electrolyte Fuel Cells Based on PFSA Ionomer and Functionalized Polysiloxane
X. Zhu, Z. Martin, K. T. Clark, T. Brecht, R. A. Potrekar, S. Burgess, and J. B. Kerr
- 900 Organic/Inorganic Proton Conductors Based on Layered Titanates
C. de Bonis, A. D'Epifanio, B. Mecheri, E. Traversa, and S. Licoccia
- 901 Performance and Durability of Sulfonated Poly(Arylene Ether Sulfone) Membrane-Based Membrane Electrode Assemblies Fabricated by Decal Method for Polymer Electrolyte Fuel Cells
W. Ahn, S. Yim, Y. Choi, Y. Sohn, S. Park, Y. Yoon, G. Park, and T. Yang
- 902 Proton Conduction Characteristics in Radiation-Grafted Polymer Electrolyte Membranes Based on Perfluorinated and Aromatic Hydrocarbon Polymers
S. Sawada and Y. Maekawa
- 903 Proton Dynamics in Sulfonated Ionic Salt Composites: Alternative Membrane Materials for Proton Exchange Membrane Fuel Cells
N. E. De Almeida, M. Ma, J. Traer, and G. R. Goward
- 904 Development of the New Model for the Proton Hopping by Molecular Dynamics Simulation
H. Sakai, T. Yoshida, and T. Tokumasu

- 905 Molecular Dynamics Study of Oxygen Permeation in PFSA Ionomer on the Pt Catalyst Surface
K. Sakai and T. Tokumasu
- 906 Analysis of Proton and Water Transfer in Perfluorosulfonic Acid Membrane by Molecular Dynamics Simulation
T. Mabuchi and T. Tokumasu
- 907 Enhanced Chemical Durability of Hydrocarbon Electrolyte Membrane with Pd
H. Kurita, S. Saito, A. Nakamura, and S. Sanada
- 908 Mechanism of the Chemical Stabilization in Fuel Cell Membranes Using the Ce³⁺/Ce⁴⁺ Redox Couple
L. Gubler and W. Koppenol
- 909 Mechanical Characterization of Polymer Electrolyte Membrane with Optical Methods
X. Huang, L. Alva, and J. Neutzler
- 910 External Reinforced Layers for Improved Fuel Cell Durability
R. Jiang, M. Dioguardi, M. Flanagan, and C. Gittleman
- 911 Renewing Accelerated Stress Tests Correlated to Actual Deterioration in Proton Exchange Membrane Fuel Cells to Evaluate the Durability of Perfluorinated and Hydrocarbon Proton Exchange Membranes
Y. Nomura, Y. Hiramitsu, S. Yamashita, Y. Yamaguchi, K. Kobayashi, and M. Hori
- 912 Mesoscale Simulations of Hydroxide Transport in Polymeric Anion Exchange Membranes
J. F. Dama, R. Jorn, and G. A. Voth
- 913 Scanning Probe Imaging of Surface Ion Conductance in an Anion Exchange Membrane
Q. He, I. T. Lucas, X. Ren, and R. Kostecki
- 914 Atomistic Simulations of Hydroxide Solvation and Transport in Anionic Exchange Membranes with Benzyltrimethylammonium Cations
G. E. Lindberg, C. Knight, R. Jorn, and G. A. Voth
- 915 Analysis of Kinetics of Oxygen Reduction Reaction in Alkaline Solution by Scanning Electrochemical Microscopy
R. Teranishi, E. Higuchi, M. Chiku, and H. Inoue
- 916 Development of Oxygen Reduction Electrocatalysts Based on Manganese Oxides for AEMFCs
T. Takakuwa, T. Kenko, M. Saito, H. Daimon, A. Tasaka, M. Inaba, H. Shiroishi, T. Hatai, and J. Kuwano
- 917 An Alkaline Direct Ethanol Fuel Cell Equipped with Ceria Supported Nanostructured Palladium Electrocatalysts
F. Vizza, M. Bevilacqua, J. Filippi, A. Lavacchi, A. Marchionni, W. Oberhauser, C. Bianchini, and M. Innocenti

- 918 Infrared Spectroscopy - DFT Analysis of Alkaline Ionomer/Platinum Interfaces
A. Yakaboski, D. Kumari, E. Smotkin, and N. Dimakis
- 919 Electrocatalysts of Anode for a Direct Borohydride Fuel Cell
W. Shen, J. Huang, and A. Lin
- 920 Investigation of Titanium Supported Au-Ni and Pt-Ni Bimetallic Nanoparticles as Electrocatalysts for Direct Borohydride Fuel Cells
L. Tamašauskaitė-Tamašiūnaitė, A. Balčiūnaitė, R. Cekaviciute, and A. Selskis
- 921 Performance of Fe-Co-Ni/C Anode Catalyst on Direct Ethanol Fuel Cell
A. Nakamura, T. Takeguchi, H. Takahashi, T. Yamanaka, Q. Wang, Y. Uchimoto, and W. Ueda
- 922 Ethanol Oxidation Reaction on SnO₂@Pt/C. In Situ FTIR Studies
J. M. da Silva, R. F. de Souza, M. Calegaro, and M. Coelho dos Santos
- 923 Electrocatalytic Ethanol Oxidation Reaction at Rh and Sn₂ Monolayer-Modified Pt Electrodes
A. Haze, M. Chiku, E. Higuchi, and H. Inoue
- 924 Novel Pd-CeO_x/MWCNT Electrocatalysts with High Catalytic Activity and Selectivity for the ORR in the Presence of C₂H₅OH
F. Rodríguez Varela, A. Gaona Coronado, and J. Loyola
- 925 Enhanced Electrocatalytic Performance of Palladium and Gold Based Alloy Nanoparticle Catalysts for DMFCs and DEFCs
J. Yin, B. Fang, J. Luo, and C. Zhong
- 926 Development of Hybrid Supports through Co-Deposition of Rhodium within Zirconia on Electrode Substrates: Activation of Dispersed Pt and PtRu Nanoparticles towards Oxidation of Ethanol
I. Rutkowska, K. Kulakowska, A. Wadas, and P. Kulesza
- 927 Activation of Pt-Based Electrocatalysts towards Oxidation of Ethanol through Modification with Ultra-Thin Films of Zeolitic Salts of Polyoxometallates
A. Zurowski, A. Kolary-Zurowska, A. Lewera, R. Marassi, and P. Kulesza
- 928 Highly Active Pt@Pd@Bi Catalyst for Formic Acid Electrooxidation
A. S. Bauskar and C. Rice-York
- 929 Preparation and Characterization of Carbon-Supported Ordered Intermetallic Pt₃Ti Nanoparticles for the Oxygen Reduction in PEFCs
F. Matsumoto, H. Abe, and S. Kinosada
- 930 Investigation of Cathodic Underpotential Deposition of Cu onto Pt/C Electrocatalysts and its Influence on the Oxygen Reduction Reaction
J. Qingying, A. Halder, D. E. Ramaker, J. Ziegelbauer, and S. Mukerjee

- 931 Electrocatalytic Activity for Oxygen Reduction Reaction of Au Core/Pt Shell Catalysts
H. Inoue, K. Hayashi, M. Chiku, and E. Higuchi
- 932 Oxygen Reduction Reaction Activity of Shape Controlled Pt Catalysts
A. Toge, T. Yokono, M. Saito, H. Daimon, A. Tasaka, and M. Inaba
- 933 Large-Scale Synthesis of Pt Monolayer on Pd Core Shell Catalyst for Oxygen Reduction Reaction
X. Wang, K. Kanda, Y. Orikasa, H. Tuji, M. Saito, M. Inaba, and Y. Uchimoto
- 934 Hollow Pd-Based Core Supported Pt Monolayer Electrocatalysts for Oxygen Reduction Reaction
Y. Zhang, C. Ma, Y. Zhu, J. Wang, and R. R. Adzic
- 935 In Situ Soft X-ray Emission Spectroscopy of Carbon-Based Oxygen Reduction Catalysts for Polymer Electrolyte Fuel Cells
H. Niwa, M. Kobayashi, Y. Harada, M. Oshima, Y. Nabaie, M. Kakimoto, J. Ozaki, T. Ikeda, K. Terakura, and S. Miyata
- 936 Pt Alloy Nanoparticle Formation Growth Probed by In Situ X-ray Diffraction
M. Oezaslan, F. Hasché, and P. Strasser
- 937 Electrodeposition of Catalyst for Use in Proton Exchange Membrane Fuel Cells
M. P. Rodgers and C. Huang
- 938 Local Reactivity of Thin Pt Overlayers on Ir Single Crystal
P. A. Shirvanian
- 939 Electrochemical Studies of Novel Pt/Ceria/C Oxygen Reduction Catalysts for Fuel Cells
J. Chlistunoff, M. Wilson, and F. Garzón
- 940 Particle Size Kinetics under Electrochemical Treatment Probed by In Situ SAXS
C. Yu, S. Koh, R. Yang, M. Toney, and P. Strasser
- 941 Synthesis and Characterization of Core-Shell Electrocatalysts for Fuel Cells
M. Shao, M. Humbert, and B. Smith
- 942 Platinum Ruthenium Nanotubes as Methanol Oxidation Reaction Catalysts
S. M. Alia and Y. Yan
- 943 Nanoengineered Bimetallic Catalysts in PEM Fuel Cells: Nanoscale Phase effect on Electrocatalytic Activity
J. Luo, B. Wanjala, B. Fang, R. Loukrakpam, J. Yin, and C. Zhong
- 944 Nanoengineered Trimetallic Electrocatalysts in PEM Fuel Cells: Activity and Stability
J. Luo, B. Fang, B. Wanjala, J. Yin, R. Loukrakpam, and C. Zhong
- 945 Enhanced Electrocatalytic Activity of PtIrCo/C Electrocatalysts for Oxygen Reduction Reaction
R. Loukrakpam, J. Luo, B. Wanjala, J. Yin, B. Fang, and C. Zhong

- 946 The Activation Role of Nanostructured Iridium on Catalytic Centers during Electrocatalytic Reduction of Oxygen
B. Dembinska, H. Elzanowska, M. Glowienka, and P. Kulesza
- 947 Advanced Electrocatalysts: - From Extended to Nanoscale Surfaces
C. Wang, D. Li, D. van der Vliet, D. Strmcnik, D. Tripkovic, N. Markovic, and V. Stamenkovic
- 948 Pulse Voltammetry: In Situ Tafel Slope Analysis of the Oxygen Reduction Reaction at 80°C and 120°C on Platinum in Proton Exchange Membrane Fuel Cells
P. A. Stuckey and T. A. Zawodzinski Jr.
- 949 Presentation of an Electrochemical Dry Cell Based on Nafion for Kinetic Studies of Pt/C Nanoparticles for PEMFC
B. Vion-Dury, M. Chatenet, and V. Vivier
- 950 Activity and Durability of Pd Core/Pt Shell Nanoparticles-Loaded Carbon Black as the Cathode Catalyst in PEFC
R. Sakai, M. Chiku, E. Higuchi, and H. Inoue
- 951 Rotating Disk Electrode Investigation of Pt/Carbon Electrocatalyst Activity and Durability
C. Wang, N. V. Dale, and K. Adjemian
- 952 Effects of RuO₂ Nanosheet on the ORR Activity and Durability of Pt/C Catalyst
C. Chauvin, T. Saida, Y. Takasu, and W. Sugimoto
- 953 Highly Durable Carbon Nanotube-Supported Pd Cathode Catalysts Covered with Silica Layers for Polymer Electrolyte Fuel Cells: Effect of Silica Layer Thickness on the Catalytic Performance
S. Takenaka, H. Miyamoto, N. Susuki, H. Matsune, and M. Kishida
- 955 Pt-Cu Alloy Nanoparticles Degradation Dynamics Probed by In Situ SAXS and In Situ XRD
C. Yu, S. Koh, R. Yang, M. Toney, and P. Strasser
- 956 PAN Based Carbon Nanofibers as an Active ORR Catalyst for DMFC
N. Nakagawa, M. Ali Abdelkareem, D. Takino, T. Ishikawa, and T. Tsujiguchi
- 957 Titanium Dioxide-Supported Platinum Catalysts
S. Huang, P. Ganesan, and B. N. Popov
- 958 Titanium Oxide Catalyst Support: Activity and Stability as PEMFC Cathode Catalysts
T. Ioroi, M. Maeda, K. Yasuda, M. Inaba, and A. Tasaka
- 959 Effect of Pore Size of SBA-15 on the NOMC Synthesized from Pyrrole and its Application in PEM Fuel Cells
S. Shrestha, S. Ashegi, J. Timbro, C. M. Lang, and W. E. Mustain

- 960 Nano-Size Tungsten Oxide/Tungsten Carbide and their Evaluation as Electrocatalyst Supports
Y. Liu and W. E. Mustain
- 961 Highly Graphitized Nanoporous Carbon with Size-Controlled Pores as Pt Nanoparticles Support in Polymer Electrolyte Fuel Cell
T. Kim, S. Yim, G. Park, Y. Choi, and T. Yang
- 962 Comparison of Different Carbon Nanomaterial Supports with PtRu Catalyst Intended for a Direct Methanol Fuel Cell
A. Santasalo-Aarnio, M. Borghei, V. Ruiz, and T. M. Kallio
- 963 Electrochemical Performance of Polymer Electrolyte Fuel Cells Using Carbon-Free SnO₂-Supported Pt Electrocatalysts
K. Kanda, S. Hayashi, F. Takasaki, Z. Noda, S. Taniguchi, Y. Shiratori, K. Ito, and K. Sasaki
- 964 PANI Vulcan XC-72 Silica Composites As PEMFC Catalyst Support Material
A. Hasimoglu, F. Dundar, and A. Ata
- 965 Development and Electrochemical Characterization of Pt Supported on Sb Doped SnO₂ for PEFCs Cathode
K. Kakinuma, Y. Chino, M. Uchida, T. Kamino, H. Uchida, and M. Watanabe
- 966 Support effect on the Electrocatalytic Activity for Oxygen Reduction Reaction: Tungsten Carbide vs. Carbon Black
M. Nie, J. Luo, R. Loukrakpam, J. Yin, and C. Zhong
- 967 Oxygen Reduction Activity of Pyrolyzed Polyanilines Studied by ¹⁵N Solid-State NMR and XPS with Principal Component Analysis
S. Kuroki, Y. Nabae, M. Kakimoto, and S. Miyata
- 968 Preparation of Fine Particles of Ta Oxide-Based Oxygen Reduction Electrocatalysts for PEFC
A. Ishihara, T. Matsui, Y. Ohgi, K. Matsuzawa, S. Mitsushima, K. Ota, M. Matsumoto, and H. Imai
- 969 The Role of Oxygen Vacancies in Tantalum-Oxide-Based Oxygen-Reduction Electrocatalysts: An x-Ray Absorption Spectroscopic Study
A. Ishihara, T. Matsui, Y. Ohgi, K. Matsuzawa, S. Mitsushima, K. Ota, M. Matsumoto, and H. Imai
- 970 Electrochemical Oxidation of Surface Oxides to Partially Recover the Performance of non-PGM Catalyst under Fuel Cell Operation
T. Han, N. V. Dale, K. Adjemian, V. Nallathambi, and S. Calabrese Barton
- 971 Functionalized Metal Oxides for PEMFC Applications
D. Cozzi, C. de Bonis, A. D'Epifanio, B. Mecheri, V. Felice, A. Tavares, and S. Licoccia

- 972 Characterization of Oxygen Reduction Activity and Durability of Non-Pt Carbon-Alloy Catalysts for PEMFC MEAs
L. Wu, Y. Nabaie, S. Kuroki, M. Kakimoto, and S. Miyata
- 973 Development of Non-Precious Metal Catalysts for Oxygen Reduction Reaction in Fuel Cells with High Activity and Stability
X. Li, G. Liu, T. Kim, S. Ganesan, P. Ganesan, and B. N. Popov
- 974 Non-PGM Electrocatalysts for ORR: Structure and Reactivity of M-N-C Catalysts
S. Mukerjee, U. Tylus, I. Kendrick, E. Smotkin, A. Serov, M. H. Robson, W. Patterson, K. Artyushkova, and P. Atanassov
- 975 High Resolution Neutron Radiography Imaging of Microporous Layers in PEFCs
J. Preston, U. Pasaogullari, D. S. Hussey, and D. L. Jacobson
- 976 Isolation of Transport Mechanisms in PEFCs with High Resolution Neutron Imaging
J. LaManna, S. Chakraborty, F. Zhang, M. Mench, J. Gagliardo, and J. P. Owejan
- 977 Interaction of Heat Generation, MPL and Water Retention in Corroded PEMFCs
J. D. Fairweather, D. Spornjak, R. Mukundan, J. Spendelow, K. Artyushkova, P. Atanassov, D. S. Hussey, D. L. Jacobson, and R. Borup
- 978 In Situ Two-Phase Flow Investigation of Proton Exchange Membrane (PEM) Electrolyzer by Simultaneous Optical and Neutron Imaging
O. F. Selamet, U. Pasaogullari, D. Spornjak, D. S. Hussey, D. L. Jacobson, and M. Mat
- 979 High Resolution Neutron Imaging of PEMFCs with Scintillator-Based Detectors
D. S. Hussey and D. L. Jacobson
- 980 Neutron Imaging of Isothermal Sub-Zero Degree Celsius Cold-Starts of a Polymer Electrolyte Fuel Cell (PEFC)
P. Oberholzer, P. Boillat, R. Siegrist, A. Kaestner, E. H. Lehmann, G. G. Scherer, and A. Wokaun
- 981 Effects of Synchrotron Radiation on Fuel Cell Materials
J. Roth, J. Eller, and F. N. Büchi
- 982 Non-Destructive Analysis of Water and Media Distribution in Fuel Cells by Means of Neutron and Synchrotron X-ray Imaging
C. Tötzke, I. Manke, T. Arlt, H. Markötter, A. Hilger, N. Kardjilov, P. Krüger, J. Scholta, K. Wippermann, A. Schröder, H. Riesemeier, B. Müller, and J. Banhart
- 983 Towards Ultra-Fast X-ray Tomographic Microscopy of Liquid Water in PEFC
J. Eller, J. Roth, F. Marone, R. Mokso, M. Stampanoni, A. Wokaun, and F. N. Büchi

- 984 Nano to Micro Scale Characterization of Water Uptake in PEM Fuel Cell MEAs Measured by Scanning Transmission Soft X-ray Microscopy
V. Berejnov, D. Susac, J. Stumper, and A. P. Hitchcock
- 985 Liquid Water Visualization in Cathode Catalyst Layer of PEMFC by Soft X-ray Radiography
P. Deevanhxay, T. Sasabe, S. Tsushima, and S. Hirai
- 986 Maintaining Desired Temperature and Relative Humidity throughout a Fuel Cell
F. Barbir, I. Tolj, and D. Bezmalinovic
- 987 Manufacturing of All-Polymer Laminar Flow-Based Fuel Cells
A. Hollinger, L. Markoski, and P. Kenis
- 988 An Analytical Model of a Novel, Microfluidic PEM Fuel Cell Device
D. Barrasso and R. Besser
- 989 Improved Water Removal from Fuel Cell Flow Channels via Natural Frequency Excitation of Free Surfaces
J. S. Allen
- 990 Diagnostic Tools for Stack Performance and Degradation
R. Rahmani and J. Stumper
- 991 Low Stoichiometry Operation of a PEM Fuel Cell Employing the Interdigitated Flow Field Design
T. Berning, M. Odgaard, and S. Knudsen Kær
- 992 Numerical Analysis of Two-Phase Flow inside PEM Fuel Cell Stack
M. Yoneda, H. Motegi, and H. Yoshimura
- 993 Hydrodynamics and Current Distribution Analysis of Bipolar Plates for Direct Ethanol Fuel Cells
D. C. Orozco, C. Sánchez, D. Úbeda, and J. Lobato
- 994 The Comparison of the Low and High Temperature Membrane Performance under Optimized Conditions
E. U. Ubong and U. Ubong
- 995 A Numerical Study on Defects in High Temperature Membranes through Solidification
Z. Y. Ahmad and T. Harris
- 996 Poly(2,5-Benzimidazole) Membranes: Physico-Chemical Characterization and High Temperature PEMFC Application
J. J. Linares, C. Sánchez, V. Paganin, and E. González
- 997 Fuel Impurity Effects on High Temperature PBI Based Fuel Cell Membranes
G. Qian and B. C. Benicewicz

- 998 Membrane Material Design for PEM Fuel Cells
J. B. Kerr
- 999 Proton Conducting Ionic Liquid Electrolytes for High Temperature PEMFC
C. Iojoiu, R. Sood, H. Mendil-Jakani, E. Espuche, P. Judeinstein, G. Gebel, and A. Marinelli
- 1000 PolyPOM Hybrid Membranes from Practical Chemistries with very High Proton Conductivities
A. M. Herring, J. Horan, M. Kuo, J. D. Jessop, M. Frey, and H. Ren
- 1001 High Temperature Proton Exchange Membranes Based on Phosphotungstic Acid Functionalized Silica Nanocomposites with Tunable Mesoporous Structure and Superior Proton Conductivity and Stability for Fuel Cells
J. Zeng and S. Jiang
- 1002 Noble Proton Transfer Membranes Using Interface and Pore-Filling Technologies for Low Humidity-High Temperature PEFCs
T. Yamaguchi, J. Lee, T. Ogawa, T. Tamaki, and H. Ohashi
- 1003 Tuning the Oxygen Reduction Activity with Size and Shape-Controlled Nanoparticles: First-Principles Investigation
A. Peles and M. Shao
- 1004 Theoretical Study of Electrochemical Processes on Novel Platinum Group Metal Catalysts
I. Matanovic, F. Garzón, and N. Henson
- 1005 Rational Design and Synthesis of Pt-Bimetallic Electrocatalysts
C. Wang, D. Li, M. Chi, K. More, G. Wang, N. Markovic, and V. Stamenkovic
- 1006 Enhanced Oxygen Reduction Rates on Oriented Platinum-Valve Metal Alloy Thin Films
C. C. Hays, M. A. Johnson, P. Bahrami, J. Kulleck, D. Konopka, A. Kisor, and H. Greer
- 1007 Green Method to Prepare Nanoporous Metals with High Electrocatalytic Activity
R. Wang, X. Gu, and Y. Ding
- 1008 Development of Ultra-Low Pt Alloy Cathode Catalyst for PEM Fuel Cells
B. N. Popov, X. Li, G. Liu, P. Ganesan, H. Kim, B. Roh, and I. Hwang
- 1009 Rational Design and Synthesis of ORR Nanocatalyst with High Mass Activity and Stability
S. Gusarov, A. Tokarev, A. Kobryn, and A. Kovalenko
- 1010 Ternary Alloy Catalysts for PEMFC Cathode
P. Mani, D. Tang, and W. Lee
- 1011 Structural Dependence of Oxygen Reduction Reaction on Palladium Nanocrystals
M. Shao, T. Yu, J. Odell, M. Jin, and Y. Xia

- 1012 Electrodeposited Palladium Nano-Flowers for Oxygen Reduction Reaction
R. Chetty and K. Maniam
- 1013 Mechanism of the Borohydride Oxidation Reaction on Platinum Electrodes in Alkaline Medium - Is Platinum Really a Faradaic Inefficient BOR Catalyst
M. Molina Concha, K. Freitas, M. Chatenet, F. Lima, and E. Ticianelli
- 1014 Comparative Study on Electrochemical Oxidation of Sodium Borohydride on Carbon Supported PtSn and Pt
J. Hou and M. Ellis
- 1015 Development of Electrodeposited Osmium Anodes for the Direct Borohydride Fuel Cell
V. W. Lam, D. Kannagara, E. Gyenge, and A. Alfantazi
- 1016 Pt-Free Catalysts for the Hydrogen Oxidation Reaction in Alkaline Fuel Cells
W. Sheng, S. Goubert-Renaudin, and Y. Yan
- 1017 Performance of Fe-Co-Ni/C Anode Catalyst for Fuel-Flexible Alkaline Fuel Cell
H. Takahashi, T. Takeguchi, A. Nakamura, T. Yamanaka, and W. Ueda
- 1018 The Mechanism of the Catalytic Oxidation of Carbohydrates by Viologens with Application for an Alkaline Direct-Carbohydrate Fuel Cell
D. Hansen, G. Watt, D. Wheeler, W. Pitt, M. Andrus, A. Read, S. Aloi, and D. Dodson
- 1019 Bimetallic Zn Alloys for the Electrooxidation of Hydrazine in Alkaline Media
B. Halevi, U. Martinez, T. Olson, A. Datye, P. Atanassov, B. Kiefer, K. Asazawa, and H. Tanaka
- 1020 Non-PGM Cathode Design for Anion-Exchange Membrane Direct Hydrazine Fuel Cells
K. Asazawa, H. Tanaka, R. Ito, S. Araki, C. Mitachi, T. Banno, W. Patterson, and P. Atanassov
- 1021 Combinatorial Discovery of Binary and Ternary Alloy Hydrazine Oxidation Catalysts for Direct Hydrazine Fuel Cells
T. Sakamoto, K. Asazawa, U. Martinez, B. Halevi, P. Atanassov, K. Yamaguchi, N. Mizuno, and H. Tanaka
- 1022 Effect of Temperature on the CO and Ethanol Oxidation in Alkaline and Acidic Media
C. Cremers, C. Niether, D. Bayer, and J. Tübke
- 1023 In Situ Fourier Transform Infrared Spectroelectrochemistry for Ethanol Oxidation in Alkaline Media
J. Yan
- 1024 Modeling and Diagnostics of Fuel Cell Porous Media for Improving Water Transport
E. F. Medici, D. Fritz, S. Stacy, and J. S. Allen

- 1025 Modeling Ion Transport in Fuel Cell Electrodes including Water|Electrolyte Interfaces and Electric Double Layers
I. Zenyuk, J. Lee, and S. Litster
- 1026 Modeling Two-Phase Transport in PEM Fuel Cell Channels
Y. Wang and K. Chen
- 1027 Cold-Start Modeling of a Polymer-Electrolyte Fuel Cell Containing an Ultrathin Cathode
R. Balliet and J. Newman
- 1028 Numerical Simulation for Different Water Generation Mechanisms in Cathode Catalyst Layer of a PEM Fuel Cell
G. He, Y. Yamazaki, and A. Abudula
- 1029 Effective Transport Properties Accounting for Electrochemical Reactions of Proton-Exchange Membrane Fuel Cell Catalyst Layers
J. Pharoah, H. Choi, C. Chueh, and D. B. Harvey
- 1030 Transmission Line Model of Water Fluxes in the Cathode Catalyst Layer of a Polymer Electrolyte Fuel Cell
J. Liu, J. Gazzarri, and M. Eikerling
- 1031 Nonlinear Dynamics of Fuel Cells: A Prototype Model
R. Hanke-Rauschenbach, M. Mangold, and K. Sundmacher
- 1032 Exploration of Ultra-High Current Operation in a PEFC Using a Validated Computational Model
L. Zheng, A. Srouji, F. Gambini, and M. Mench
- 1033 Study of Water Removal in the in a PEMFC Using Computational Fluid Dynamics (CFD)
S. Castañeda and C. Sánchez
- 1034 Accelerated Testing Validation
R. Mukundan, G. James, J. Davey, D. Langlois, D. Torraco, W. Yoon, A. Z. Weber, and R. Borup
- 1035 Focusing Research by Developing Performance Related Selection Criteria for PEMFC Contaminants
J. St-Pierre, M. Angelo, and Y. Zhai
- 1036 A Systematic Comparison of Screening Techniques to Evaluate Fuel Cell System Contamination
K. A. O'Leary, R. Reid, and B. Lakshmanan
- 1037 Stress Relaxation Behavior of A Liquid Silicone Rubber Seal Subjected to Temperature Cycling
T. Cui, Y. Chao, and J. Van Zee

- 1038 In Situ Experiments for Understanding the Effects of Contaminants from Balance of Plant Materials on PEMFCs
M. S. Opu, M. Ohashi, K. A. O'Leary, B. Lakshmanan, R. Reid, C. S. Macomber, H. Wang, H. Dinh, and J. Van Zee
- 1039 Ex Situ Experiments for Understanding the Effect of Contaminants from Balance of Plant Materials on PEMFCs
M. Das, M. Ohashi, C. S. Macomber, H. Wang, H. Dinh, K. A. O'Leary, R. Reid, B. Lakshmanan, and J. VanZee
- 1040 Leachant Contaminants and Degradation Schemes of PEM Fuel Cell System Components
C. S. Macomber, H. Wang, K. O'Neill, J. Christ, M. Das, J. Van Zee, K. A. O'Leary, and H. Dinh
- 1041 Analysis of Fuel Cell Membrane Chemical Durability Using Broadband Dielectric Spectroscopy
M. K. Hassan, A. Nalawade, Y. Patil, and K. A. Mauritz
- 1042 Broadband Electric Spectroscopy of Sulfonated Polyetherether Ketone and Polybenzimidazole-Based Proton-Conducting Materials
V. Di Noto, M. Piga, E. Negro, G. Giffin, G. Pace, and S. Lavina
- 1043 Characterizing Through-Plane and In-Plane Ionic Conductivity of Polymer Electrolyte Membranes
K. Cooper
- 1044 Proton Conductivity of Polymer Electrolyte Membrane during Transient Hydration and Dehydration Cycles
W. A. Rigdon, X. Huang, D. S. Hussey, and D. L. Jacobson
- 1045 Proton Conduction on Ionomer-Free Platinum Surfaces
E. L. Thompson and D. Baker
- 1046 Understanding the Ionomer Structure and the Proton Conduction Mechanism in PEFC Catalyst Layer: Adsorbed Nafion on Model Substrate
D. Paul and K. Karan
- 1047 Investigation of Micro-Porous Layer effect in the Water Distribution in the Polymer Electrolyte Membrane Fuel Cell by Hydrogen-Deuterium Contrast Neutron Radiography
K. Cho, A. Turhan, and M. Mench
- 1048 Investigation of Water-Molecule Network in Hydrated Polymer Electrolyte Membranes by Raman Spectroscopy: Effect of Polymer Structure and Cation Impregnation
S. Tsushima, Y. Iwamoto, A. Horai, Y. Tabuchi, and S. Hirai
- 1049 Investigation on HT-PEFCs by Means of Synchrotron X-ray Radiography and Electrochemical Impedance Spectroscopy
W. Maier, T. Arlt, C. Wannek, K. Wippermann, I. Manke, W. Lehnert, and D. Stolten

- 1050 Measurement of Hydrogen-Gas Solubility and Diffusivity in Polymer Electrolyte Membrane by NMR Method
R. Nagahisa, D. Kuriya, K. Ogawa, Y. Takata, and K. Ito
- 1051 Synthesis of Pt-Based Electrocatalysts with Core-Shell Structure through Electrochemical Reduction for Oxygen Reduction in PEMFC
I. Choi, T. Lim, S. Ahn, O. Kwon, and J. Kim
- 1052 ORR Activity and Durability of Au Core/Pt Shell Structured Catalyst
H. Daimon, H. Tsuji, E. Maki, T. Wada, A. Tasake, and M. Inaba
- 1053 Effect of Au in Pt-Based Alloy and Core-Shell Electrocatalysts for Oxygen Reduction Reaction
K. Lee, S. Lee, H. Kim, E. Cho, T. Lim, and J. Jang
- 1054 In Situ Electrochemical XAFS Studies of Pt Core-Shell Catalyst for PEFC Cathodes
Y. Uchimoto, H. Aoki, Y. Orikasa, M. Saito, and M. Inaba
- 1055 In Situ XAFS Study on PEFC Catalysts: Structure and Behavior of Pt-M/C (M=Au, Pd) in the Stepwise Voltage Operation
S. Nagamatsu, T. Arai, M. Yamamoto, H. Oyanagi, A. Daimaru, T. Ishizaka, H. Kawanami, T. Uruga, M. Tada, and Y. Iwasawa
- 1056 Enhanced Stability of Platinum Monolayer on Palladium-Gold Nanoparticle Electrocatalysts in Long-Term Fuel Cell Tests
K. Sasaki, H. Naohara, Y. Choi, Y. Cai, W. Chen, N. Marinkovic, P. Liu, and R. R. Adzic
- 1057 Bimetallic Core-Protected Platinum Monolayer Shell Electrocatalysts for Fuel-Cell Cathode
K. A. Kuttiyiel, K. Sasaki, Y. Choi, D. Su, and R. R. Adzic
- 1058 Pt Monolayer on Electrodeposited Pd Nanostructures-Advanced Cathode Catalysts for PEM Fuel Cells
S. Bliznakov, M. Vukmirovic, E. Sutter, and R. R. Adzic
- 1059 Platinum Monolayered Palladium Nanotubes for the Oxygen Reduction Reaction
S. M. Alia and Y. Yan
- 1060 Determination of Aging Markers Adapted to the Study of Pt/C Nanoparticles for PEMFC
B. Vion-Dury, M. Chatenet, and L. Guétaz
- 1061 The Effect of Synthesis Methods on the Electrochemical Activity and Durability of Carbon Supported Platinum Nanoparticles as Electrocatalysts for PEMFC
M. Darab, S. Sunde, and M. Thomassen
- 1062 M-N4 Macrocyclic Molecules-Modified Ag Nanoparticles with Tunable Oxygen Reduction Electrocatalytic Activity in Alkaline Media
J. Guo, H. He, D. Chu, A. Hsu, and R. Chen

- 1063 Design Principles for Oxygen Reduction Activity on Perovskite Oxides in Alkaline Environment
J. Suntivich, H. Gasteiger, N. Yabuuchi, J. Goodenough, and Y. Shao-Horn
- 1064 Ex Situ Spectroscopy Study of Manganese Oxide Catalytic Surfaces under Reaction Conditions Relevant to Oxygen Reduction and Oxygen Evolution
Y. Gorlin and T. F. Jaramillo
- 1065 Co₉S₈-N-C Non-Precious Metal Catalyst for Oxygen Reduction in Alkaline Media
G. Wu, M. Nelson, H. T. Chung, and P. Zelenay
- 1066 Silver Nanowires as Oxygen Reduction Electrocatalysts in an Alkaline Medium
S. M. Alia and Y. Yan
- 1067 Non-PGM Cathode Catalysts for Alkaline Membrane Fuel Cells: Enhancement and Optimization
W. Patterson, M. H. Robson, A. Serov, P. Atanassov, K. Asazawa, and H. Tanaka
- 1068 Electrochemistry on Smooth Polycrystalline Noble Metal Surfaces
M. Smit, S. Gwicana, A. Calitz, M. Steyn, R. Kriek, and V. Ramani
- 1069 Reasons for Kinetic Facility of Oxygen Reduction and Development of Non-Precious Cathode Catalysts for Alkaline Membrane Fuel Cell
N. Ramaswamy, M. Bates, and S. Mukerjee
- 1070 Charge Transfer in Non-PGM ORR Catalysts in Alkaline Media
B. Kiefer and P. Atanassov
- 1071 A Novel CuFe-Based Catalyst for the Oxygen Reduction in Alkaline Media
Q. He, X. Ren, and R. Kostecki
- 1072 Growth of Phthalocyanine Doped and Undoped Nanotubes Using Mild Synthesis Conditions For Development of Novel Oxygen Reduction Catalysts
R. Arechederra, K. Artyushkova, P. Atanassov, and S. D. Minter
- 1073 Oxidation and Oxygen Reduction Studies in Aqueous Tetramethylguanidine Alkaline Electrolyte
D. Konopka, M. A. Johnson, M. Errico, P. Bahrami, and C. C. Hays
- 1074 Broadband Dielectric Spectroscopic Probe of Macromolecular Motions and Proton Migration in Fuel Cell Membranes
M. K. Hassan, A. Nalawade, H. Chen, A. Abukmail, and K. A. Mauritz
- 1075 Identification of Gas Diffusion Layer PTFE Content Local Anomalies Using a Segmented Cell System
T. V. Reshetenko, J. St-Pierre, K. Bethune, and R. Rocheleau
- 1076 Characterization of MEA Degradations with Local Cyclic Voltammetry and Local Electrochemical Impedance Spectroscopy in a Segmented PEM Fuel Cell
A. Lamibrac, M. Gaël, J. Dillet, O. Lottin, and S. Didierjean

- 1077 Characterization of Carbon Corrosion in a Segmented PEM Fuel Cell
D. Spornjak, J. D. Fairweather, T. Rockward, R. Mukundan, and R. Borup
- 1078 Novel Current Distribution Board for PEM Devices
C. K. Mittelsteadt, P. Cortes Jr., V. Lilavivat, S. Shimpalee, and J. Van Zee
- 1079 Characterization of Cathode Polarization of High-Temperature PEM Fuel Cells Using AC Impedance Spectroscopy
J. S. Yi and T. Song
- 1080 On the Determination of PEM Fuel Cell Catalyst Layer Resistance from Impedance Measurement in H₂/N₂ Cells
D. Malevich, J. Pharoah, B. Peppley, and K. Karan
- 1081 Ice Formation and Current Distribution in the Catalyst Layer of PEM Fuel Cell at Cold Start
R. Ichikawa, Y. Tabe, and T. Chikahisa
- 1082 Validation of PEMFC Computer Models Using Segmented Current Collector Data with Emphasis on Uncertainty Quantification and Validation Metrics
B. Carnes, K. Chen, D. Spornjak, and G. Luo
- 1083 In Situ Measurement of Flow Velocity in Gas Channel in a PEMFC by Laser Ablation Tagging Visualization
D. Fukabori, S. Hirai, S. Tsushima, and K. Nishida
- 1084 The Influence of Cell Voltage on the Extent of Contamination of a PEM Fuel Cell Cathode by HCl
O. Baturina, A. Epshteyn, P. Northrup, and K. Swider-Lyons
- 1085 Analyzing the Influence of H₃PO₄ as Catalyst Poison in High Temperature PEM Fuel Cells Using In Situ X-ray Absorption Spectroscopy
S. Kaserer, C. Roth, and D. E. Ramaker
- 1086 Influence of PTFE Amount in GDL Preparation for PEFC Operating in Drastic Conditions
I. Gatto, A. Sacca', A. Carbone, R. Pedicini, and E. Passalacqua
- 1087 Current Density Distribution Measurement in HT-PEFC-Stacks Operated with Reformate Gas from Middle Distillates
L. Lüke, W. Lehnert, and D. Stolten
- 1088 PEMFC Poisoning with CO: Measuring Tolerance versus Temperature and Low Platinum Loadings
T. Rockward, C. Quesada, K. Rau, and F. Garzón
- 1089 Dynamic Performance of Automotive Fuel Cell Systems with Low Platinum Loadings
R. Ahluwalia and X. Wang

- 1090 Durability of Fuel Cells under High Power Density Operation
F. Gambini, O. Y. Plevaya, S. Blanchet, R. Mukundan, R. Borup, J. Davey, D. Langlois, S. Arisetty, and R. Ahluwalia
- 1091 Impact of Proton Exchange Membrane Degradation Products on the Activity of the Oxygen Reduction Reaction in PEM Fuel Cells
J. Christ, H. Wang, G. Bender, R. Richards, and H. Dinh
- 1092 Ex Situ Potentiostatic and Potentiodynamic Durability of Low Pt Loading Fuel Cell MEAs
R. Subbaraman, X. Wang, X. Wang, N. Kariuki, D. Myers, and R. Ahluwalia
- 1093 Evaluation of Hydrocarbon Membranes for Automotive Fuel Cell Application
J. Li, K. Wang, Y. Yang, Y. Zuo, and C. Fujimoto
- 1094 Polystyrene-Based Superacidic Ionomers: Synthesis and Proton Exchange Membrane Applications
Y. Chang and C. Bae
- 1095 Sulfonated Poly(Arylene Ether Nitrile) Multiblock Copolymers for Direct Methanol Fuel Cells
Q. Li, Y. Kim, Y. Chen, C. Lee, and J. McGrath
- 1096 Monomers, Polymers and Cross-Linked Membranes For Membrane Fuel Cells and Electrolysis
J. A. Kerres, T. Kaz, V. Atanasov, A. Chromik, C. Seyb, K. Aniol, V. Gogel, and H. Krieg
- 1097 Functionalized Silica Composite Membranes for Direct Methanol Fuel Cells
S. Yun, J. Parrondo, C. Lo, and V. Ramani
- 1098 Nanochannel Formation of Hydrocarbon Membranes via Post-Fluorination
S. Lee, N. Kang, D. Shin, C. Park, C. Lee, J. McGrath, and Y. M. Lee
- 1099 Rigid Rod Poly(Phenylene Sulfonic Acid) PEMs and MEAs with Grafted and Crosslinked Biphenyl Groups
K. Si and M. H. Litt
- 1100 Electrospin Processed Sol-Gel Derived Hybrid Membranes: New Routes towards Optimized Architectures
V. Maneeratana, A. Patissier, T. Azais, M. Maréchal, G. Gebel, K. Vallé, C. Robert-Laberty, and C. Sanchez
- 1101 Surface Energy effects on Catalyst Degradation in Low-Temperature PEMFCs
E. L. Redmond, B. P. Setzler, A. Maz, P. Juhas, S. J. Billinge, and T. F. Fuller
- 1102 The Effect of Uniform Particle Size Distribution on Pt Stability
P. Trogadas and T. F. Fuller

- 1103 Membrane and Catalyst Performance Targets for Automotive Fuel Cells by FCCJ Membrane, Catalyst, MEA WG
K. Shinohara, A. Ohma, A. Iiyama, T. Yoshida, and A. Daimaru
- 1104 Evaluation of the Durability of Polymer Electrolyte Membrane Fuel Cells Containing Pt/C and Pt-Co/C Catalysts under Accelerated Testing
M. P. Rodgers, L. Bonville, and D. Slattery
- 1105 Investigation of Influence of Operation Condition and Design Factors on Pt/C Catalyst Durability in PEMFC
N. Takeuchi, M. Kato, and T. Yoshida
- 1106 Catalyst Durability for Fuel Cells under Start-Up and Shutdown Conditions: Evaluation of Ru and Ir Sputter-Deposited Films on Platinum in PEM Environment
G. Vernstrom, L. L. Atanasoska, G. M. Haugen, and R. Atanasoski
- 1107 Effect of Platinum Loading on Catalyst Stability under Cyclic Potentials
S. Arisetty, X. Wang, R. Ahluwalia, R. Mukundan, R. Borup, J. Davey, D. Langlois, F. Gambini, O. Y. Plevaya, and S. Blanchet
- 1108 Identical Location - Transmission Electron Microscopy for the Investigation of the Stability of Pt Based Fuel Cell Catalysts
M. Arenz
- 1109 Electrochemical Characterization of Platinum Alloy Catalysts - Oxide Growth and Durability
P. Mathew and J. Meyers
- 1110 X-ray Absorption Spectroscopy Investigation on Activity and Durability of De-Alloyed Pt₃Co Cathodic Catalysts
J. Qingying, M. Trahan, D. E. Ramaker, J. Ziegelbauer, and S. Mukerjee
- 1111 Challenges at Alkaline Anode/Anion Exchange Membrane Interfaces
D. F. Abbott, N. Ramaswamy, M. Bates, S. Mukerjee, P. Kohl, M. Ünlü, and X. Ren
- 1112 Selective Ethylene Glycol Oxidation Reaction for Carbon Neutral Energy Cycle System
T. Takeguchi, H. Arikawa, M. Yamauchi, and R. Abe
- 1113 Non-PGM Cathode Catalysts Inks for Anion-Exchange Membrane Fuel Cells: Effect of Ionomer Structure and Composition
M. H. Robson, W. Patterson, P. Atanassov, and M. Hibbs
- 1114 Effects of Hydrophobicity and Catalyst Binder on Alkaline Fuel Cell Electrode Performance
M. S. Naughton, G. Gu, and P. Kenis
- 1115 Prospects of Hybrid Polymer Electrolyte Fuel Cells
M. Ünlü, K. Joseph, J. Zhou, and P. Kohl

- 1116 Development of Electrolyte Materials for the High Performance Alkaline Membrane Fuel Cells
H. Yanagi, M. Yamaguchi, S. Watanabe, and K. Fukuta
- 1117 Nanofiber Composite Membranes for Alkaline Fuel Cells
A. M. Park and P. N. Pintauro
- 1118 Calculating Hydroxide Conductivity in Alkaline Anion Exchange Membranes
A. M. Kiss, T. D. Myles, K. N. Grew, A. A. Peracchio, G. J. Nelson, and W. K. Chiu
- 1119 The Mechanism of the Oxygen Reduction Reaction on the Cathode of PEM Fuel Cells and Prediction of Optimum Operating Voltage from DFT Calculations
W. A. Goddard III, Y. Sha, B. Merinov, T. Yu, and P. Shirvastian
- 1120 A Flexible, Crosslinked and Highly Conductive Hydroxide Exchange Membrane Based on Quaternary Phosphonium
F. Wang, S. Gu, and Y. Yan
- 1121 Diagnostics for PEMFC Performance and Durability
T. Fuller
- 1122 Pt Oxide Formation, a Friend or a Foe
Y. Morimoto, T. Suzuki, H. Murata, K. Hiroshima, R. Jinnouchi, K. Kodama, T. Nagai, and T. Hatanaka
- 1123 Do PEMFC Cathode Catalyst Layers Age Homogeneously upon on Site Stack Operation
L. Dubau, J. Durst, F. Maillard, M. Chatenet, J. André, and E. Rossinot
- 1124 Performance Decay of PEM Fuel Cells under Cyclic Operating Conditions
L. Chen, J. O'Neill, Z. Yang, and M. Gummalla
- 1125 Recoverable Performance Loss due to Membrane Chemical Degradation in PEM Fuel Cells
J. Zhang, B. Litteer, F. Coms, and R. R. Makharia
- 1126 Carbon Corrosion in PEM Fuel Cell Dead-Ended Anode Operations
J. Chen, J. Siegel, T. Matsuura, and A. Stefanopoulou
- 1127 Impacts of Cathode Loading on Ru Crossover Related PEMFC Durability
R. Bashyam, P. He, S. Wessel, and S. Knights
- 1128 AFM Investigation of MEA Degradation in PEM Fuel Cells
N. N. Parikh and R. Shahbazian-Yassar
- 1129 Analysis and Modeling of the Performance Decay of PEMFC
S. Jomori, N. Nonoyama, and T. Yoshida

- 1130 Impact of Cation Contamination on Polymer Electrolyte Membrane (PEM) Fuel Cell Performance
S. Ramanathan and A. Pandey
- 1131 The Use of Proton Exchange Membrane Fuel Cell Technology to Recover Gaseous Helium from Rocket Testing Systems
M. Angelo, M. Habermusch, C. Nguyen, K. Bethune, and R. Rocheleau
- 1132 PEMFC Contamination Model: Neutral Species Sorption by Ionomer
J. St-Pierre and K. A. O'Leary
- 1133 High Surface Area Anode Electro-Catalysts of Fluorine Doped Ir_{1-x}Sn_xO₂ and Ir_{1-x}Nb_xO₂ in Proton Exchange Membrane Based Water Electrolysis
K. Kadakia, M. Datta, and P. N. Kumta
- 1134 Effect of Phosphoric Concentration on Hydrogen Pump Performance and Platinum Catalyst Activity
S. J. Buelte, D. Lewis, and G. Eisman
- 1135 Effect of Water/Sulfonate Ratio on Hydrogen Evolution on Pt Based Membrane Electrode Assemblies
M. Abedi, M. Finch, S. Evarts, S. Mukerjee, E. Smotkin, and N. Dimakis
- 1136 Novel Electrocatalysts for Hydrogen Production from Electrolysis of Alcohols
A. Halder and S. Mukerjee
- 1137 The Effect on PEMFC Contamination of Functional Groups of Some Organic Contaminants
H. Cho, M. Ohashi, C. S. Macomber, H. Wang, H. Dinh, and J. Van Zee
- 1138 Characterization of Catalyst Layer Ionomer Degradation in PEM Fuel Cells
B. Li, R. Mukundan, C. Welch, K. More, K. Artyushkova, P. Atanassov, J. Fenton, and R. Borup
- 1139 Effect of Electrode Structure on PFSA Membrane Degradation
B. Choi, C. M. Johnston, N. Mack, and Y. Kim
- 1140 First-Principles Study of the Nafion Degradation Mechanism in PEMFC
T. Yu, Y. Sha, W. Liu, B. Merinov, P. Shirvanian, and W. Goddard III
- 1141 Radicals in Fuel Cell Membranes: Mechanisms of Formation and Ionomer Attack
L. Gubler, S. Dockheer, and W. Koppenol
- 1142 In Situ Diagnostics and Degradation Mapping in Accelerated Durability Test for Proton Exchange Membranes
Y. Lai and G. Fly
- 1143 Combined Chemical-Mechanical Degradation of Fuel-Cell Membranes
A. Kusoglu, W. Yoon, R. Mukundan, R. Borup, and A. Z. Weber

- 1144 Novel H₂O₂ Vapor-Based System for Proton Exchange Membrane Degradation
H. Xu, C. K. Mittelsteadt, T. McCallum, and F. Coms
- 1145 Degradation of PFSA Membrane in Fuel Cell
A. H. Carlsson and L. Joerissen
- 1146 Influence of Deposited Pt on Chemical Durability of Hydrocarbon Electrolyte Membrane
T. Sakai, H. Kurita, S. Saito, A. Nakamura, and T. Sanada
- 1147 Non-PGM Catalysts for ORR: Mechanistic Studies of M-N-C Catalysts Prepared from Polymer Precursors
A. Serov, M. H. Robson, K. Artyushkova, B. Halevi, W. Patterson, P. Atanassov, U. Tylus, and S. Mukerjee
- 1148 Vibrational Fingerprinting Technique for Active Sites in Non-Pt ORR Electrocatalyst
E. Smotkin, B. Kiefer, N. Dimakis, S. Mukerjee, and P. Atanassov
- 1149 High Performance Metal-Nitrogen-Carbon Catalysts for Oxygen Reduction in PEM Fuel Cells
H. T. Chung, G. Wu, D. Kim, C. M. Johnston, P. Zelenay, L. Stolar, M. Shao, and L. Protsailo
- 1150 Ammonia-Generating Precursors in MNC Electrocatalysts for Oxygen Reduction
V. Nallathambi, N. Leonard, W. Patterson, K. Artyushkova, P. Atanassov, and S. Calabrese Barton
- 1151 Carbon Supports for Non-Precious Metal Proton Exchange Membrane Fuel Cells
N. D. Leonard, V. Nallathambi, and S. Calabrese Barton
- 1152 Non-Precious Metal Catalysts in High-Temperature Polymer Electrolyte Membrane Fuel Cells
F. Jaouen, Y. Nedellec, J. Rozière, and D. Jones
- 1153 NOMC Synthesized from Modified SBA-15 and its Effect on ORR Activity
S. Shrestha, S. Ashegi, J. Timbro, C. M. Lang, and W. E. Mustain
- 1154 Electroreduction of Molecular Oxygen by Water-Soluble Metal Porphyrins in Trifluoromethane Sulfonic Acid Solution
Q. He, G. Hwang, A. Z. Weber, R. KostECKI, and J. B. Kerr
- 1155 Electrochemical Characterization of Adsorbed and Immobilized Cu Triazole Complexes: Some Mechanistic Aspects
G. A. Goenaga, A. Belapure, R. Elgammal, A. Papandrew, S. Foister, and T. Zawodzinski
- 1156 High Surface Area Tungsten Carbide with Novel Architecture and High Electrochemical Stability
J. Bernard d'Arbigny, G. Taillades, J. Rozière, D. Jones, and M. Marrony

- 1157 Graphene-Like Electrocatalyst Materials Prepared by Plasma-Assisted Nitrogen Doping
J. P. McClure, J. Thornton, P. Fedkiw, J. Cuomo, R. Jiang, and D. Chu
- 1158 Electrochemical Oxygen Reduction on Nitrogen-Doped Graphene Powder
S. M. Lyth, Y. Nabaie, N. Islam, S. Kuroki, M. Kakimoto, and S. Miyata
- 1159 An Optimization Study of PtSn/C Nanocatalysts Prepared by Microwave-Assisted Heating and its Application for Direct Ethanol Fuel Cell
T. Almeida, L. Palma, P. Leonello, K. Koukoh, and A. R. De Andrade
- 1160 PtNb Deposited on High Surface Area Carbon Support as Catalyst for Ethanol Electrooxidation
T. de Araújo Rocha, J. J. Linares, and E. R. González
- 1161 PtSnCe/C and PtSnIr/C Electrocatalysts for Ethanol Oxidation: DEFC and FTIR In Situ Studies
M. C. Santos, R. F. de Souza, J. M. da Silva, F. Simões, M. D'Villa-Silva, M. Calegario, M. De Giz, G. Câmara, and A. Neto
- 1162 Comparative Studies of Oxygen Reduction Reaction and Ethanol Oxidation Reaction on PtSn/C and PtNi/C Catalysts
M. D'Villa-Silva, F. Simões, R. F. de Souza, J. M. da Silva, and M. Santos
- 1163 Ethanol Electrooxidation on PtSnNi/C Nanoparticles Prepared in Water-In-Oil Microemulsion
N. M. Cantillo, J. Solla-Gullón, E. Herrero, and C. Sánchez
- 1164 Comparative Study of Different Carbon Nanotube-Supported Platinum Bimetallic and Trimetallic Catalysts for Methanol and Ethanol Oxidation
L. Dong, H. Dong, and J. Bai
- 1165 Pt₃Sn on Conducting Polymer Modified Carbon Nanotube for Direct Ethanol Fuel Cell
S. Chwang, H. Lee, and P. Chu
- 1166 Application of Polyoxometallate-Modified Gold Nanoparticles as Supports for Dispersed Noble Metal Nanoparticles during Electrocatalytic Oxidation of Ethanol
P. Kulesza, S. Zoladek, and I. Rutkowska
- 1167 Metal Oxide as Matrix for Dispersed of Platinum Alloy Nanoparticles as a Tool to Enhancement of the Electrocatalytic Oxidation of Ethanol
K. Miecznikowski, A. Lewera, P. Barczuk, and P. Kulesza
- 1168 Synthesis and Evaluation of Low Platinum-Content Pt-CeO_x/MWCNT Cathodes for the ORR in the Absence and Presence of Ethanol in Acid Media
F. Rodríguez Varela, A. Gaona Coronado, J. Loyola, J. Escalante-García, and P. Bartolo Pérez
- 1169 The Electrocatalytic Oxidation of Methane-Derived Liquid Fuel in a Direct Oxidation Fuel Cell
C. Lamy, S. Rousseau, F. Vigier, S. Baranton, and C. Coutanceau

- 1170 Increased Performance of PEFCs with Engineered Mass-Transport Pathways
M. Manahan and M. Mench
- 1171 The Influence of the Liquid Water Behavior at the GDL-Channel Interface on Cell Performance
Y. Fukuyama, T. Shiomi, O. Aoki, N. Kubo, and Y. Tabuchi
- 1172 Hydrophilic and Hydrophobic Double MPL Coated GDL to Enhance PEFC Performance under Low and High Humidity Conditions
T. Kitahara, H. Nakajima, and K. Mori
- 1173 Impact of Gas Diffusion Layers (GDLs) on MEA Performance
T. Tanuma and S. Kinoshita
- 1174 Patterning the Cathode Catalyst Layer - Membrane Interface of a PEMFC for Elevated Power Density
A. Omosibi and R. Besser
- 1175 Electrospun Nanofiber Cathode for Hydrogen/Air Fuel Cells
W. Zhang and P. N. Pintauro
- 1176 High Performance Membrane Electrode Assembly Fabricated by Ultrasonic Spray Technique
X. Huang, W. A. Rigdon, J. Neutzler, D. Larrabee, and J. Sightler
- 1177 Effect of Membrane Electrode Assembly (MEA) Hot-Pressing Conditions on Performance
S. Ramanathan and A. Pandey
- 1178 Pore Structure and Cell Performance Analysis of PEMFC Catalyst Layers Fabricated by Decal Transfer Method with Variation of Hot Pressing Pressure
T. Suzuki, S. Tsushima, and S. Hirai
- 1179 Design of High-Ionic Conductivity Electrodes for Direct Methanol Fuel Cells
A. J. Schrauth and J. Chun
- 1180 Discrimination of Performance Limiting Processes in PEMFC Using Nonlinear Frequency Response Analysis
T. Kadyk, R. Hanke-Rauschenbach, and K. Sundmacher
- 1181 Preparation of Carbon Based Catalysts from Nitrogen-Containing Aromatic Polymers
M. Chokai, Y. Nabaie, S. Kuroki, T. Hayakawa, M. Kakimoto, and S. Miyata
- 1182 Interplay between the Morphology, Structure and Electrochemical Performance of a New Family of Plurimetal Carbon Nitride Electrocatalysts Supported on Graphitized Polymeric Nanoswabs
V. Di Noto, E. Negro, S. Polizzi, G. Cavinato, and K. Vezzù

- 1183 Factors for Improvements of Catalytic Activity for Zirconium Oxide-Based Oxygen-Reduction Electrocatalysts
Y. Ohgi, A. Ishihara, K. Matsuzawa, S. Mitsushima, K. Ota, M. Matsumoto, and H. Imai
- 1184 Durability of Ta-CNO Electrocatalyst for Oxygen Reduction Reaction
S. Mitsushima, Y. Fujita, A. Ishihara, K. Matsuzawa, and K. Ota
- 1185 TiO_xC_y Based Supports for Application in Electrocatalysis
J. Brumbarov, C. Rüdiger, S. Leonardi, O. Paschos, and J. Kunze
- 1186 UHV-Electrochemical Study of Ordered Intermetallic PtBi Electrodes toward Small Organic Molecule Oxidation
M. A. Rigsby and H. D. Abruña
- 1187 Highly Active and Stable Carbon Supported PtBi Catalyst for Formic Acid Electrooxidation
A. S. Bauskar and C. Rice-York
- 1188 Electrochemical Preparation of Pt-Based Catalyst on Carbon Paper Treated by Sn Sensitization and Pd Activation
S. Ahn, I. Choi, O. Kwon, T. Lim, and J. Kim
- 1189 Core-Shell Nanoparticle Platinum Based Catalysts for Methanol and Ethylene Glycol Fuel Cells
D. Kaplan, M. Alon, L. Bursten, Y. Rosenberg, and E. Peled
- 1190 Enhanced Methanol Oxidation Reaction Rates on Ion-Implanted Highly Orientated Pyrolytic Graphite
M. A. Johnson, P. Bahrami, M. Errico, D. Konopka, A. Kisor, J. Kulleck, C. C. Hays, S. Pylypenko, T. Olson, A. Dameron, K. O'Neill, H. Dinh, and T. Gennett
- 1191 Tuning of Surface Composition and Structure of N-functionalized Carbon Supports and Pt-Ru Phase for Direct Methanol Fuel Cell Applications
S. Pylypenko, T. Olson, A. Dameron, A. Borisevich, K. More, T. Holme, K. N. Wood, K. O'Neill, K. Hurst, S. Christensen, D. Ginley, B. Pivovar, H. Dinh, T. Gennett, and R. O'Hayre
- 1192 Electrodes Enhanced with Sulfated Zirconia for Direct Methanol Fuel Cells
S. Beravelli and C. Rice-York
- 1193 Facile Fabrication of Pt-Ir and Ir/Pt Core/Shell Nanoparticles as Electrocatalyst for DMFCs
E. El Sawy and V. Birss
- 1194 Space-Resolved, *in Operando* X-ray Absorption Spectroscopy Investigations on both the Anode and Cathode in a DMFC
D. E. Ramaker, A. Haberer, D. Dixon, M. Farmand, and C. Roth

- 1195 Electrocatalytic Activities of Ru_xSe_y Nanoparticles Prepared by Microwave Assisted Method
X. Cheng, Q. Zheng, T. Rao, F. Weng, and A. Su
- 1196 Oxygen Reduction at Hollow Spheres-Supported Pt-Au Catalysts for Middle Temperature DMFC
S. Mariappan, C. Galeano, J. Drillet, and F. Schüth
- 1197 From $\text{Pt}_3\text{Co}/\text{C}$ to Pt-Rich Hollow Particles: How Does Co Segregation Proceed during Real PEMFC Aging
L. Dubau, J. Durst, L. Guétaz, F. Maillard, M. Chatenet, J. André, and E. Rossinot
- 1198 Stability and Degradation of Dealloyed PtCu_3 , PtCo_3 and PtNi_3 Nanoparticle PEM Fuel Cell Electrocatalysts
F. Hasché, M. Oezaslan, and P. Strasser
- 1199 Studies on the Durability Behavior of Ordered $\text{Pt}_x\text{-Fe}_y/\text{C}$ Catalysts
L. Chen, M. Chan, F. Nan, C. Bock, G. Botton, B. MacDougall, and P. Mercier
- 1200 Cathode Materials for Polymer Electrolyte Fuel Cells Based on Vertically Aligned Carbon Filaments
E. R. Savinova, M. Rouhet, P. Ruvinskiy, C. Pham-Huu, A. Bonnefont, and K. Friedrich
- 1201 Characterization of Durable Nanostructured Thin Film Catalysts Tested under Transient Conditions Using Analytical Aberration-Corrected Electron Microscopy
D. A. Cullen, K. More, K. Reeves, G. D. Vernstrom, L. Atanasoska, G. M. Haugen, and R. Atanasoski
- 1202 Internal Temperature Measurements in a Proton Exchange Membrane Fuel Cell
A. Thomas, G. Maranzana, S. Didierjean, J. Dillet, and O. Lottin
- 1203 An In Situ Probe for Investigating PEM Degradation Kinetics and Degradation Mitigation
V. Prabhakaran, C. G. Arges, and V. Ramani
- 1204 Pulse Voltammetry: In Situ Measurements of Oxide Coverage on Platinum in Proton Exchange Membrane Fuel Cells
P. A. Stuckey and T. A. Zawodzinski Jr.
- 1205 Overcoming Artifacts in Cyclic Voltammetry through the Use of Multiple Scan Rates and Potential Windows
F. Busby and M. Edmundson
- 1206 Autonomous Potential Oscillations in a PEM Fuel Cell with a Pt Anode Operated with H_2/CO Mixtures
T. Kadyk, S. Kirsch, R. Hanke-Rauschenbach, and K. Sundmacher
- 1207 Investigation of Nafion Ionomer Degradation in PEFC Catalyst Layers
F. Xu, D. Fitzwater, H. Sun, E. Stach, and J. Xie

- 1208 Mechanism of Platinum-Band Formation Mitigation with Heteropolyacid Electrodes
P. Brooker, L. Bonville, D. Slattery, and J. Fenton
- 1209 Effective Thermal Conductivity of Catalyst Layer of PEFC
M. Kawase, S. Chin, M. Kageyama, and K. Miura
- 1210 Validation and Characterization Database Supporting Two-Phase 1+1D PEMFC Model Development
J. P. Owejan, W. Gu, J. Gagliardo, P. Nicotera, A. Kongkanand, R. Reid, M. Mench, J. LaManna, S. Chakraborty, F. Zhang, M. Hickner, S. Petrina, S. G. Kandlikar, T. Trabold, G. Zhang, J. Sergi, and M. Daino
- 1211 Microstructure Analysis Tools for Quantification of Key Structural Properties of Fuel Cell Materials
A. Cecen, E. A. Wargo, A. C. Hanna, S. R. Kalidindi, and E. C. Kumbur
- 1212 Operando Infrared Spectroscopy of Ethanol Oxidation in Polymer Electrolyte Fuel Cells
I. Kendrick and E. Smotkin
- 1213 Ultra-Low Pt Load Catalysts Based on Electrochemically Synthesized Polypyrrole Nanowires
J. Sansiñena and F. Garzón
- 1214 Effect of Graphitic Content on Carbon Supported Catalyst Performance
A. Patel, K. Artyushkova, P. Atanassov, D. B. Harvey, M. Dutta, V. Colbow, and S. Wessel
- 1215 Electrochemical and Morphological Studies of Ceramic Carbon Electrodes for Fuel Cell Systems
J. I. Eastcott and E. Easton
- 1216 Nitrogen-Modified Carbon Support for Enhanced Platinum Nanoparticles Linking in the Oxygen Reduction Reaction
I. Herrmann-Geppert, P. Bogdanoff, and S. Fiechter
- 1217 Functionalization of Fuel Cell Catalyst Supports with Nitrogen, Fluorine and Iodine
K. N. Wood, S. Pylypenko, T. Olson, A. Dameron, K. O'Neill, C. C. Hays, M. A. Johnson, B. Pivovar, H. Dinh, T. Gennett, and R. O'Hayre
- 1218 Carbon-Free Pt Electrocatalysts Supported on SnO₂ for Polymer Electrolyte Fuel Cells: Durability up to 60000 Cycles
K. Sasaki, F. Takasaki, Y. Takabatake, K. Kanda, S. Hayashi, Z. Noda, Y. Shiratori, A. Hayashi, and S. Taniguchi
- 1219 Preparation and Characterization of Heteropoly Acid and Tungsten Oxide Modified Pt Electrocatalysts
K. S. Mason

- 1220 High Surface Area RuO₂/TiO₂ Nanotube Composite as Catalyst Support for PEM Fuel Cell
C. Lo, A. Kumar, and V. Ramani
- 1221 Proton Conducting Silica Particles: Relation between Morphology and Conductivity
A. Kumar and V. Ramani
- 1222 The Platinum|Titanium Nitride Interface: X-ray Photoelectron Spectroscopy Studies
N. Matic, G. Chottiner, F. Ernst, and D. Scherson
- 1223 Catalyst Development for Durability and Performance Improvement in PEM Fuel Cells
A. Uzunoglu, F. Dundar, and A. Ata

B11 - Rechargeable Lithium and Lithium Ion Batteries

Battery

- 1224 Single-Crystal Intermetallic M-Sn (M = Fe, Cu, Co, Ni) Nanospheres as Negative Electrodes for Lithium-Ion Batteries
X. Wang and W. Han
- 1225 Negative Electrode Properties of Si Leaf Powder for Li-ion Batteries: Effects of Thickness and Additives
M. Saito, T. Yamada, C. Yodoya, A. Kamei, M. Hirota, T. Takenaka, A. Tasaka, and M. Inaba
- 1226 Secondary Battery Utilizing a Dendrite-Free Lithium Metal Anode
J. K. Stark and P. Kohl
- 1227 Liquid Metal Alloys as Self-Healing Negative Electrodes for Lithium Ion Batteries
J. Li, R. D. Deshpande, Y. Cheng, and M. Verbrugge
- 1228 Electrochemical Characterization of Complex Sn Oxides in Li-Ion Batteries
S. M. Becker, M. Scheuermann, V. Sepelák, A. Ulrich, H. Hahn, and S. Indris
- 1229 Morphological Variation of Electrodeposited Li in Ionic Liquid
K. Nishikawa, H. Naito, M. Kawase, and T. Nishida
- 1230 Ionic Liquid Electrolyte for Stable, High Capacity Si Nanowire Based Li-ion Battery
V. Chakrapani, F. Rusli, M. Filler, and P. A. Kohl
- 1231 Development of Ionic Liquid-Based (1 Ah) Lithium Battery Prototypes
G. Kim, S. Jeong, M. Xue, A. Balducci, M. Winter, S. Passerini, F. Alessandrini, M. Montanino, and G. Appetecchi
- 1232 High Energy Density Li-Ion Systems using Ionic Liquid Electrolytes and Nano-Co₃O₄ as the Cathode
T. E. Sutto and T. Duncan

- 1233 Ionic Liquid-Lithium Salt Mixtures: Linking Ion Structure with Electrolyte Transport Properties
J. Weaver, Q. Zhou, E. Fox, E. Parrish, W. Henderson, and R. Mantz
- 1234 Anatase TiO₂ Nanorods as High Capacity Negative Electrodes for Li-ion Batteries
D. Bresser, E. G. Paillard, E. Binetti, M. Striccoli, M. Winter, and S. Passerini
- 1235 MPCVD Manufacturing Si/C of Li(ion) battery Anodes-Compatibility With New Type Imidazole-Based Electrolytes
M. Marcinek, L. Niedzicki, P. Wieczorek, M. Gumienniczuk, J. Syzdek, M. Kasprzyk, E. Sasim, G. Zukowska, and W. Wieczorek
- 1236 Graphite-Silicon-Polyacrylate Negative Electrodes in Ionic Liquid Electrolyte for Safe Li-Ion Batteries
N. Yabuuchi, Y. Shinbe, K. Shimomura, H. Yui, J. Son, H. Oji, Y. Katayama, T. Miura, and S. Komaba
- 1237 Methods for Successful Cycling of Alloy Negative Electrodes in Li-Ion Cells
V. L. Chevrier, L. Christensen, K. Eberman, J. Gardner, L. Krause, D. Le, L. Liu, and M. N. Obrovac
- 1238 Nanostructured Carbon Coated Si and SiO_x Anodes for High Energy Lithium -ion Batteries
A. Guerfi, P. Hovington, P. Charest, M. Lagacé, J. Trottier, M. Dontigny, A. Vijn, and K. Zaghbi
- 1239 Carbon Fiber Negative Electrodes for Structural Lithium-Ion Batteries
M. H. Kjell, E. Jacques, D. Zenkert, M. Behm, and G. Lindbergh
- 1240 Investigation of the Solvent-Dependent Solid Electrolyte Interphases on Si Electrodes
H. Nakai, M. Ihara, A. Kita, T. Kubota, and K. Kawase
- 1241 Temperature Dependency of Transport Properties of LiPF₆ in EC:DEC
H. Lundgren, A. Nyman, M. Behm, and G. Lindbergh
- 1242 Real-time Analysis of Chemical Changes at the Interface of Organosilicon Electrolytes with Graphitic Anodes for Lithium-Ion Batteries
X. Chen, M. Usrey, R. West, and R. Hamers
- 1243 A "Looking Glass" into Electrolyte Properties: Cyclic Carbonate and Ester-LiClO₄ Mixtures
D. M. Seo, T. Afroz, M. O'Connell, P. Boyle, Q. Ly, and W. Henderson
- 1244 Analysis of the Enhanced Thermal Stability of Organosilicon Electrolytes in Primary Lithium and Lithium-Ion Batteries
M. L. Usrey, X. Chen, A. Pena-Hueso, R. Hamers, and R. West
- 1245 Highly Conductive and Nonflammable Ionic Liquid Electrolytes Containing Phosphazene Compounds for Lithium Secondary Batteries
K. Tsunashima, A. Kawabata, H. Taguchi, F. Yonekawa, and S. Kodama

- 1246 Binder Design for Stable Nano-Silicon Anodes
A. Magasinski, I. Kovalenko, B. Hertzberg, B. Zdyrko, I. Luzinov, and G. Yushin
- 1247 Rechargeable Lithium Batteries with a Multifunctional Polymer Binder
N. P. Balsara, A. Javier, S. Patel, and D. Hallinan Jr.
- 1248 Secondary Aqueous Alkaline Ion Battery Based on Polyimide Anode
H. Qin, Z. Song, H. Zhan, and Y. Zhou
- 1249 Pore Size Effect of Porous Silicon Anodes for Lithium Rechargeable Batteries
X. Li, P. Meduri, S. Subramanian, J. Xiao, X. Chen, C. Wang, J. Zhang, and J. Liu
- 1250 Neutralized Poly(Acrylic Acid) as Polymer Binder for High Capacity Silicon Negative Electrodes
Z. Han, M. Murase, N. Yabuuchi, Y. Katayama, T. Miura, and S. Komaba
- 1251 (Technology Award of the Battery Division) Studies of the Effects of Electrolyte Additives in Li-Ion Cells
J. Dahn, J. Burns, A. Smith, N. Sinha, and D. Xiong
- 1252 Li-Ion Transfer at Transition Metal Oxide Electrode/Room Temperature Ionic Liquids Interface
Y. Ishihara, K. Miyazaki, T. Fukutsuka, T. Abe, and Z. Ogumi
- 1253 Interfacial Reactions of Si-Cu Anode in Ionic Liquid-Based Battery Electrolytes
C. Nguyen and S. Song
- 1254 Tailorable Electrolytes for Lithium-Ion Batteries based on Mixtures of Ionic Liquids and Organic Carbonates
A. Balducci, R. Kühnel, N. Böckenfeld, S. Passerini, and M. Winter
- 1255 Nanowire/Nanoparticle Hybrid Structures for Anodes in Lithium Ion Batteries
J. Kim, P. Meduri, E. Clark, V. Vendra, J. Absher, and M. K. Sunkara
- 1256 Graphitic Composites with Engineered Graphene Units for High-Power Lithium-Ion Battery Electrodes
X. Zhao, C. Hayner, M. Kung, and H. Kung
- 1257 SnO₂/Reduced Graphite Oxide Nano-hybrid Materials with Enhanced Reversible Capacity and Cyclic Stability for Lithium Ion Batteries
Y. Kim and K. Kim
- 1258 Silicon- Carbon Fiber Composite Li-Ion Electrode without Passive Components
S. K. Martha, J. Nanda, W. Porter, and N. Dudney
- 1259 Cu₂Sb-Al₂O₃-C Nanocomposite Alloy Anodes for Lithium-Ion Batteries
D. S. Applestone and A. Manthiram

- 1260 Hollow Mesoporous Carbon as a Highly Efficient Anode Material in Li-Ion Battery
M. Kim, Y. Kim, and J. Yu
- 1261 Phosphate-Based Compounds as Additives for 5-Volt Lithium-Ion Electrolytes
A. V. Cresce and K. Xu
- 1262 Hydroxybenzenes as Protective Additives for High Energy Lithium Ion Batteries
Y. Kang, S. Lee, J. Mun, M. Park, J. Park, and S. Doo
- 1263 The Impact of Vinylene Carbonate additive on Positive Electrodes in Li-Ion Batteries
J. C. Burns, N. Sinha, D. Xiong, A. Smith, and J. Dahn
- 1264 The Use of Triphenyl Phosphate as a Flame Retardant Additive in Lithium-Ion Battery Electrolytes Designed for High Voltage Systems
M. C. Smart, F. Krause, C. Hwang, W. C. West, J. Soler, G. Prakash, and B. V. Ratnakumar
- 1265 Non-aqueous Carbonate Electrolytes and LiBOB as Additive for 5 V Li-ion Batteries
W. Xu, J. Xiao, X. Chen, F. Ding, D. Wang, A. Pan, and J. Zhang
- 1266 Sulfur-Carbon, Sulfide-Carbon Composites, and Electrolyte Additives for Lithium Sulfur Batteries
C. Liang, W. Fu, Z. Lin, Z. Liu, X. Yu, K. Hong, N. Dudney, and J. Howe
- 1267 Nanoporous Hybrid Electrolytes
J. L. Schaefer, P. Agarwal, and L. Archer
- 1268 Advances in Aerosol Synthesis of Li-rich Composite Materials for Li-ion Positive Electrodes
X. Zhang, M. Lengyel, and R. Axelbaum
- 1269 High Pressure Driven Structural and Electrochemical Modifications in Layered Lithium Transition Metal Intercalation Oxides
C. R. Fell, J. Gallardo-Amores, M. Arroyo-de Dompablo, and Y. Meng
- 1270 Thermal Behaviour of LiCoPO_4 as Cathode Material for Lithium-Ion Batteries
S. Theil, M. Fleischhammer, P. Axmann, and M. Wohlfahrt-Mehrens
- 1271 Characterization of the effects of Al-Substitution in Layered Oxide Cathode Materials for Li-Ion Batteries
T. E. Conry, J. Cabana, A. Mehta, and M. M. Doeff
- 1272 Changes of Crystal and Electronic Structures of $\text{LiNi}_{0.5}\text{Mn}_{0.5}\text{O}_2$ -Based Cathode Active Materials by Charging Process
N. Kitamura, H. Endo, and Y. Idemoto
- 1273 Electrochemical Properties of Gel Polymer Electrolytes Based on Poly-(Ethylene Glycol Methyl Ether Methacrylate-Co-Benzyl Methacrylate)
P. Isken, S. Passerini, M. Winter, and A. Lex-Balducci

- 1274 Addition of P_2Se_3 to $Li_2S-P_2S_5$ Solid Electrolyte and Effect on Ionic Conductivity and Cell Performance
J. Kim, Y. Yoon, M. Eom, and D. Shin
- 1275 Non-Solid Electrolytes for Novel Li-Free Batteries
S. J. Büschel, M. Anji Reddy, and M. Fichtner
- 1276 Improved Wide Operating Temperature Range of High Rate Nano- Lithium Iron Phosphate Li-Ion Cells with Methyl Butyrate-Based Electrolytes
M. C. Smart, A. Gozdz, L. Whitcanack, and B. V. Ratnakumar
- 1277 Glyme- $LiN(SO_2F)_2$ Complex Electrolyte for Lithium-ion Secondary Batteries
S. Seki, N. Serizawa, K. Takei, H. Miyashiro, and M. Watanabe
- 1278 Synthesis and Electrochemical Performance of High-Rate Lithium Vanadium Phosphate
J. Chong, S. Xun, X. Song, P. Ridgway, and V. S. Battaglia
- 1279 Genetically Programming the Interfaces between Bio-Templated Cathode Nano-Particles and Current Collector in Li-Ion Batteries
D. Oh, H. Yi, K. Xu, J. Snyder, and A. Belcher
- 1280 Effects of Substitution Positions, Electrolytes, and Binders on the Performance of Anthraquinone-Based Cathode Materials
W. Xu, A. Read, P. Koech, J. Xiao, D. Hu, C. Wang, D. Wang, S. Burton, and J. Zhang
- 1281 Performance of High Capacity Materials for Lithium Ion Batteries
P. Hallac, Q. Zhang, and F. Li
- 1282 Development of High Power and Long Life Lithium Secondary Batteries
S. Watanabe, T. Hosokawa, K. Morigaki, K. Nakura, and M. Ikoma
- 1283 Hydrothermal Synthesis and Electrochemical Properties of Hollandite-type Manganese Oxides
Y. Kadoma, T. Akahira, T. Fukuda, K. Ui, and N. Kumagai
- 1284 Improving Conductivity in Solid Polymer Electrolytes Using Oxide Nanorods
S. Fullerton-Shirey, B. Dey, and A. Seabaugh
- 1285 Current-Induced Alignment in a Microstructured Block Copolymer Electrolyte
S. A. Mullin, G. Stone, A. Teran, D. Hallinan Jr., N. Wanakule, and N. Balsara
- 1286 Role of Al substitution on Structure and Conduction properties of NASICON and Perovskite-type Li Solid Electrolytes
K. Fung, C. Shen, K. Yang, C. Ni, and C. Liu
- 1287 Utilizing Low Melting Point Solids for Generation of Polymer "Gel" Electrolytes for Lithium-Ion Batteries
M. Patel and A. J. Bhattacharyya

- 1288 $\text{Li}_4\text{SiO}_4\text{-Li}_3\text{PO}_4$ Solid Solutions as Ceramic Electrolytes in Li Metal Cells
L. Zhang, L. Cheng, J. Cabana, G. Chen, M. M. Doeff, and T. Richardson
- 1289 Ionic Liquids: Potential Electrolytes for Lithium Ion Batteries
H. M. Srouf, N. Giroud, H. Rouault, and C. Santini
- 1290 (Battery Division Research Award) High-Energy Cathode Material for Long-Life and Safe Lithium Batteries
Y. Sun and K. Amine
- 1291 Three-Dimensional LiFePO_4 Battery
D. Golodnitsky, H. Mazor, R. Hadar, T. Ripenbein, and E. Peled
- 1292 Monolithic Structure for Fully Printed Li-ion Battery
M. Kwon, J. Choi, M. Song, S. Hwang, J. Shon, M. Kim, H. Kim, and S. Doo
- 1293 Battery Performance of $\text{LiMn}_2\text{O}_4/\text{SnO-P}_2\text{O}_5$ Lithium-Ion Cells
G. Park, H. Yamauchi, T. Nagakane, A. Sakamoto, M. Ohji, and T. Sakai
- 1294 A Plasticized Lithium-Ion Battery Based on a Sn-C Anode and a LiFePO_4 Cathode
J. Hassoun, D. Lee, Y. Sun, and B. Scrosati
- 1295 Optimization of Solid State Powder-Compact Lithium-ion Batteries via EIS
C. F. Petersburg, E. Mignucci, and F. Alamgir
- 1296 TiO_2 Mesoporous Thin Films: Model Electrodes to Assess the Role of Porosity in Composite Electrodes
N. Krins, A. Shukla, R. Cloots, D. Milliron, G. Chen, and T. Richardson
- 1297 First-Principles Study of K-edge XANES for Li-rich Layered Cathode Material
T. Tamura, R. Kobayashi, S. Ogata, T. Ohwaki, A. Ito, and Y. Ohsawa
- 1298 Performance Investigation on Lithium-ion Cells with Different Electrode Thicknesses for Application in Wafer-Integrated Microbatteries
M. Thunman, K. Marquardt, T. Thoennessen, and R. Hahn
- 1299 Key Parameters Influencing the Cycle Life of Silicon Thin Films in Lithium Batteries
F. Le Cras, B. Pecquenard, L. Martin, H. Martinez, V. Phan, and M. Ulldemolins
- 1300 Tailoring an Ideal Interphases for Faster Li-Ion Transport with Ionic Additives
J. Ho and K. Xu
- 1301 Electrolyte/Electrode Interface Studies in Li/Air Batteries via On-Line Electrochemical Mass Spectroscopy
N. Tsiouvaras, S. Meini, M. Piana, I. Moutchnik, R. Zeh, A. Garsuch, and H. Gasteiger
- 1302 Irreversible Stress Development Due to SEI Formation and Self Discharge Kinetics of Graphitic Thin Film Anodes in Li-Ion Battery
A. Mukhopadhyay, A. Tokranov, X. Xiao, F. Guo, R. Hurt, and B. Sheldon

- 1303 SEI Formation Kinetics on a-Silicon Nanotube Anodes
D. Arreaga-Salas, A. Sra, E. Roodenko, Y. J. Chabal, and C. Hinkle
- 1304 Interfacial Processes at β -Sn Single Crystal Electrodes in Organic Carbonate Electrolytes
I. T. Lucas and R. Kostecki
- 1305 High Performance Oxide Cathodes for Li-ion Batteries
M. Slater, A. Amdewahl, D. Kim, S. Rood, S. Kang, S. Hackney, and C. Johnson
- 1306 Cycle Performance of LiMn_2O_4 Cathode Material with "Nano Inclusion" for Lithium Ion Battery
S. Esaki, T. Yao, M. Nishijima, K. Hiroe, and H. Tsubouchi
- 1307 Detrimental Reactions of Electrolyte with $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$
M. Xu, S. Dalavi, J. Kafle, and B. Lucht
- 1308 Phase Mapping of Structurally Integrated Layered-Spinel Lithium Nickel Manganese Oxide Positive Electrode Materials
A. Rowe, C. White, and J. Dahn
- 1309 Self-Assembled Lithium Manganese Oxide and Carbon Nanotube/Graphene Composites as High-Performance Cathode for Lithium-Ion Batteries
X. Zhao, C. Hayner, and H. Kung
- 1310 Electrochemical Performance and Thermal Stability of LiMnPO_4 -Based Cathodes
D. Choi, J. Xiao, W. Xu, Y. Choi, J. Hardy, M. Bhuvaneshwari, V. Murugesan, J. Liu, W. Wang, Z. Yang, G. Graff, and J. Zhang
- 1311 An Electrochemical Study of High Voltage Cathode Materials in Contact with Mixtures of Ionic Liquids and Commercial Electrolytes
C. Locati and E. Kelder
- 1312 Multicomponent Silicate Cathode Materials for Li-Ion Batteries
R. C. Longo, K. Xiong, and K. Cho
- 1313 Improved Electrochemical Performance of High Energy Layered-Layered Mixed Oxide Lithium Rich Composition
S. Martha, J. Nanda, G. Veith, N. Dudney, and C. Narula
- 1314 High Rate Performance of Sub-Fluorinated Carbon (CF_x) Materials Used for Li Batteries
P. Meduri, J. Xiao, H. Chen, S. Brown, J. Adcock, Z. Deng, M. Gross, T. Carlson, S. Dai, J. Liu, and J. Zhang
- 1315 Achieving High Capacity by Vanadium Substitution into $\text{Li}_2\text{FeSiO}_4$ for Li-Ion Battery
Y. Zhang, Y. Li, and X. Cheng
- 1316 Simulating (de)Lithiation in LiFePO_4 Single Particles Using First Principles Calculations and Kinetic Monte Carlo
A. Abdellahi, R. Malik, F. Zhou, S. Ong, and G. Ceder

- 1317 Detailed Electrochemical Analysis and Modeling of NMC-Based Lithium Ion Cells
J. Illig, S. Hansmann, A. Leonide, and E. Ivers-Tiffée
- 1318 Atomistic Simulations of Li and Na Diffusion Characteristics in TiO₂ Polymorphs
H. Yildirim, S. Sankaranarayanan, and J. Greeley
- 1319 Molecular Simulation of the Conversion Process in FeF₂-Li Using a Variable Charge Potential
Y. Ma, G. Lockwood, and S. Garofalini
- 1320 First-Principles Spectroscopic Characterization of Rechargeable Li/O₂ Batteries
R. S. Sanchez-Carrera and B. Kozinsky
- 1321 A Study of Cobalt and Manganese Fluorides as Cathode Materials for Rechargeable Lithium Cells
W. K. Behl and J. Read
- 1322 Thermal Stability of Spinel Li_{1.1}Mn_{1.9-y}M_yO_{4-z}F_z (M = Ni, Al, and Li, 0 ≤ y ≤ 0.3, and 0 ≤ z ≤ 0.2) Cathodes fo
K. R. Stroukoff and A. Manthiram
- 1323 Electrochemical Properties of LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ Cathode Material Modified by Coating with Al₂O₃ Nanoparticles
K. Araki, K. Okamura, Y. Sasaki, R. Matsumoto, K. Tatsumi, H. Sakaebe, T. Takeuchi, and Z. Ogumi
- 1324 Surface-Segregated, High-Voltage Spinel LiMn_{1.5}Ni_{0.5-x}M_xO₄ (M = Cr, Fe, and Ga) Cathodes for Lithium-Ion Batteries
A. Manthiram and D. Shin
- 1325 Cycling Performance of High Loading LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ Cathode for Li-Ion Batteries
W. Zhang, G. Liu, V. S. Battaglia, Z. Wang, and C. Wang
- 1326 Effect of Molybdenum on the Electrochemical and Thermal Properties of LiMn₂O₄ Cathode Materials
S. Jayapal and S. Piraman
- 1327 Crystal Studies of Spinel LiNi_{0.5x}Mn_{1.5+x}O₄
G. Chen, B. Hai, and T. Richardson
- 1328 Four Electron Cycling of the O₂ Electrode in the Rechargeable Non-Aqueous Lithium-Air Battery
M. Trahan, S. Mukerjee, and K. Abraham
- 1329 Lithium-Air-Water Rechargeable Batteries Using LiCl-Saturated Electrolyte
N. Imanishi, T. Zhang, Y. Takeda, and O. Yamamoto
- 1330 Mixed Metal Oxide Catalysts for Rechargeable Lithium-Air Batteries
V. Anandan, R. Kudla, J. Adams, M. Karulkar, and A. Drews

- 1331 Oxygen electrode processes in Ionic Liquids for the Li Air Battery
C. J. Allen, J. Hwang, S. Mukerjee, and K. Abraham
- 1332 Carbon Doped TiO₂/CNTs as Catalyst Supports for Air-Breathing Cathode
K. Huang and Y. Xing
- 1333 The Facts Influencing Rechargeability of Lithium/Air Batteries
M. Au, J. Zheng, G. Zhang, and E. Fox
- 1334 Structural Investigations of Li₂MnO₃.Li(Mn_xNi_yCo_z)O₂ - Neutron Diffraction, In Situ X-ray Diffraction, and In Situ Raman Spectroscopy
C. Villevieille, H. Sommer, H. Schneider, S. Pérez-Villar, and P. Novák
- 1335 Real-Time Monitoring of Lithium Intercalation in Low Dimensional Materials as Anodes for Li-ion Batteries
R. Shahbazian-Yassar, H. Ghassemi, M. Au, and Q. Gao
- 1336 Real-time Measurement of Stress and Damage Evolution During Initial Lithiation of Crystalline Silicon
M. J. Chon, V. A. Sethuraman, A. McCormick, V. Srinivasan, and P. Guduru
- 1337 2D and 3D Ex Situ and In Situ Characterization of Li-Ion Battery Electrodes Using Transmission X-ray Microscopy
Y. Liu, J. Nelson, F. Meirer, J. Andrews, and P. Pianetta
- 1338 In-Situ Analytical Techniques for Li-S Batteries
R. Dominko, R. Demir-Cakan, M. Patel, M. Gaberscek, M. Morcrette, and J. Tarascon
- 1339 Fabrication and Characterization of Solid-State Li-Ion Nanobatteries
D. Ruzmetov, V. Oleshko, A. Agrawal, K. Karki, K. Baloch, S. Krylyuk, H. Lezec, J. Cumings, A. Davydov, and A. Talin
- 1340 Characterization of All-Solid-State Li/LiPON/TiOS Microbattery Prototypes for Low-Voltage Applications
F. Le Cras, B. Pecquenard, B. Fleutot, B. Delis, H. Martinez, L. Dupont, and D. Guy-Bouysson
- 1341 Metal Foam Based Ultra-Thick Electrodes for High Energy Li-Ion Battery Applications
W. John, P. Liu, E. Sherman, M. Verbrugge, and H. Tataria
- 1342 New Concept to Boost Energy and Power Performance of Practical Electrochemical Devices
L. Madec, A. Bouvrée, P. Blanchard, C. Cougnon, T. Brousse, B. Lestriez, D. Guyomard, and J. Gaubicher
- 1343 Stress Mitigation during the Lithiation of Patterned Amorphous Si Islands for Li-Ion Batteries
S. K. Soni, B. Sheldon, X. Xiao, M. Verbrugge, A. Tokranov, H. Baradaran, H. Gao, and A. Bower

- 1344 Ex Situ and In Situ Scanning X-Ray Fluorescence Imaging Study of Lithium Insertion into $\text{Sr}_2\text{MnO}_2\text{Cu}_{4.6}\text{S}_3$ for Li-Ion Batteries
R. Robert, C. Grey, D. Zeng, and A. Lanzirotti
- 1345 In Situ AFM Study of Surface Film Formation on the Edge Plane of HOPG in Lithium-Ion Batteries
Y. Domi, M. Ochida, S. Tsubouchi, H. Nakagawa, T. Yamanaka, T. Doi, T. Abe, and Z. Ogumi
- 1346 In-Situ Observation of High Energy Density Metal Anode
H. Sano, H. Senoh, H. Sakaebe, and H. Matsumoto
- 1347 In Situ XRD and Optical Microscopy Observation of Solid-Liquid Phase Transformation of Self-Healing Liquid Metal Electrodes
R. D. Deshpande, J. Li, Y. Cheng, and M. Verbrugge
- 1348 Characterization Tools for Nanoscale Li-ion Battery Materials and Interfaces by In-situ TEM
J. P. Sullivan, J. Huang, M. Shaw, A. Subramanian, X. Liu, Y. Liu, and N. Hudak
- 1349 In Situ Transmission Electron Microscopy of Li-Ion Battery Electrodes
K. Noh and S. Dillon
- 1350 Three Dimensional Construction of Electrodes - Open Door to High Capacity Lithium Batteries
J. Prochazka, L. Kavan, and M. Zukalova
- 1351 An Advanced Lithium-Ion Battery Based on High Performance Electrode Materials
J. Hassoun, K. Lee, Y. Sun, and B. Scrosati
- 1352 Film Batteries Directly Coated on Al Pouch Substrate and Hermetically Sealed under Vacuum Condition for Printed Electronics Devices
Y. Lee, M. Choi, K. Kang, and K. Kim
- 1353 Electrochemical Cells based on Fluoride Shuttle
M. Anji Reddy, R. Witter, S. J. Büschel, and M. Fichtner
- 1354 Development of Rechargeable Lithium Cells with Fully Integrated Reference Electrodes
C. A. Wijayawardhana
- 1355 Improvements of Power Stack Performance in Semi-Solid Flow Cells (SSFCs)
Y. Dong, V. E. Brunini, W. Carter, and Y. Chiang
- 1356 Layered $\text{Li}_{1+x}\text{M}_{1-x}\text{O}_2$ and SiO-based Material for High-energy-density Lithium-ion Cell
X. Liu, Q. Peng, and Z. Lu
- 1357 Synthesis and Electrochemical Characterizations of Surface Modified Nano- FePO_4 -Coated LiMn_2O_4 Cathode Materials for Rechargeable Lithium Battery Applications
D. Arumugam and G. Paruthimal Kalaignan

- 1358 Effect of Zn Doping on the Structure and Electrochemical Characteristics of $\text{Li}_{1.1+x}\text{Ni}_{0.4}\text{Mn}_{0.3}\text{Co}_{0.3-x}\text{O}_2$ ($x=0.00, 0.01, 0.02, 0.03, 0.04$ and 0.05) Cathode Materials for Lithium Ion Batteries
K. Manimaran, M. Raju, M. Ananth, P. Manikandan, P. Kavitha, S. Anitha Priyadharshini, and P. Periasamy
- 1359 Effects of Doping and C_{60} Coating on the Electrochemical Characteristics of Silicon Film Anodes for Lithium Secondary Batteries
A. Arie and J. Lee
- 1360 3D Solid State Lithium-Ion Batteries
Y. Wang
- 1361 High Performance Sn-C-M Nanocomposite Anodes for Lithium Ion Batteries by New Effective Methods
R. Hu, H. Liu, M. Zeng, and M. Zhu
- 1362 Novel Electrode Materials for Organic Batteries
B. Esat, S. Bahçeci, M. Aydın, H. Doğan, A. Ata, and M. Köse
- 1363 Simple Preparation of Sn/ In_2O_3 /C Composite and its Enhanced Electrochemical Performance as an Anode for Lithium Ion Batteries
W. Chang and H. Sohn
- 1364 The Electrochemical Characteristics of Ag_2S and its Nanocomposite Anodes for Li-Ion Batteries
Y. Hwa, C. Park, and H. Sohn
- 1365 Electrochemical Studies of the SiO_x Anode in Ionic Liquid Battery Electrolyte
J. Song, C. Nguyen, and S. Song
- 1366 Effect of Surface Protective Layer on Electrochemical Behavior of SiO_x Battery Anode
Y. Bae, S. Kim, and S. Song
- 1367 Sulfur/Carbon Xerogel Composite Cathode Material for Lithium Sulfur Battery
J. Chen, M. Zheng, and Q. Dong
- 1368 SiO_x /Carbon Hybrid Nanofibers: Their Structural and Electrochemical Characterization
K. Song, Y. Lee, and Y. Kang
- 1369 Phosphidation of $\text{Li}_4\text{Ti}_5\text{O}_{12}$ Nanoparticles and their Electrochemical and Biocompatible Superiority for Lithium Rechargeable Batteries
M. Jo, K. Nam, Y. Lee, K. Song, J. Park, and Y. Kang
- 1370 Hydrothermally-Grown $\text{Li}_4\text{Ti}_5\text{O}_{12}$ Nanorods: Their Structural and Electrochemical Characterization
K. Song, Y. Lee, and Y. Kang

- 1371 Polymer Modified MWCNT as Conductive Additive in LiFePO_4 Cathode with High Rate Capability
J. Cheng, L. Yang, and J. B. Kerr
- 1372 Electrospun Si/Graphene Composite Nanofibers as High-Capacity Anode Materials for Lithium Rechargeable Batteries
Y. Lee and Y. Kang
- 1373 Sulfur-Graphene Composite Synthesized from Solution Exchange Method for High Energy Lithium Battery
Z. K. Wei, C. Wang, J. Chen, M. Zheng, and Q. Dong
- 1374 $\text{LiNi}_{0.4}\text{Mn}_{0.4}\text{Co}_{0.2}\text{O}_2$ Cathode Synthesized by Soft-Chemical Method for Lithium-Ion Batteries
V. Channu and R. Holze
- 1375 First-Principles Study of Charge Compensation in Olivine Positive
Y. Asari, Y. Suwa, T. Hamada, V. Dinh, J. Nara, and T. Ohno
- 1376 Cathode Properties of $\text{Li}_2\text{MnSiO}_4$ Particles Dispersed in Periodic Mesoporous Carbons
T. Kawase and H. Yoshitake
- 1377 Improve Initial Performance of Si Nanoparticles by Surface Oxide Reduction for Lithium-Ion Battery Application
S. Xun, X. Song, M. Grass, D. Roseguo, Z. Liu, V. S. Battaglia, and G. Liu
- 1378 Investigation of Cycle Performance of the Batteries with $\text{LiNi}_{0.5}\text{Mn}_{1.5-x}\text{Ti}_x\text{O}_4$ Cathode
T. Noguchi, I. Yamazaki, T. Numata, and K. Utsugi
- 1379 Depth profiling and Li Quantification for Li-Ion Battery Electrodes by Glow Discharge Optical Emission Spectroscopy (GD-OES)
H. Takahara, H. Miyauchi, M. Tabuchi, and T. Nakamura
- 1380 Evaluation of Commercial LiFePO_4 Cathodes by Impedance Modeling
J. Illig, M. Ender, and E. Ivers-Tiffée
- 1381 3D Microstructure Analysis of a Commercial LiFePO_4 -Cathode
M. Ender, J. Joos, T. Carraro, and E. Ivers-Tiffée
- 1382 Study on the Agglomeration of Ferric Phosphate Spherical Particle Prepared via Controlled Crystallization
Y. Xiao, Z. Zhang, Y. Wu, and W. Pu
- 1383 Thick-Film Electrodes Consisted of Si and Transition Metal Silicides Prepared by Gas-Deposition for Anodes of Li-Ion Batteries
H. Usui, T. Yoneda, M. Ono, and H. Sakaguchi
- 1384 Aluminum Corrosion in Ternary Mixtures of Propylene Carbonate, Ionic Liquid and LiTFSI
R. Kühnel, P. Niehoff, A. Balducci, S. Passerini, and M. Winter

- 1385 Fluoroethylene Carbonate as an Electrolyte Additive for Improving the Performance of Mesocarbon Microbead Electrode
Z. Wang, J. Xu, W. Yao, Y. Yao, and Y. Yang
- 1386 Crystal Structure and Electrochemical Properties of $\text{Li}(\text{Ni}_{0.5-x}\text{Mn}_{0.5-y}\text{Fe}_{x+y})\text{O}_2$ ($0 \leq x + y \leq 0.05$, $x > y$) Cathode Materials
Y. Imanari, K. Nakane, and T. Sanada
- 1387 High Li-Ion Conducting Garnet Type Solid Electrolyte
M. Furukawa, Y. Sato, K. Yamamoto, and T. Yoshida
- 1388 Investigation of the Solid Electrolyte Interphase on Graphite Electrodes with Lithium Tetrafluorooxalato-phosphate [$\text{LiPF}_4\text{C}_2\text{O}_4$] Electrolyte
M. Xu, L. Zhou, D. Chalsasani, S. Dalavi, and B. Lucht
- 1389 Effect of Methyl Butyrate (MB), a Low Temperature Co-Solvent on the Solid Electrolyte Interphase (SEI) of Lithium Ion Battery (LIB) Electrodes
S. Dalavi, M. C. Smart, F. Krause, and B. Lucht
- 1390 Ex Situ and In Situ Studies of Degradation and Capacity Loss in the Cathode Material LiFeBO_3 for Lithium-Ion Batteries
S. Bo, F. Wang, D. Zeng, K. Nam, W. Xu, Y. Janssen, L. Du, P. Stephens, J. Graetz, P. Khalifah, and C. Grey
- 1391 NMR Studies of the LiBF_4 , LiBOB and LiDFOB Equilibrium
L. Zhou, W. Li, M. Xu, and B. Lucht
- 1392 SEI Formation for LiPF_6 Electrolytes on Binder-Free Anode in Lithium-Ion Batteries
M. Nie and B. Lucht
- 1393 Solvent- LiBF_4 Phase Diagrams, Ionic Association and Solubility - Cyclic Carbonates and Carboxylic Esters
J. L. Allen, Q. Ly, D. Seo, P. Boyle, and W. Henderson
- 1394 Delving into the Properties and Solution Structure of Nitrile-Lithium Difluoro(oxalate)borate (LiDFOB) Electrolytes for Li-ion Batteries
S. Han, J. L. Allen, P. Boyle, and W. Henderson
- 1395 Imidazolium Based Ionic Liquids for Lithium Ion Battery Applications. Substitution of C-2 Proton with Electron Perturbing Groups
C. Liao, X. Sun, and S. Dai
- 1396 Low-Temperature Performance of LiFePO_4 Cathode Materials for Li-Ion Batteries
W. Chang, S. Kim, B. Cho, W. Choi, E. Kim, S. Park, H. Shin, and K. Chung
- 1397 Molecular-Level Interactions in Electrolytes: Solvent- LiClO_4 Mixtures - Acyclic Carbonates and Carboxylic Esters
T. Afroz, M. O'Connell, D. M. Seo, P. Boyle, and W. Henderson

- 1398 Fabrication and Control of the Shell Thickness for Polypyrrole Hollow Sphere Using Polystyrene Templates for Using as Electrode of Li-Ion Battery
S. Yun, S. Cho, J. Oh, and K. Ryu
- 1399 One-step Synthesis of Mesoporous Carbon for Lithium-ion Batteries with High Capacity and Rate Capability
B. Guo, X. Sun, and S. Dai
- 1400 Reduction of the Interfacial Resistance at the $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}/\text{LiCoO}_2$ by Interface Modification Using Niobium Oxide
Y. Shimada, S. Kumazaki, F. Sagane, and Y. Iriyama
- 1401 Influence of Lithium Salts on Thermal Degradation of Lithium Secondary Batteries
M. Seo, B. Son, W. Kim, H. Lee, S. Kim, and Y. Lee
- 1402 Effects of SEI Layer Additives on Electrochemical Properties of Different Lithium Secondary Unit Cells
B. Son, Y. Lee, J. Lee, J. Choi, S. Kim, and Y. Lee
- 1403 Enhanced Electrochemical Stability of the Electrolytes for High-Voltage Lithium Battery by the Electrolyte additive
T. Yeh, J. Chen, and S. Liao
- 1404 Characterization of Lithium-Ion Batteries by Rotating Disk Electrode (RDE) Technique
E. Pohjalainen and T. M. Kallio
- 1405 Study of the Conversion Reaction Mechanism of Carbon Copper Fluoride Nanocomposites as Cathode Materials in Li-ion Batteries
X. Hua, R. Robert, C. Grey, F. Wang, and J. Graetz
- 1406 Electrochemical Stability of Lithium Salicylato-Borates for Use as Electrolyte Salts in Li-Ion Batteries
S. Kaymaksiz, F. Wilhelm, M. Wachtler, M. Wohlfahrt-Mehrens, C. Hartnig, I. Tschernych, and U. Wietelmann
- 1407 High Voltage Performance Carbon- LiMnPO_4 Nano-Composite Cathode Materials for Lithium Batteries
S. Oh, B. Scosati, K. Amine, and Y. Sun
- 1408 Electrochemical Oxygen Reduction on Nanostructured Al Doped Cerium Oxide in Li-Air Batteries
R. S. Kalubarme, M. Cho, T. Kim, and C. Park
- 1409 Electrospinning Preparation of Manganese Oxide Catalysts for Lithium Air Batteries
K. Jung, J. Lee, B. Lee, C. Jin, and K. Shin
- 1410 Investigation of Electrode Design Factors for a LiFePO_4 Active Material
S. Yu, M. Song, J. Lee, J. Shin, and W. Cho

- 1411 Nano-Structured Anodic Tin Oxide as an Anode Material in Rechargeable Lithium Battery
S. Park and H. Shin
- 1412 Electrochemical Preparation of Silicon-Based Anode Materials for Rechargeable Lithium Battery
E. Kim and H. Shin
- 1413 Imidazole-Derived Anion TDI as a Base for Lithium Cation Conducting Ionic Liquids
L. Niedzicki, M. Zawadzki, J. Dumińska, M. Marcinek, U. Domańska-Żelazna, and W. Wiczorek
- 1414 New Synthesis Approach to β -Li₃VF₆ and Electrochemical Evaluation in Li Cell
I. D. Gocheva, K. Chihara, S. Okada, and J. Yamaki
- 1415 Electrochemical Analysis of Redox Shuttle Additives for Li-Ion Batteries with Voltammetric Techniques Using Stationary and Rotating (Hydrodynamic) Electrodes
S. Kaymaksiz, M. Wachtler, and M. Wohlfahrt-Mehrens
- 1416 Long-Life Spinel Type Cathode Material with Core-Shell Structure for Lithium Batteries
D. Lee, S. Myung, K. Lee, D. Kim, B. Scrosati, and Y. Sun
- 1417 Spinel Lithium Manganese Oxide Synthesized under a Pressurized Oxygen Atmosphere
M. Jang, K. Lee, S. Myung, H. Jung, J. Lee, and Y. Sun
- 1418 Electrochemical Properties of CCL/Li₂MnSiO₄ Composite Cathode Material for Li-Ion Batteries
M. Swietoslowski, M. Molenda, and R. Dziembaj
- 1419 Mechanistic Investigation of SEI Formation: Study of Solvent Adsorption on In Situ Prepared Thin Film Cathode Surfaces
D. Becker, G. Cherkashinin, S. Schmid, L. Nedelmann, R. Hausbrand, and W. Jaegermann
- 1420 Secondary Battery utilizing a Dendrite-free Lithium Metal Anode
J. K. Stark and P. Kohl
- 1421 Investigations of Accelerated Life Evaluation Tests for High-Power Lithium-ion Secondary Batteries for Plug-in Hybrid Electric Vehicles
K. Takei, S. Seki, Y. Mita, H. Miyashiro, and N. Terada
- 1422 Li-Ion Electrochemistry Able to Work in a Large Temperature Range
F. Fischer, D. Germond, J. Peres, and C. Tessier
- 1423 Synthesis and Characterization of Lithium-Ion Conducting Ceramics for Lithium Metal Batteries
B. Key, D. Schroeder, B. Ingram, and J. Vaughey
- 1424 Effects of H⁺ Conductivity of NASICON Glass on the Performance of Li-Air Batteries
F. Ding, W. Xu, Y. Shao, X. Chen, J. Xiao, X. Liu, and J. Zhang

- 1425 Physico-Electrochemical Properties of Sub-Micron Sized and Disordered $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ Obtained by Microwave-Assisted Modified Pechini Method
K. I. Ozoemena, O. Fashedemi, C. Jafta, and M. Mathe
- 1426 Surface Analysis of Surface Films on Si-Thin Film Anodes
S. Dalavi, S. Nadimpalli, P. Guduru, and B. Lucht
- 1427 Surface Analysis and Cycling Performance of Lithium-Ion Cells Containing Methylene Ethylene Carbonate(MEC)
D. Chalasani, J. Li, N. Jackson, and B. Lucht
- 1428 Lithium In-Situ NMR Study of the Observation of Microstructure on Lithium Metal Anodes
H. Chang, N. M. Trease, D. Zeng, L. Du, and C. Grey
- 1429 Analysis of Li-Ion Coin Cells with Flame Retardant Co-solvents
R. Dunn and B. Lucht
- 1430 Three-Dimensional Anode Architectures and Materials
F. Dogan, L. Trahey, M. Thackeray, and J. Vaughey
- 1431 Lithium In Situ NMR Study of the Observation of Microstructure on Lithium Metal Anodes
H. Chang, N. M. Trease, D. Zeng, L. Du, and C. Grey
- 1432 Hollow Carbon Nanosphere with Reduced Tin Anode Material for Li-ion Battery
M. Li, K. A. Hays, and M. Wagner
- 1433 Cycle Performance of Spinel Lithium Nickel Manganese Oxide Used in Lithium Ion Batteries
Y. Fu, X. Song, H. Zheng, P. Ridgway, G. Liu, and V. S. Battaglia
- 1434 Failure Mechanism Study of a Graphite Negative Electrode Based on Styrene-Butadiene Rubber (SBR) Binder
L. Wang, V. S. Battaglia, and G. Liu
- 1435 Simultaneous Surface and Bulk Electrochemistry of Battery Electrodes, the Interest of Molecular Implementation for High Power - High Energy Application
L. Madec, B. Lestriez, C. Cougnon, T. Brousse, D. Guyomard, and J. Gaubicher
- 1436 Determination of the Dissociation Degree, Diffusion Coefficients and Ionic Conductivity of Binary Lithium Salt Polymer Electrolytes with Impedance Spectroscopy
A. Munar, A. Andrio, R. Iserte, and V. Compan
- 1437 Investigation of Thermal Treatment effect of Anode Current Collectors in Lithium-Ion Batteries
T. Kim, W. Chen, A. Dhanabalan, and C. Wang
- 1438 Sulfones with Functional-Groups for Lithium-Ion Battery Applications
X. Sun, L. Chen, N. Shao, D. Jiang, and S. Dai

- 1439 Comparative Study on Different Power Measurement Methods in Lithium Secondary Batteries
Y. Lee, B. Son, M. Seo, S. Kim, and J. Ko
- 1440 Electrochemical Characterization of Semi-Solid Flow cell
N. Baram, W. Carter, and Y. Chiang
- 1441 Probing the Electrochemical Processes of Nanocrystalline SnCo-Carbon Composites as Anode Materials for Li Ion Battery Applications
H. Jung, D. Zeng, R. Zhang, X. Wang, W. Han, N. Chernova, M. Whittingham, L. Du, and C. Grey
- 1442 Design and Synthesis of Nanoengineered Cathode Electrocatalysts in Rechargeable Lithium-Air Batteries
J. Yin, B. Fang, J. Luo, and C. Zhong
- 1443 Benefits of Electronic Wiring and Spacers in Nanostructured Lithium-ion Battery Anodes
A. J. Bhattacharyya
- 1444 Determination of Crystal Nucleation and Growth Rate in $\text{Li}_2\text{S-P}_2\text{S}_5$ System by Differential Thermal Analysis
M. Eom, J. Kim, Y. Yoon, and D. Shin
- 1445 Electrochemical Properties of Organic Electrolytes for Lithium-Sulfur Batteries
H. Kim
- 1446 Influence of Non-Ionic Surfactants on Electrochemical Behaviour of Graphite Anodes in Li-Ion Batteries
M. Wachtler, D. Weirather-Köstner, M. Wohlfahrt-Mehrens, C. Rehme, G. Jutz, and C. Wurm
- 1447 Microstructural-Level Simulations of Conversion Reactions using the Smoothed Boundary Method
T. Mushove, H. Yu, J. Bhattacharya, C. Ling, A. Van der Ven, and K. Thornton
- 1448 Deflagration Synthesis of Nanocrystalline $\text{LiNi}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}\text{O}_2$ Cathode Materials
L. Jiebin, X. Youlong, D. Xianfeng, and X. Lilong
- 1449 Optimization of Si and C-Coated Si Anode Films Prepared by Pulsed Laser Deposition
J. D. Cardema and G. Radhakrishnan
- 1450 Extending Cycle Life of Nanostructured Silicon Anodes
J. S. Golightly, A. Pietz, J. Bonilla, F. Chiu, L. McCoy, and M. Isaacson
- 1451 Performance of Fine Reference Electrode in Thin Laminated Li-Ion Cell
T. Yokoshima, H. Nara, D. Mukoyama, T. Hirabaru, T. Momma, and T. Osaka
- 1452 Using Combined Time-Resolved XRD and Mass Spectroscopy to Study the Thermal Decomposition of Charged Cathode Materials during Heating
S. Bak, K. Nam, X. Yu, K. Chung, K. Kium, and X. Yang

- 1453 Effect of Various Electrolytes and Electrode Materials on Capacity and Selectivity of Non-Aqueous Li-O₂ Cells
M. Piana, S. Meini, N. Tsiouvaras, R. Zeh, A. Garsuch, and H. Gasteiger
- 1454 Electronic Properties of LiMO₂ (M=Co, Ni) Thin Film Cathode Materials and of their Interfaces Formed during Gas Phase Adsorption, Electrolyte Contact and Electrochemical Li-Deintercalation
G. Cherkashinin, D. Ensling, S. Schmid, D. Becker, L. Nedelmann, R. Hausbrand, S. Jacke, and W. Jaegermann
- 1455 Rate Capability of LiCoO₂ Single Particle in Ionic Liquid Electrolytes for Lithium Batteries
K. Yoshida, M. Tsuchiya, N. Tachikawa, K. Dokko, and M. Watanabe
- 1456 Nanoparticle Coated Separators for Lithium-Ion Batteries with Advanced Electrochemical Performance
J. Fang, A. Kelarakis, Y. Lin, E. Giannelis, and L. Tsai
- 1457 Development of LbL Coated Separator Membrane for Semi-Solid Flow cell
B. El-Zahab, D. Liu, N. Baram, W. Carter, Y. Chiang, and P. Hammond
- 1458 Composite Multifunctional Lithium Ion Batteries
J. Mullenax, P. Browning, W. Huebsch, and E. M. Sabolsky
- 1459 Effect of Mechanical Stress on the Electrochemical Performance of Celgard Separators for Lithium-ion Batteries
C. Peabody, J. Cannarella, and C. Arnold
- 1460 Mechanical Strain Induced Resistance Increase in Lithium-Ion Battery Separators
J. Cannarella and C. Arnold
- 1461 An In Situ Study of SEI Growth on Negative Electrode Materials for Li-Ion Batteries Using Spectroscopic Ellipsometry
M. A. McArthur, S. Trussler, and J. Dahn
- 1462 In-situ Monitoring the Formation of SEI Layer using Peak Force Tapping Mode AFM
C. Li
- 1463 In-Situ NMR Studies of Li-Ion Batteries
N. M. Trease, S. Harris, and C. Grey
- 1464 Oxygen Evolution Reaction of Lithium Peroxide in the Lithium-air Battery: A First Principles Study
Y. Mo, S. Ong, and G. Ceder
- 1465 α -MnO₂ in Li-Ion and Li-Air Batteries: A First Principles Study
M. K. Chan, R. Benedek, and J. Greeley
- 1466 Direct Mapping of Li⁺-Solvation Sheath Structure through a Mass Spectrum Technique
K. Xu and A. V. Cresce

- 1467 Low-Temperature Performance of Li-ion Electrolytes and Materials
D. Ofer, J. Rempel, S. Sriramulu, and B. Barnett
- 1468 Performance Degradation of Li-Ion Batteries
D. Abraham
- 1469 Influence of Overcharge and Overdischarge on the Impedance Response of LiCoO₂ Batteries
S. Erol, M. Orazem, and R. Muller
- 1470 Electrochemical Shock of Polycrystalline Lithium Battery Materials
W. H. Woodford, Y. Chiang, and W. Carter
- 1471 Thermal Excursion and its effect on the Electrochemical Behavior of {LiMn_{2/3}Ni_{1/3}Co_{1/3}O₂ + LiMn₂O₄} Composite Electrodes
M. Dubarry, C. Truchot, B. Liaw, K. L. Gering, S. Sazhin, D. Jamison, and C. Michelbacher
- 1472 Characterization of LiFePO₄ Cathodes and Zinc Anodes by Novel Fourier Transform Electrochemical Impedance Spectroscopy Experiments
G. Min, Y. Ko, and S. Park
- 1473 Electronic Structure and Reactivity of Candidate Conversion Material Iron Oxifluoride
S. Rangan, R. Thorpe, R. Bartynski, O. Celik, N. Pereira, and G. Amatucci
- 1474 Studying the Reversibility of Multi-Electron Transfer in Fe(VI) Cathodes Using X-ray Absorption Spectroscopy
M. Farmand, C. Hettige, S. Licht, and D. E. Ramaker
- 1475 TEM-EELS Studies of Conversion Reaction of the Metal Fluorides as Cathodes for Lithium-Ion Batteries
F. Wang, Y. Zhu, J. Graetz, N. Pereira, G. Amatucci, X. Hua, and C. Grey
- 1476 Probing Phase Distribution of Lithiated Nanocomposite Metal Fluorides as Positive Electrode Materials in Li Ion Batteries via Solid-state NMR Studies
Y. Hu, L. Du, J. Pastore, and C. Grey
- 1477 Study of First Charge Discharge Mechanism for 0.3Li₂MnO₃-0.7LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ as a Cathode Active Material for Li-Ion Batteries
Y. Takanashi, M. Oishi, Y. Orihara, T. Fujimoto, K. Sato, H. Yamashige, D. Takamatsu, H. Murayama, H. Tanida, H. Arai, T. Ohta, E. Matsubara, Y. Uchimoto, and Z. Ogumi
- 1478 Degradation Mechanism of Conversion Type Electrode Materials Studied by XPS, ToF-SIMS and AFM
J. Swiatowska, F. Liao, V. Maurice, A. Seyeux, L. Klein, and P. Marcus
- 1479 Effect of Microstructure, Ordering and Composition on the Electrochemical Performance of LiNi_{1/2}Mn_{3/2}O₄ as a Cathode Material
C. Kim and J. Cabana

- 1480 Nanoscale Interfacial Phases in Lithium-Ion Battery Materials
J. Luo, A. Kayyar, J. Huang, and H. Qian
- 1481 On the Mechanism of the Lithium Insertion into $A_2Ti_6O_{13}$ (A=Na, Li)
J. Pérez Flores, A. Kuhn, M. Hoelzel, and F. García Alvarado
- 1482 Symmetric Li-ion Cells as an Essential Research Tool
J. C. Burns, L. Krause, L. Jensen, D. Lee, A. Smith, and J. Dahn
- 1483 A High Precision Coulometry Study of the SEI growth in Li/Graphite cells
A. Smith, J. Burns, and J. Dahn
- 1484 The Use of Elevated Temperature Storage Experiments to Learn about Parasitic Reactions in Wound $LiCoO_2$ /Graphite Cells
N. N. Sinha, A. Smith, J. Burns, G. Jain, K. Eberman, E. Scott, J. Gardner, and J. Dahn
- 1485 Is Water an Additive in Lithium-Ion Battery
C. Cheng and F. Wang
- 1486 In Situ FT-IR Analysis on Dynamic Behavior of Electrolyte Solution on $LiFePO_4$ Thin Film Electrode
Y. Akita, H. Munakata, and K. Kanamura
- 1487 Investigating the Electrochemical Processes of Carbon Metal Fluorides/Oxyfluorides Nanocomposites as Positive Electrode Materials in Li Ion Batteries via Solid-state NMR, TEM-EELS and PDF Analysis
L. Du, J. Pastore, F. Wang, O. Borkiewicz, A. J. Gmitter, K. Chapman, P. Chupas, Y. Zhu, J. Graetz, N. Pereira, G. Amatucci, and C. Grey
- 1488 Synthesis and Characterization of Olivine Single Crystals with very Low Defect Concentrations
Y. Janssen, S. Bo, C. Grey, and P. Khalifah
- 1489 Multinuclear NMR Studies of Electrolyte Breakdown Products in the SEI of Li Ion Batteries
S. DeSilva, V. Udinwe, P. Sideris, S. Greenbaum, M. C. Smart, C. Krause, K. Smith, and C. Hwang
- 1490 Synchrotron X-Ray Investigations of Operating Lithium-Sulfur Batteries
M. A. Lowe, J. Gao, and H. D. Abruña
- 1491 Exploring Functional Materials for Lithium Batteries Using High Resolution X-ray Tomography
P. Shearing, R. Bradley, J. Gelb, V. Yufit, F. Tariq, P. Withers, N. Brandon, and S. Harris
- 1492 Structural Characterization of Li-excess Cathode Materials for Lithium-Ion Batteries
K. Jarvis, Z. Deng, L. Allard, A. Manthiram, and P. Ferreira

- 1493 Direct Measurement of Lithium Transport in Graphite Electrodes with Neutrons
J. P. Owejan, J. Gagliardo, S. Harris, H. Wang, D. S. Hussey, and D. Jacobson
- 1494 Double Carbon Coating System - Improvement of Battery Cycle Life
H. Hsieh, Y. Lin, S. Chang, and H. Wu
- 1495 Over-Discharge Behavior of $\{\text{LiMn}_{1/3}\text{Ni}_{1/3}\text{Co}_{1/3}\text{O}_2 + \text{LiMn}_2\text{O}_4\}$ Composite Electrodes
M. Dubarry, C. Truchot, B. Liaw, K. L. Gering, S. Sazhin, D. Jamison, and C. Michelbacher

B12 - Electrochemical Processes for Fuels

High Temperature Materials, New Technology Subcommittee, Physical and Analytical Electrochemistry, Energy Technology

- 1496 (Invited) Solid Oxide Electrochemical Cells: Past, Present and Future
S. C. Singhal
- 1497 (Invited) Electrochemical Routes towards Sustainable Hydrocarbon Fuels
M. Mogensen
- 1498 Fuel Synthesis with CO₂ Captured from Atmosphere: Thermodynamic Analysis
T. Wang
- 1499 (Invited) Formic Acid and Formate Production through Electrochemical Reduction of CO₂ - An Assessment of Technology and Challenges
A. S. Agarwal, S. Guan, Y. Zhai, E. Rode, D. Hill, N. Sridhar, L. Chiacchiarelli, and G. Frankel
- 1500 Electrochemical Reduction of CO₂ to Methanol at Copper Based Surfaces
M. Ren, M. Le, Z. Zhang, P. Sprunger, R. Kurtz, G. Griffin, and J. Flake
- 1501 Electrochemical Conversion of CO₂ and CH₄ to CH₃OH at Room Temperature through a Carbonate Anion Pathway
N. Spinner and W. E. Mustain
- 1502 Electrocatalysts for Conversion of CO₂ to Hydrocarbons
J. Wu, F. Ke, C. Wright, and X. Zhou
- 1503 Surface Modification of Gold for CO₂ Electrochemical Reduction
E. Cave, K. Kuhl, and T. F. Jaramillo
- 1504 Electrocatalytic Conversion of CO₂ to Fuels on Metal Surfaces
K. Kuhl, E. Cave, and T. F. Jaramillo
- 1505 (Invited) Protonic Membrane Reactors: Converting CO₂ and Biomass to Transportation Fuels
E. D. Wachsman

- 1506 (Invited) Reversible Solid Oxide Fuel Cells
N. Q. Minh
- 1507 Materials and Manufacturing of Electrochemical Cells for Reduction of CO₂ into Liquid Fuels
J. Hallinder, P. Holtappels, and M. Mogensen
- 1508 (Invited) Nanostructured Electrodes for Reversible, Low Temperature Solid Oxide Cells
Z. Zhan, D. M. Bierschenk, J. Cronin, and S. A. Barnett
- 1509 (Invited) Progress in Conversion of CO₂ to Liquid Fuel
S. Elangovan and J. Hartvigsen
- 1510 (Invited) Synthetic Fuel Production by Recycling CO₂ via High Temperature Electrolysis
J. B. Hansen
- 1511 (Invited) Efficient Generation of High Energy Density Fuel from Water
K. E. Ayers, L. Dalton, and E. Anderson
- 1512 Ni-Based Catalysts for Hydrogen Evolution Reaction
W. Chen, K. Sasaki, E. Fujita, R. R. Adzic, and J. Muckerman
- 1513 Achieving Hydrogen Production through Solid Oxide Electrolyzer Stack by High Temperature Electrolysis
L. Jin, W. Guan, X. Ma, C. Xu, and W. Wang
- 1514 The Integration of Solid Oxide Fuel Cells and Solid Oxide Electrolysis Cells for the High Efficiency Production of Oxygen and Hydrogen
M. A. Taher, P. Iora, P. Chiesa, C. Adjiman, and N. Brandon
- 1515 (Invited) Analysis of Transport through Mixed Proton, Oxygen Ion, and Electron (Hole) Conductors: Power and Fuel Generation Modes
A. V. Virkar
- 1516 Failure Mechanism of (La,Sr)MnO₃ Oxygen Electrodes of Solid Oxide Electrolysis Cells
S. Jiang and K. Chen
- 1517 Electrochemical Studies on Anode Supported Solid Oxide Electrolyzer Cells (SOEC)
J. Njodzefon, A. Weber, and E. Ivers-Tiffée
- 1518 Reversible Solid Oxide Fuel Cell Development at Versa Power Systems
B. Borglum
- 1519 Implications Associated with S Contamination for the Production of Syn-Gas from CO₂ Reduction
E. J. Dufek, T. E. Lister, and M. McIlwain
- 1520 Novel Structured Solid Oxide Co-Electrolysis Cells
C. Yang, J. Newkirk, V. Baish, and F. Chen

- 1521 (Invited) Ir-Ru-Ti Metal Oxides and Ir-Ru Metals Supported on TiO₂ Electrocatalysts for PEM Water Electrolysis
R. E. Fuentes, S. Rau, T. Smolinka, and J. Weidner
- 1522 Hydrogen Generation by Electrocatalytic Reforming of Biomass-Related Compounds: Ethylene Glycol
K. A. Spies and E. M. Stuve
- 1523 Effect Of Reversible Cell Operation on LSM-YSZ Composite Electrode Durability
G. A. Hughes, K. Yakal-Kremski, and S. Barnett
- 1524 Oxygen Bubble Formation in the Electrolyte of Solid Oxide Electrolysis Cells
O. Comets and P. Voorhees
- 1525 Species Transport in the High Differential Pressure Oxygen Generating Electrolyzer Membrane
T. Myles, G. J. Nelson, A. A. Peracchio, W. K. Chiu, R. Roy, B. Murach, and G. Adamson
- 1526 Degradation of Solid Oxide Electrolyser Cells with Different Anodes
C. Xu, Y. Wang, L. Jin, J. Ding, X. Ma, and W. Wang
- 1527 Reversible SOFC with Proton Conducting Electrolyte and Advanced Electrode Architectures
G. Taillades, P. Battochi, M. Taillades, D. Jones, and J. Rozière
- 1528 Thermochemical Hydrogen: Fundamental Electrochemical Investigations of the HyS Cycle Electrolyser
J. O'Brien, J. Hinkley, and S. Donne
- 1529 Determination of Overpotential Characteristics of Reversible Solid Oxide Cells via Impedance Spectroscopy and Correlation with Cell Degradation
C. Graves, S. Ebbesen, and J. Hjelm
- 1530 Electrochemical Performance of HTPCs Steam Electrolysis Cells
I. Luisetto, E. Di Bartolomeo, A. D'Epifanio, and S. Licoccia
- 1531 IT-SOFC Membrane Formed by Gelcasting Process from Ceria Based Nanopowder
M. Molenda, K. Z. Furczoń, A. Kochanowski, S. Zapotoczny, M. Szuwarzyński, B. Dudek, and R. Dziembaj
- 1532 Charge Compensated (Al, N) Co-Doped Zinc Oxide (ZnO) Films for Photoelectrochemical Application
S. Shet, Y. Yan, and M. Al-Jassim
- 1533 Effect of Ni on PtNi/C Catalysts for Electrooxidation of Glycerol
S. Lee, H. Kim, S. Choi, M. Seo, E. Lim, and W. Kim

- 1534 Highly Selective Glyceraldehyde Production from Electrocatalytic Oxidation Process of Biomass-Derived Glycerol
H. Kim, S. Green, S. Lee, G. Tompsett, G. Huber, and W. Kim
- 1535 First-Principles Quantum Mechanics Assessment of Oxygen Diffusion in $\text{La}_{1-x}\text{Sr}_x\text{MO}_3$ (M=Fe, Co) Based Materials
A. M. Ritzmann and E. A. Carter
- 1536 A Study of Hydrogen Sulfide Contaminants on the Anode of Micro-Tubular SOFC
D. Choi, M. Ohashi, S. Shimpalee, J. Van Zee, and P. Aungkavattana
- 1537 Kolbe Electrolysis of Bio-Oils for the Production of Diesel and Aviation Fuels
A. D. Wilson and T. E. Lister
- 1538 Electrochemical Reduction of O_2 and CO_2 on Platinum in PEM Reactor
J. Wu, S. Hummel, and X. Zhou
- 1539 Electrochemical Reduction of CO_2 on Single Crystal Copper and Copper Oxide Electrodes for Selective Formation of Hydrocarbons
J. Wu and X. Zhou
- 1540 (Invited) Solar Thermal Electrochemical Production of Energetic Molecules: Efficient STEP Solar Water Splitting, Carbon Capture, and Solar Metals, Fuel and Bleach Production
S. Licht, H. Wu, J. Lau, B. Wang, C. Hettige, H. Bergmann, and J. Asercion
- 1541 (Invited) Surface Nitridation of p-GaInP₂ for Durable Photoelectrochemical Water Splitting
H. Wang, T. Deutsch, A. Welch, and J. Turner
- 1542 Photoelectrochemical Hydrogen Production from Water without an External Applied Voltage Using p-type CaFe_2O_4 and n-type TiO_2 Electrodes
S. Ida, K. Yamada, H. Hagiwara, and T. Ishihara
- 1543 Modified Bismuth Vanadate Electrodes for Photoelectrochemical Water Splitting
P. Kishore, T. E. Furtak, J. A. Turner, and A. M. Herring
- 1544 (Invited) Solar Fuel Production Using Thermochemical Cycles: A Challenging Materials Problem
M. D. Allendorf, A. McDaniel, J. Miller, E. Coker, A. Ambrosini, T. Aston, A. Weimer, and J. Scheffe
- 1545 (Invited) CO_2 Utilization by Solar Assisted Photo-Electrochemical Methods
M. D. Salazar-Villalpando
- 1546 $\alpha\text{-Fe}_2\text{O}_3$ Photoanodes for the Photooxidation of Water
I. Herrmann-Geppert, P. Bogdanoff, and S. Fiechter

- 1547 Addressing Charge Transport Limitations in Thin Film Ta₃N₅/Ta Photoanodes for Solar Fuel Synthesis
B. A. Pinaud and T. F. Jaramillo
- 1548 Molecular Electrocatalysts Coupled to p-Si Photocathodes for Solar Hydrogen Evolution
Y. Hou, B. Abrams, P. C. Vesborg, M. Björketun, K. Herbst, L. Bech, A. Setti, C. Damsgaard, T. Pedersen, O. Hansen, J. Rossmeisel, S. Dahl, J. Nørskov, and I. Chorkendorff
- 1549 Preparation and Photoelectrochemical Property of Au-CuO Heterodimer Nanostructures
K. Tsai and Y. Hsu
- 1550 (Invited) Microscale Platform for CO₂ Conversion
M. R. Thorson, D. Whipple, and P. Kenis
- 1551 (Invited) High Efficiency Electrochemical Reduction of CO₂ to CO for Long Term Energy Storage
V. Kaplan, E. Wachtel, and I. Lubomirsky
- 1552 (Invited) Solid State Electrochemical Conversion of CO₂ and Steam to Fuels
J. T. Irvine, K. Xie, G. Tsekouras, and X. Yue
- 1553 Performance and Durability of Solid Oxide Electrolysis Cells for Syngas Production
X. Sun, M. Chen, P. Hjalmarsson, Y. Liu, S. Ebbesen, S. Jensen, M. Mogensen, and P. Hendriksen
- 1554 The Cathode Development for High Temperature Carbon Dioxide Electrolysis
X. Yue and J. Irvine
- 1555 Electrodeposition of Functional Ni-Re Alloys for Hydrogen Evolution
P. Zabinski, A. Franczak, and R. Kowalik
- 1556 (Invited) Shape-Controlled Synthesis of Pt and Pd Nanoparticles with High-Index Facets and their Application in Electrocatalysis
N. Tian, Z. Zhou, and S. Shi-Gang
- 1557 Ruthenium Disulphide as Catalysts for the Oxygen Evolution Reaction
P. Bogdanoff, S. Brunken, K. Ellmer, A. Kratzig, and S. Fiechter
- 1558 Evaluation of Oxygen Reduction Reaction in the Presence of Sodium Borohydride in Alkaline Electrolyte
A. C. Garcia, F. Barros de Lima, E. Ticianelli, and M. Chatenet
- 1559 Atomic Layer Deposition of MnO_x Electrocatalysts
K. Pickrahn, S. Park, Y. Gorlin, T. F. Jaramillo, and S. Bent
- 1560 Oscillations in Catalytic and Electrocatalytic Oxidation of Methane and Ethylene on Pt-Ceria Anodes
V. Medvedev, S. Adler, and E. M. Stuve

- 1561 (Invited) Solid Oxide Membrane Process for the Reduction of Uranium Oxide Surrogate in Spent Nuclear Fuel
Y. Jiang, P. Zink, and U. B. Pal
- 1562 (Invited) Coal-Based Electrochemical Energy Solutions for Low Carbon Paths
M. Han, S. Song, Z. Liu, and Z. Lei
- 1563 Electrochemical Analysis of Reformate-Fuelled Anode-Supported SOFC
A. Kromp, A. Leonide, A. Weber, and E. Ivers-Tiffée
- 1564 Performance of Lower Temperature Solid Oxide Fuel Cells Operating on Reformed Hydrocarbon Fuels
K. Lee, C. Gore, H. Yoon, and E. D. Wachsman
- 1565 Study of SOFC Operational Behavior by In Situ Laser Raman Spectroscopy
G. Schiller, C. Auer, W. Bessler, C. Christenn, P. Szabo, H. Ax, and W. Meier
- 1566 Development of High Performance LSM-Bismuth Oxide Composite Cathodes for Lower Temperature SOFCs
K. Lee, A. Lidie, H. Yoon, and E. D. Wachsman
- 1567 Microstructural Engineering of Porous Cathodes for SOFC Applications
S. R. Gandavarapu, K. Sabolsky, K. Gerdes, and E. M. Sabolsky
- 1568 First-Principles Modeling of LaMO_3 (M=Cr,Mn) Based Materials for Solid Oxide Fuel Cell Applications
M. Pavone and E. A. Carter
- 1569 First-Principles Study of $\text{Sr}_2\text{Fe}_{2-x}\text{Mo}_x\text{O}_6$ (SFMO) for Solid Oxide Fuel Cell Applications
A. B. Muñoz-García, M. Pavone, and E. A. Carter
- 1570 Performance and Stability of Solid Oxide Fuel Cell LSM-YSZ Composite Cathodes
A. T. Duong and D. Mumm
- 1571 Epitaxial $\text{La}_{1-x}\text{Sr}_x\text{CoO}_{3-\delta}$ ($x = 0.2, 0.4$) Thin Film Oxygen Reduction Activity for Solid Oxide Fuel Cells
E. J. Crumlin, S. Ahn, D. Lee, E. Mutoro, M. Biegalski, H. Christen, and Y. Shao-Horn
- 1572 Overview of SOFC Anode Interactions with Coal Gas Impurities
O. A. Marina and L. Pederson
- 1573 Improvement of Power Generation Property by Columnar Shape Cathode Thin Film
Y. Ju, S. Ida, T. Inagaki, and T. Ishihara
- 1574 Development of Novel Cathode/Interconnect Contact Materials for SOFC Stacks
G. Xia, Z. Lu, X. Li, Z. Nie, J. Templeton, R. Scott, Z. Yang, and J. Stevenson
- 1575 Effects of the Additives in Oxide Anode for Direct Hydrocarbon-Type SOFC
T. Shin, S. Ida, and T. Ishihara

- 1576 Design, Synthesis, Structural and Textural Characterization, and Electrical Properties of Mesoporous Thin Films Anode for Micro-SOFC
G. Muller, G. Baldinozzi, A. Ringuedé, C. Robert-Laberty, and C. Sanchez
- 1577 Electrodeposition of CoMn onto Stainless Steel Interconnects for Increased Lifetimes in SOFCs
T. Hall, H. McCrabb, J. Kell, S. Snyder, H. Zhang, X. Liu, and E. Taylor
- 1578 In Situ XPS Measurements of Surface-Adsorbate Overpotentials on Operating Solid Oxide Cells
C. Zhang, M. Grass, Y. Yu, K. Gaskell, F. Aksoy, N. Jabeen, Y. Hong, G. Jackson, Z. Hussain, Z. Liu, and B. Eichhorn
- 1579 Understanding Chemical Expansion in CeO₂
D. Marrocchelli, S. Bishop, B. Yildiz, and H. Tuller
- 1580 Development of a Predictive Thermo-Chemical Expansion and Stress Model in (Pr,Ce)O_{2-δ}
S. Bishop, D. Marrocchelli, Y. Kurur, B. Yildiz, and H. Tuller
- 1581 Crystal Defects of YSZ in Solid Oxide Fuel Cells and their Microstructure Evolution Upon Cell Operation
X. Song, S. Chen, Y. Chen, G. Hackett, H. Finklea, and K. Gerdes
- 1582 Development of Techniques to Measure Various Gases Permeability at High Pressure Gradients
M. Ohashi, W. McPhee, J. Preston, G. Hesler, M. Dristy, T. Molter, and J. Van Zee
- 1583 Materials and Performance of Novel Proton Conducting SOFCs Based on LaNbO₄ Electrolyte
A. Magraso, M. Fontaine, Y. Larring, R. Bredesen, G. Syvertsen, H. Lein, T. Grande, M. Huse, R. Strandbakke, R. Haugsrud, and T. Norby
- 1584 Conductivity of Aqueous K₂CO₃ up to 200°C
P. L. Mollerup and M. Mogensen
- 1585 Modifications in Nernst-Planck Equation in Solid State Electrochemistry for the 21st Century
T. Miyashita
- 2701 *H. D. Abruña*

D1 - Corrosion General Poster Session

Corrosion

- 1586 (Corrosion Division H. H. Uhlig Award) Synchronized Localized Corrosion and Formation Anodic Oxide Structures
P. Schmuki
- 1587 (Morris Cohen Graduate Student Award of the Corrosion Division) Understanding the Interplay between Water Chemistry Variables and Electrochemical Properties of Copper
H. Cong and J. Scully
- 1588 Inhibitory Action of Aromatic Amine on Aluminum Corrosion in Hydrochloric Acid
P. S. Desai and S. Kapopara
- 1589 Organic Materials as Corrosion Inhibitors for Aqueous Medium: A Review
D. Asefi, M. Arami, and N. Mahmoodi
- 1590 Non-Toxic Compounds as Corrosion Inhibitors: A Review
D. Asefi, M. Arami, and N. Mahmoodi
- 1591 Corrosion Protection of Aluminum in Different Concentration of HCl by Using an Organic Ligand
A. Dadgarinezhad and F. Baghaei
- 1592 Organic Synthesis Inhibitors Obtained in Microwaves Field for Anticorrosive Protection of Industrial Cooling Water Systems
F. Branzoi, V. Branzoi, A. Stanca, and I. Harabor
- 1593 Characterization of the Effect of Corrosion Inhibitors on Pit Growth Kinetics and Damage Accumulation Rates in Aluminum Alloy 7075 T-6
P. Klomjit and R. G. Buchheit
- 1594 Corrosiveness of Different Treated Municipal Wastewaters Used as Power Plant Cooling System Makeup Water: A Bench-Scale Evaluation
M. R. Choudhury, M. Hsieh, R. Vidic, and D. Dzombak
- 1595 Corrosion Investigation on Steel and Ferritic Steel in 1M H₂SO₄
F. Baghaei Ravari and A. Dadgareenezhad
- 1596 Inhibition of Cobalt Corrosion by Silane Coatings
K. Mabuchi
- 1597 Electrochemical Corrosion of CoNiFe Thin Films in Chemical Mechanical Polishing (CMP) Solutions
J. Wang and Y. Jiang
- 1598 Effect of BTA on Anodic Dissolution of Copper
A. Inukai, I. Shitanda, M. Itagaki, and K. Watanabe

- 1599 In Situ STM Study of Pt-Nanodot Arrays on HOPG Prepared by Electron Beam Lithography
A. Foelske-Schmitz, A. Savouchkina, V. Guzenko, D. Weingarth, A. Wokaun, G. G. Scherer, and R. Kötz
- 1600 Dissolution Behavior of Pt-Co Alloys with Different Compositions in Sulfuric Acid Solution
Y. Hoshi, A. Nishikata, and T. Tsuru
- 1601 Comparative Study on the Electrochemical Behavior of Platinum and Gold in 0.5M H₂SO₄
B. R. Shrestha, A. Yadav, A. Nishikata, and T. Tsuru
- 1602 Effects of Heat Treatment on the Corrosion Behavior of Pd-Fe-Co-Si-B Amorphous Alloy
H. Jang, H. Lee, and H. Kim
- 1603 Nanoplasmonic Sensing and QCM-D as Ultrasensitive Complementary Techniques for Corrosion Studies
M. Schwind, C. Langhammer, B. Kasemo, and I. Zoric
- 1604 Passivation of Chalcopyrite in Sulfuric Acid Solutions
A. Ghahremaninezhad, E. Asselin, and D. Dixon
- 1605 Effect of pH and Carbonate on the Electrochemical Oxidation of H₂O₂ on Uranium Dioxide
L. Wu and D. Shoesmith
- 1606 Electrochemical Impedance Spectroscopy Study of Titanium Anodes for Electrodeposition
W. Utomo and S. Donne
- 1607 A Mechanism of Anodic Film Formation in Molten Melts Using Preformed Porous Film Formed in 0.6 M Oxalic Acid Electrolyte
S. Han and H. Kim
- 1608 Auger Spectra Analysis of Anodized Film Formed in Molten Melts
S. Han and H. Kim
- 1609 Rutherford Backscattering Analysis of Reanodized Film Windows in 0.6 M Oxalic Acid Electrolyte after Anodizing in Molten Melts
S. Han and H. Kim
- 1610 Anti-Corrosion Ability of Stainless Steel Coated by Titanium Dioxide Film
L. Minjiao and Z. Shulin
- 1611 Influence of Impurities and Temperature on the Galvanic Corrosion of the AISI 316L/MPA Welded AISI 316L Pair in H₃PO₄ under Flowing Conditions
R. Sánchez-Tovar, M. Montañes, J. García-Antón, and A. Guenbour

- 1612 In-Situ Study of Corrosion Evolution of Unsensitized and Sensitized Alloy 926 (UNS N08926) in LiBr Solutions Using Confocal Laser Scanning Microscopy
R. Leiva-García, M. Muñoz-Portero, and J. García-Antón
- 1613 Thermogalvanic Potentials and Current Densities of a Highly Alloyed Austenitic Stainless Steel in 8.06 M LiBr Solution
R. Fernández-Domene, E. Blasco-Tamarit, D. García-García, and J. García-Antón
- 1614 Electrochemical Measurement with In-Situ Imaging for Localized Corrosion of Stainless Steel in Chloride Solution
T. Mitsu, I. Shitanda, M. Itagaki, and K. Watanabe
- 1615 Improvement of Pitting Corrosion Resistance of Type 430 Stainless Steel Passivated by Potentiodynamic Polarization in Concentrated Nitric Acid
S. Hastuty, A. Nishikata, and T. Tsuru
- 1616 Influence of Electrode Surface Contamination on Constant Phase Element Characterization
K. Allahar, D. Butt, and M. Orazem
- 1617 Enhancement of Corrosion Resistance of Stainless Steel by Electrodeposition of Metal Alloy Film Incorporation with Layered Ceramic Particles
J. Tientong, N. D'Souza, and T. D. Golden
- 1618 Correlations between Natural and Artificial Weathering of Intact and Scratched e-coated Galvanized Steel Panels
M. Fedel, F. Deflorian, and S. Rossi
- 1619 Evaluation of Blister Growth of High Performance Organic Coatings by Electrochemical Impedance Measurements
D. Ito, T. Yokoyama, and S. Okazaki
- 1620 Surface and Electrochemical Behavior of HSLA Steel in Supercritical CO₂-H₂O Environment
M. Ziomek-Moroz, G. R. Holcomb, J. Tylczak, J. Beck, M. Fedkin, and S. Lvov
- 1621 Time-Resolved In Situ Synchrotron X-Ray Diffraction Studies of CO₂ Corrosion of Carbon Steel under Anodic Polarisation in Sodium and Magnesium Chloride Brines at 80°C
M. Ko, B. Ingham, R. Chaturvedi, J. Burnell, P. Kappen, J. Kimpton, N. Laycock, and D. Williams
- 1622 Study on the Corrosion Behavior of Reinforcing Steel by Electrochemical Techniques and XPS
R. Du, W. Chen, Y. Zhu, R. Hu, H. Shi, and C. Lin
- 1623 Effect of Ca and CaO on the High Temperature Oxidation of Mg Alloys
M. Kim, S. Bong, J. Lee, and D. Lee
- 1624 Surface Modifications of the Mg Alloy by Self-Assembled Monolayers of Fatty Acids
M. Metikoš-Huković, R. Babić, I. Škugor Rončević, and Z. Grubac

D2 - Coatings for Corrosion Protection

Corrosion

- 1625 Coatings for Corrosion Protection: An Overview of Current Issues
M. Stratmann
- 1626 Corrosion Protection of Steel with Alumina Nanocoatings Grown by Atomic Layer Deposition
V. Maurice, B. Díaz, E. Härkönen, S. Potts, J. Swiatowska, A. Seyeux, W. Kessels, M. Ritala, and P. Marcus
- 1627 Corrosion Properties of YSZ Coated Carbon Steel Formed by Aerosol-Deposition
T. Lim, H. Ryu, J. Ryu, D. Park, and S. Hong
- 1628 Vanadate Passivation Treatment for Electric Steel Sheet Using a Roll Coating Process
H. Su, C. Tsai, J. Wu, P. Chen, and C. Lin
- 1629 Improving the Corrosion Resistant Properties of Protective Coatings on Stainless Steel Substrates through the Incorporation of Silicate Nanocomposites into Metallic Alloys
H. A. Conrad and T. D. Golden
- 1630 Microstructure of Trivalent Chromium Conversion Coating on Electrogalvanized Zinc Steel
F. Chen, Y. Tsia, Y. Yang, C. Lin, Y. Pan, and M. Ger
- 1631 Oxide Fouling Mitigation Coating in High Temperature Water
Y. Kim
- 1632 A Comparative Study on the Corrosion Resistance of Cerium-Based Conversion Coatings on AZ91D and AZ31B Magnesium Alloys
C. E. Castano, S. Maddela, M. J. O'Keefe, and Y. Wang
- 1633 Effect of Hydrogen Peroxide Concentration on Corrosion Resistance of Cerium-Based Conversion Coatings on Mg AZ91D Alloy
S. Maddela, M. J. O'Keefe, and Y. Wang
- 1634 Enhanced Bonding Strength and Corrosion Resistance of MgO Coating on AZ91D Magnesium Alloy by ZrO₂ Interlayer
M. Wang, C. Li, and S. Yen
- 1635 Surface Modification of ACM522 Magnesium Alloy by Plasma Electrolytic Oxidation
S. Yagi, A. Sengoku, and E. Matsubara
- 1636 Oxide Film Growth on Al-Cu Alloys during AC/DC Spark Anodization in Alkaline Silicate Solutions
E. A. Alsrayheen, E. McLeod, H. Molero, R. Rateick, and V. Birss
- 1637 Nanostructured Silanol Base Coating as a Pretreatment for AA-2024
M. A. Páez, E. Gonzalez, J. Pavez, I. Azocar, J. H. Zagal, X. Zhou, and G. Thompson

- 1638 Frequency Dispersion in EIS Due to Resistivity Distribution in a Layer: Application to Hybrid Sol-Gel Coatings on 2024 Aluminum Alloy
S. Amand, M. Musiani, M. Orazem, N. Pébère, B. Tribollet, and V. Vivier
- 1639 Transient Formation of Chromate in Trivalent Chromium Process (TCP) Coatings on AA2024 as Probed by Raman Spectroscopy
L. Guo and G. M. Swain
- 1640 Corrosion Performance of Al-Mg-Si Alloy in Atmospheric Environment
H. Katayama, K. Matsuzaki, I. Shitanda, M. Itagaki, and H. Masuda
- 1641 Corrosion Analysis and Corrosion Breakdown of Fe-Based Amorphous and Nanocrystalline Alloys
F. U. Renner, J. Duarte, and J. Lengsfeld
- 1642 Investigation of Degradation Processes at Coated Metals by Scanning Electrochemical Microscopy
R. M. Souto and S. González
- 1643 Advanced Simultaneous and In Situ Spectroelectrochemical Studies of Polymer/Oxide Interfaces and Oxide Surfaces in Corrosive Environments
R. Posner, A. Jubb, G. Frankel, and H. Allen
- 1644 Mathematical Modeling of Ionic Transport in Organic Coatings
K. Allahar, M. Hurley, and E. Sapper
- 1645 Direct Evidence for the Effect of Intermetallic Particles on the Progress of Filiform Corrosion on Aluminum Alloy Obtained by In Situ Scanning Kelvin Probe Force Microscopy
C. Senöz and M. Rohwerder
- 1646 Response of Electrochemical Impedance Spectroscopy to Evolving Coating Systems
B. Hinderliter
- 1647 EIS Studies of Hexavalent and Trivalent Chromium Based Military Coating Systems
A. Petrossians, A. Manohar, and F. Mansfeld
- 1648 Investigating the Failure Mechanisms for an Epoxy-Polyamide Coating in a Seawater Environment
S. A. Policastro, R. Rayne, N. Tailleart, and F. J. Martin
- 1649 Characterization and Electrochemical Investigations of Novel Structures of Polypyrrole on Aluminum Flake Surface
N. Jadhav, C. Vetter, and V. J. Gelling
- 1650 Corrosion Protection of Copper Using a Suitable Protective Conducting Polymer Coating
U. Carragher and C. Breslin

- 1651 Investigation of Oxygen Reduction on Self-Assembled Monolayer / Au(111) Model Systems for Delamination Studies
M. Muglali, A. Bashir, and M. Rohwerder
- 1652 Smart-Release Inhibition of Corrosion-Driven Organic Coating Delamination on Galvanized Steel Surfaces
G. Williams, S. Geary, M. Loveridge, and N. McMurray
- 1653 Corrosion Protection Inhibitor Systems for Coatings Based on Cooperative Chemical Inhibition and Inhibitor Delivery by Synthetic Ion Exchange Compounds
R. G. Buchheit
- 1654 Evaluation of the Self Healing Ability of Organic Coatings Modified with Smart Nanocontainers Loaded with Corrosion Inhibitors Applied on Metallic Substrates Used in the Transportation Industry
M. Montemor, D. Snihirova, M. Taryba, and S. Lamaka
- 1655 Corrosion Inhibition of Galvanized Steel by a Hybrid Organic/Inorganic Coating
K. Win, S. Adhikari, Y. Li, G. Frankel, B. Bammel, T. Smith, J. McGee, J. Comoford, J. Zimmerman, and G. Donaldson
- 1656 Epoxy Coatings Containing Nanocontainers Loaded with Corrosion Inhibitors for Corrosion Protection of AA 2024-T3
A. C. Balaskas, I. Kartsonakis, P. Bilalis, A. Karatzas, and G. Kordas
- 1657 Intelligent Corrosion Protection by Electro-Galvanized Zinc Coatings Containing Inhibitor Filled Mesoporous Silica Particles
A. Vimalanandan, T. Khan, and M. Rohwerder
- 1658 Novelty of Ni - Co - WC Nanocomposite Coatings Prepared from Pulse and Direct Current Methods
B. Ranjith, G. Kalaignan, and K. Srinivasan
- 1659 Anti-Corrosion and Morphological Properties of Nanoceramic Hexafluorozirconic Acid Based Conversion Thin Film: The Effect of Solution Temperature
H. Eivaz Mohammadloo, A. Sarabi, A. Sabbagh-Alvani, M. Roohnikan, R. Salimi, and H. Sameie
- 1660 Synthesis and Characterization of Poly (N, N' Dimethylaniline) Coatings as Anticorrosive Protection of Copper in Various Aggressive Media
F. Branzoi and V. Branzoi
- 1661 Ion Transport Kinetics along Buried Interfaces for Polymer Coated Samples in Cut Edge Geometry
R. Posner, G. Giza, M. Marazita, and G. Grundmeier
- 1662 Study on a Titanate Film and its Photocathodic Protection Effect for 403 Stainless Steel
Y. Zhu, R. Du, H. Qi, J. Zhang, and C. Lin

- 1663 Electrochemical Corrosion Study of Protective Organic Thin Film Coating on Mg Alloy
T. Abdel-Fattah and A. Mahapatro
- 1664 Electropolymerization of Pyrrole with Clays on Aluminium Alloy
K. Castagno, V. Dalmoro, R. Mauler, and D. S. Azambuja
- 1665 Inhibition of Copper Corrosion Using Conducting Polymer Coatings
U. Carragher and C. Breslin

D3 - Corrosion on Land, Sea, and Air

Corrosion, Sensor

- 1666 Volt Equivalent Diagrams for the Electrochemical Thermodynamics of Aqueous Sulfur-Containing Systems
D. D. Macdonald, S. Sharifi, and J. Linder
- 1667 Electrochemical Kinetic Parameters of Oxygen Reduction Reaction on Copper and Brass
S. Motevalian, M. Baghalha, and M. Hadidi
- 1668 Study of Corrosion Inhibition Processes of Copper in a Low Conductivity Medium by a Selected Thiol Compound
W. Qafsaoui, H. Perrot, H. Takenouti, and M. Kendig
- 1669 Acceleration Laboratory Testing of Ag and Cu Atmospheric Corrosion Using Ozone, Ultraviolet Radiation and NaCl
H. Lin and G. Frankel
- 1670 The Effects of Sodium Dodecyl Sulfate and Carbon Nano Tubes on Copper Corrosion Rates
M. Baghalha and M. Kamal-Ahmadi
- 1671 The Detection of Non-Linearities Using Odd Random Phase Multisine EIS and its Application in Corrosion Investigations
Y. Van Ingelgem, T. Breugelmans, R. Pintelon, and A. Hubin
- 1672 Accelerated Corrosion Tests for Silver and their Correlation to Field Exposures
Y. Wan, E. Neiser, and R. Kelly
- 1673 Electrochemical Characterization of the β -phase (Al_3Mg_2) in 5XXX Aluminum Alloys
J. Buczynski and R. Kelly
- 1674 Modeling and Measurement of Atmospheric Galvanic Corrosion of AA5083-H131 in Contact with 4340 Steel
D. Mizuno and R. Kelly
- 1675 Impedance of a Rough/Fractal Electrode Surface with Double Layer and Charge-Transfer Processes
M. Venkatraman, I. Cole, D. Sherwood, and B. Emmanuel

- 1676 The Impact of Electrochemical Protection Techniques on the Microstructure of Reinforced Concrete
D. Koleva, J. Hu, and K. van Breugel
- 1677 The Influence of Admixed Polymeric Vesicles on Corrosion Performance of Steel in Simulated Pore Solution and/or Reinforced Mortar
J. Hu, D. Koleva, and K. van Breugel
- 1678 Lifetime Prediction of Materials from Tests in Simulated Polluted Atmospheres
W. Kovacs III., J. James, and L. F. Garfias-Mesias
- 1679 The Sustainable Redox Reactions Involved in Cathodic Current Enhancement by Marine Biofilms
M. J. Strom and S. Dexter
- 1680 Corrosion of Carbon Steel in Simulated Concrete Pore Water in Boom Clay Repository Environments
D. D. Macdonald, A. Almarzooqi, S. Sharifi, and M. Taylor
- 1681 A Simple Approach for Measuring Slow Rates of Hydrogen Entrainment and Diffusion in Metals
M. Bjørnsdotter, C. Holme, R. Johnsen, and K. Nisancioglu
- 1682 Activation of Sulfuric Acid Corrosion of Stainless Steel by Thiocyanate
W. Li and C. Pistorius
- 1683 Evaluation of Thiosulfate as a Substitute of Hydrogen Sulfide in Sour Corrosion Fatigue Studies
M. Kappes, G. Frankel, R. Thodla, N. Sridhar, and R. Carranza
- 1684 Failures Prediction of Pipelines Carrying Natural Gas Using Bees Algorithm
J. C. González-Islas, E. Bolaños-Rodríguez, E. Lezama-León, A. Solis-Galindo, and H. Muñiz-Molina

D4 - Critical Factors in Localized Corrosion 7

Corrosion

- 1685 Localised Dissolution Kinetics From Fast In Situ Radiography of Propagating Pits in Stainless Steel and Implications for Modeling Pitting Corrosion over Long Time-Scales
N. Laycock, D. Krouse, M. Gahari, A. J. Davenport, T. Rayment, and C. Padovani
- 1686 Factors Controlling the Location of Crevice Attack in Austenitic Stainless Steels
J. S. Lee and R. Kelly
- 1687 Single Pit Study on 316L Stainless Steel Using the Scanning Electrochemical Microscope
N. Aouina, F. Balbaud-Célrier, F. Huet, S. Joiret, H. Perrot, F. Rouillard, and V. Vivier

- 1688 Electrochemical Behavior of Martensitic Stainless Steel in Chloride Solution
S. Marcelin, N. Pébère, and S. Régnier
- 1689 Investigation of a Critical Factor in Localized Corrosion on Carbon Steels: The Shape of an Existing Defect
S. Tricoit, B. Vuillemin, and R. Oltra
- 1690 Carbon Steel Corrosion at the Liquid-Air Interface in Simulated Nuclear Waste Solutions
X. Li, G. Frankel, H. Cong, S. Brossia, J. Beavers, B. Wiersma, and L. Stock
- 1691 Modeling and Measurement of Boundary Conditions for Pit Size on Stainless Steels under Atmospheric Exposure Conditions
M. Shedd and R. Kelly
- 1692 Computer Simulation of Crevice Corrosion of Stainless Steels: Influence of Alloying Elements and Film Depassivation
B. Malki, L. Peguet, and B. Baroux
- 1693 Enhanced Corrosion Resistance of Interstitially-Hardened Stainless Steel: Implications of a Critical Passive Layer Thickness for Breakdown
A. H. Heuer, H. Kahn, F. Ernst, G. Michal, R. Rayne, F. J. Martin, and P. M. Natishan
- 1694 A New Approach towards the Characterization of IG SCC of Austenitic Stainless Steel by the Electrochemical Microcapillary Technique
M. S. Breimesser, S. Ritter, H. Seifert, T. Suter, and S. Virtanen
- 1695 Pitting Corrosion of Stainless Steels in Marine Atmospheres
A. Nishikata, S. Hastuty, Y. Tsutsumi, and T. Tsuru
- 1696 Superiority of Sulfate over Chloride for Pitting of Stainless Alloys in Solutions Containing Reduced Sulfur Compounds
W. Zhang, A. G. Carcea, and R. Newman
- 1697 Chloride Interactions with Passive Oxide Films on Stainless Steel and Aluminum
P. M. Natishan, W. O'Grady, F. J. Martin, R. Rayne, H. Kahn, and A. Heuer
- 1698 Enhanced Corrosion Resistance of Interstitially Hardened Plasma Nitrided 316 L Stainless Steel
N. Tailleart, F. J. Martin, R. Rayne, P. M. Natishan, H. Kahn, and A. Heuer
- 1699 Low-Temperature Carburized Stainless Steels: An XAS Study
D. Roeper, W. O'Grady, K. Pandya, and P. Natishan
- 1700 Improvement of Corrosion Resistance of Stainless Steel by Chemical Passivation Treatment in Citric Acid Systems
Y. Sugawara, T. Mohri, I. Muto, and N. Hara
- 1701 Formation of Ordered Pore Arrays on Stainless Steels
H. Tsuchiya, T. Suzumura, and S. Fujimoto

- 1702 Corrosion Behavior of Carbon Steel A516 and Stainless Steel 304 in 10 wt% Aqueous Ammonia
Y. Sun, J. Remias, J. Neathery, and K. Liu
- 1703 Characterization of Passive Film Formed on Manganese Free-Nickel Stainless Steel Exposed to Simulated Concrete Pore Environment
L. P. Veleva and B. Tsaneva
- 1704 Mg and Mg Alloys: From Passivation to Biodegradation Mechanisms
P. Schmutz, T. Suter, M. Liu, and P. Uggowitzer
- 1705 Role of Intermetallic Particles in Pitting Corrosion of AA3xxx Al Alloys in Chloride-Containing Environments
W. Zhang, X. Yu, M. Piech, M. Kryzman, T. Garosshen, M. Jaworowski, and G. Zafiris
- 1706 The Effect of Weak Acids on Localized Corrosion Morphologies in High Strength Aluminum Alloys
A. Neeley and R. Buchheit
- 1707 Localized Trenching on Aluminum Alloys: A Phenomenological Approach Using a Modified SECM Experiment
C. Sorriano, R. Oltra, A. Zimmer, and O. Neel
- 1708 Effect of the Thermo-Mechanical History on the Corrosion Behavior of AA 6101 Aluminum-Magnesium-Silicon-Iron Alloy in NaCl Solution
A. Laurino, E. Andrieu, C. Blanc, J. Harouard, G. Odemer, and J. Salabura
- 1709 Impact of Ultrafine-Grained Microstructure on the Corrosion of AA2024-Alloy
J. G. Brunner, N. Birbilis, K. Ralston, and S. Virtanen
- 1710 Oxygen Reduction on 2024 and 7075 Aluminum Alloys: Influence of the Intermetallic Particles Size
W. Prieto, N. Pébère, B. Tribollet, and V. Vivier
- 1711 Use of Scanning Kelvin Probe Force Microscopy to Investigate the Effects of Surface Preparation on Intermetallic Particles in AA7255 Al Alloys
W. Zhang, X. Yu, M. Kryzman, T. Garosshen, M. Jaworowski, and G. Zafiris
- 1712 Effects of Trace Amounts of Nickel on the Localized Corrosion Resistance and Dealloying Induced Porosity in Al-Cu-Mg Alloys: Implications for 2024-T351
T. Aburada, J. Fitz-Gerald, and J. Scully
- 1713 Anodic Activation and Embrittlement of AlGa and AlGaPb Alloys by Enrichment of Gallium during Alkaline Etching
E. Senel and K. Nisancioglu

- 1714 Localized Corrosion Behavior of an Aerospace Aluminum Alloy (Al 2024) with Low Magnesium
J. A. DeRose, T. Suter, A. Bałkowiec, J. Michalski, K. Kurzydłowski, and P. Schmutz
- 1715 Metastable Pitting of Aluminium Alloys
R. K. Gupta, M. K. Cavanaugh, B. R. Hinton, C. R. Hutchinson, and N. Birbilis
- 1716 Pit Propagation in Pure Aluminum: Growth Regimes, Stability Criteria and Surface Morphology
A. B. Cook, D. Engelberg, N. Stevens, N. Laycock, S. White, M. Ghahari, M. Monir, and R. Newman
- 1717 Correlating Pit Initiation in Aluminum with Passive Oxide Defect Structure
K. R. Zavadil and P. Lu
- 1718 Electrochemical Reactions Contributing to Vacancy Formation in Aluminum during Room-Temperature Aqueous Corrosion
A. Macrostie, Ö. Capraz, K. R. Hebert, J. Shin, and G. Stafford
- 1719 Hydroxide Precipitation in Aluminum Passivation in the Presence of other Inert Surfaces
J. Skrovan
- 1720 Activation Energy for the Corrosion of Aluminum Powders in Water
J. Skrovan
- 1721 Alkaline Etching Response of AlZn Model Alloys
D. Franke, O. Lunder, and K. Nisancioglu
- 1722 Experimental Evaluation and Modeling of Galvanic Interactions between AA7075-T6 and Noble Materials
Y. Shi and R. Kelly
- 1723 On the Self-Passivation Tendency of Mg-Al-Zn (AZ) Alloys in Aqueous Solutions
R. Phillips and J. R. Kish
- 1724 Experiments and Modeling of Intergranular Corrosion Penetration in AA5083 as a Function of Electrochemical and Metallurgical Conditions
M. Lim, R. Matthews, R. Tryon, S. Jain, R. Kelly, and J. Scully
- 1725 Statistical Modeling of Intergranular Corrosion Based on Grain Boundary Characteristics in 5XXX-Series Alloys
L. Chen, D. Brown, and R. Kelly
- 1726 Influence of an External Mechanical Stress on the Corrosion Behaviour of 2050 Aluminium-Lithium Alloy Structures Joined by Friction Stir Welding
V. Proton, J. Alexis, E. Andrieu, C. Blanc, J. Delfosse, and G. Odemer

- 1727 Characterisation of the Corrosion Resistance of New Al- Based Complex Metallic Alloys
A. Beni, N. Ott, E. Ura-Binczyk, M. Wardé, B. Bauer, P. Rajput, A. Ulrich, J. Zegehnagen, M. Barthes- Labrousse, and P. Schmutz
- 1728 Design of Al-Fe Alloys for Fast On-Board Hydrogen Production from Hydrolysis
K. Eom, J. Kwon, M. Kim, and H. Kwon
- 1729 Mechanistic Studies of Group V Cathodic Corrosion Inhibitors for Magnesium
H. N. McMurray, G. Williams, and D. Eaves
- 1730 Corrosion of Friction Stir Spot Welds in AZ31 Magnesium Alloys
A. James, T. North, and S. Thorpe
- 1731 Microscopic and Spectroscopic In Situ Studies during Initial Atmospheric Corrosion of Brass
C. H. Leygraf and P. Qiu
- 1732 Atmospheric Corrosion Studied with Inkjet-Printed Salt Deposits
A. J. Davenport, N. Mi, L. Guo, M. Ghahari, and T. Rayment
- 1733 A Kinetic Theory of Metal Depassivation
D. D. Macdonald
- 1734 Visualization of Solution Chemistry inside Crevice by pH and pCl Sensing Plates
T. Kaji, T. Sekiai, I. Muto, Y. Sugawara, and N. Hara
- 1735 The Effect of Chloride on Cu Corrosion in Anaerobic Aqueous Sulphide Solutions under Natural Corrosion Conditions
J. Chen, Z. Qin, and D. Shoesmith
- 1736 Early Stages of Aqueous Corrosion of Copper Using Reactive Molecular Dynamics
B. Jeon, S. Sankaranarayanan, A. van Duin, and S. Ramanathan
- 1737 Correlation Study on Pitting Corrosion by Scanning Electrochemical Probe and Polarization Curve Measurements
C. Ye, R. Hu, and C. Lin
- 1738 *In-Situ* Spectroscopic Ellipsometric Study and Point Defect Modeling of the Passive State on Iron in Borate Buffer Solutions
Z. Lu and D. D. Macdonald
- 1739 Key Parameters to Determine Wall Thinning Due to Flow Accelerated Corrosion
S. Uchida, M. Naitoh, H. Okada, H. Suzuki, S. Koshizuka, and D. Lister
- 1740 A Novel Methodology to Study In Situ the Degradation of Materials Exposed to Corrosive Environments at High Pressure and High Temperature
S. Harrod, W. Kovacs III., Z. Berg, C. Mendez-Gomez, and L. F. Garfias-Mesias

- 1741 In Situ Observation for the Reaction of Hydrogen Peroxide in High Temperature Water Utilizing Electrochemical Impedance Spectroscopy
T. Satoh, C. Kato, M. Yamamoto, J. Nakano, and T. Tsukada
- 1742 Local Impedance Measurements at the Tip of the Scanning Electrochemical Microscope for the Investigation of Corrosion Inhibitor Films on Metals
J. Santana, J. Izquierdo, B. Socas, S. González, and R. M. Souto
- 1743 Development of a New Microelectrochemical Measurement System for In Situ Optical Microscopic Observation of Pit Initiation Processes
A. Chiba, I. Muto, Y. Sugawara, and N. Hara

D5 - High Temperature Corrosion and Materials Chemistry 9 - A Symposium in Honor of Professor Robert A. Rapp

High Temperature Materials, Corrosion

- 1744 Measurement and Thermodynamic Interpretation to Identify Ionic Solutes in Simple and Complex Fused Salt Solutions
R. A. Rapp
- 1745 Thermochemistry of Neutral and Charged Vapor Complexes over NaBr-LnBr₃ Systems
D. A. Ivanov and L. Kudin
- 1746 Acid-Base Reaction of Fused LiCl-41m/o KCl Melt Equilibrated With Gas Atmospheres Containing HCl, H₂O, and O₂ at 600 {degree symbol}
N. Otsuka
- 1747 High-Temperature Corrosion of Metal Alloys in Chlorosilanes and HCl
P. Gannon, B. Clark, and P. White
- 1748 Corrosion Domain Diagrams for Copper Corrosion in Aqueous Media
D. D. Macdonald, S. Sharifi, and J. Linder
- 1749 The Effects of Temperature and SO₃ Partial Pressure on Type I and Type II Hot Corrosion
M. Task, F. Pettit, and G. H. Meier
- 1750 Creating and Delivering Expertise on High Temperature Corrosion in the 21st Century
R. C. John
- 1751 Status of Carbonate Fuel Cell Materials
C. Yuh, A. Hilmi, L. Chen, A. Franco, and M. Farooque
- 1752 Structure and Dynamics of Imidazolium-Based Ionic Liquids
B. Aoun, M. González, A. Goldbach, S. Kohara, M. Russina, D. L. Price, and M. Saboungi
- 1753 Materials Chemistry and the Development of Practical High Temperature Superconductor Wires and Electric Power Applications
G. J. Yurek

- 1754 Materials "Alchemy": Shape-Preserving Chemical Transformation of Macroscopic and Microscopic 3-D Structures via Fluid/Solid Displacement Reactions
K. H. Sandhage
- 1755 Fundamentals of Thermodynamics and Kinetics Applied to Industrial Aluminum Processing
G. Raynaud
- 1756 Solid State Electrochemical CO₂ Sensor Operating at a High Temperature of 500°C
C. O. Park and B. Jung
- 1757 Surface Engineering through Pack Cementation Processes
V. A. Ravi, A. Cuevas, K. Schumann, C. Simpson, M. Rubio, A. Schissler, A. Ly, B. Harrison, T. Nguyen, A. Lech, R. Kaner, B. A. Pint, and J. Haynes
- 1758 Growing Integration Layer[GIL]Strategy: Direct Fabrication of Compositionally, Structurally and Functionally Graded Ceramic Films and/or Coatings from Mother Materials in Solution
M. Yoshimura
- 1759 Formation of Chromia on Copper-Chromium Coatings
K. K. Chiang
- 1760 Oxidation Resistant Coating Development for Mo-Si-B Alloys and Applications
J. H. Perepezko and R. Sakidja
- 1761 Bi-Velocity Model for Diffusion Coatings Formation; Interface Barriers and Phase Competition
M. Danielewski, B. Wierzba, M. Góral, A. Nowotnik, and W. Skibiński
- 1762 Contributions of Carbon Permeation and Graphite Nucleation to the Austenite Dusting Reaction: A Study of Model Fe-Ni-Cu Alloys
J. Zhang and D. J. Young
- 1763 Metal Dusting Corrosion: Mechanisms and Control
T. A. Ramanarayanan and C. Chun
- 1764 Metal Dusting Resistant Cu-Based Materials
C. Chun, S. Desai, and T. A. Ramanarayanan
- 1765 Fireside Corrosion in Oxy-Fuel Combustion of Coal
G. R. Holcomb, J. Tylczak, G. H. Meier, K. Jung, N. Mu, N. Yanar, and F. Pettit
- 1766 Evaluating Materials and Fuels Using an Atmospheric-Pressure Low-Velocity Burner Rig: Factors to Consider to Avoid Unintended Consequences and Incorrect Results
D. A. Shifler
- 1767 Hysteresis in Active Oxidation of SiC
N. Jacobson, B. Harder, and D. Myers

- 1768 High Temperature Degradation of BN-Coated SiC Fibers in Ceramic Matrix Composites
E. Opila, M. Verrilli, R. Robinson, and M. Boyd
- 1769 Development of Refractory Ceramics for the Oxygen Evolution Reaction (OER) Catalyst Support for Water Steam Electrolysis
J. Polonský, C. Prag, A. V. Nikiforov, I. Petrushina, E. Christensen, and N. Bjerrum
- 1770 Experimental and Theoretical Investigations of Nitrogen and Hydrogen Related defects in $\text{Ca}_{12}\text{Al}_{14}\text{O}_{33}$
J. M. Polfus, K. Toyoura, C. Hervoches, M. Sunding, T. Norby, I. Tanaka, and R. Haugsrud
- 1771 Alumina Scale Formation: A New Perspective
A. H. Heuer
- 1772 Long-Term Performance of Al-Rich Oxidation Resistant Coatings for Fe-Base Alloys
B. A. Pint
- 1773 When the Sum Doesn't Equal the Parts: High Temperature Oxidation of a Ni_3Al -Matrix Composite
P. F. Tortorelli and M. Bennett
- 1774 Internal Oxidation of Fe-Si Alloy and Distribution of Precipitates of Fe_2SiO_4 and SiO_2 in Internal Oxidation Zone
T. Maruyama, W. Huang, M. Ueda, and K. Kawamura
- 1775 Oxidation of Ni(Pt)Ti Shape Memory Alloys
J. L. Smialek, A. Garg, R. Rogers, D. Humphrey, and R. Noebe
- 1776 Catastrophic Oxidation of Copper
V. V. Belousov
- 1777 Interactions between Metallic Interconnects and Ceramic Electrode Materials in SOFC Operating Environments
R. Amendola, P. Gannon, and S. Sofie
- 1778 Oxidation Behavior of Stainless Steel 441 and 430 in Dual Atmosphere - Effects of Grain Size
Y. Zhao and J. Fergus
- 1779 Influence of H_2O and CO_2 on the Oxidation Behaviour of Steels between 400-600 {degree symbol}
B. Bordenet
- 1780 Thermodynamics-Based Materials Selection for Ablation-Resistant Performance in High-Temperature Missile Propulsion Systems
M. M. Opeka

- 1781 The Vaporization of $B_2O_3(l)$ to $B_2O_3(g)$ and $B_2O_2(g)$
N. Jacobson and D. Myers
- 1782 A Para Equilibrium Model for Selective Oxidation; the Role of the Interface Barriers and Internal Oxidation
M. Danielewski, Z. Grzesik, P. Manikowski, S. Mrowec, and B. Wierzba
- 1783 Microstructures and Properties of Sputter Deposited NiAl-X and NiAl-Cr-X (X = Hf or Zr) Overlay Coatings
M. L. Weaver and J. Alfano
- 1784 Modeling Oxidation Kinetics of UHTCs
T. A. Parthasarathy, R. Rapp, M. M. Opeka, and M. Cinibulk
- 1785 Effect of Boronizing on the Oxidation Behavior of Nb Alloys
E. Dokumaci, I. Ozkan, and B. Onay
- 1786 Thermodynamic Properties of Al Cr Fe Alloys Experimental Investigation by Knudsen Effusion Mass Spectrometry
T. Markus, M. Motalov, D. Kath, and L. Singheiser

D6 - Where Metals Meet Human Tissue

Corrosion, Organic and Biological Electrochemistry, New Technology Subcommittee, Sensor

- 1787 Surface Modification of Titanium with Functional and Bio-Molecules by Electrodeposition to Add Biofunctions
T. Hanawa and Y. Tsutsumi
- 1788 TiO₂ Nanotubes - Cell Interactions
P. Schmuki
- 1789 Biocompatibility of Nano-Structured TiO₂ Surfaces
H. Tsuchiya, K. Tamura, S. Miyabe, P. Schmuki, and S. Fujimoto
- 1790 Tribocorrosion of Metallic Biomaterials: Retrievals, In-Vitro Testing and Modeling
J. L. Gilbert, S. Mali, V. Swaminathan, R. Urban, and J. Jacobs
- 1791 Electrochemical effects in the Degradation of CoCrMo Metal-On-Metal Hip Joints
S. Mischler and A. Igual-Munoz
- 1792 Investigation of the Seizing of Ti6Al4V Orthopedic Constructs *in vitro*
D. Hansen, H. Bamberger, V. Fongue, K. Janek, and P. Sjöblom
- 1793 CoCrMo Alloy as a Material for Orthopedic Prostheses
I. Milošev and A. Cör
- 1794 Characterization of Cell Activity on Various Metal and Alloy Substrates with Electrochemical Polarization
S. Fujimoto, T. Sugimoto, and S. Hiromoto

- 1795 Corrosive and Protective Bio-Species in Bovine Serum
F. Contu, K. Pendleton, T. H. Ahn, and S. Taylor
- 1796 Silver and its Antimicrobial Properties: An Overview
S. Djokic
- 1797 Tarnishing and Cu Ion Release in Selected Copper-Base Alloys: Implications towards Anti-Microbial Functionality
H. Ha, H. Bindig, K. Williams, and J. Scully
- 1798 Corrosion Properties of DLC-Coated Stainless Steel in Hank's Solution for Biomedical Applications
D. Kek Merl, P. Panjan, and W. Waldhauser
- 1799 Electrochemical Behaviors of Natural Oyster Shell as a Biocompatible Material
Y. Yoon, A. Mount, K. Hansen, and D. Hansen
- 1800 Corrosion as a New Concept for Biodegradable Implants
F. Witte
- 1801 Biocompatibility of Magnesium Controlled by Surface Structuring
S. Ono and H. Asoh
- 1802 In Vivo Evaluation of the Corrosion Rate, Corrosion Mode and Biocompatibility of Mg-Al Alloys in a Hemodynamic Environment
R. G. Buchheit and S. Green
- 1803 Controlling the Electrochemical Response of Magnesium Alloys for Customized Bio-Dissolution Rates
N. Kirkland, J. Truong, M. Dias, D. Nisbet, X. Chen, B. Boyd, and N. Birbilis
- 1804 Electrochemical Studies of Degradable Biomaterials in PBS and PBS with Amino Acids
P. S. Gill, N. Munroe, R. Dua, and S. Ramaswamy
- 1805 Development of an In-Vivo Three Electrode Chip for Obtaining Real Time Corrosion Rates during Small Animal Testing
B. A. Shaw, E. Sikora, M. Horn, H. Basantani, A. Hartsock, D. Cook, and B. Gluckman
- 1806 Interactions between Corroding Mg (Alloy) Surfaces and Living Cells
S. Virtanen
- 1807 Corrosion Resistance of 316L Stainless Steel Based Superhydrophilic/Superhydrophobic Surface
Q. Huang, L. Kong, and C. Lin
- 1808 Numerical Simulations Study of the Localized Corrosion Resistance of AISI 316L Stainless Steel and Pure Titanium in a Simulated Body Fluid Environment
K. Yaya, B. Malki, and Y. Khalifaoui

- 1809 Low Polarization Coatings for Enhanced Stimulation and Sensing Performance of Implantable Electrode Applications
C. He and C. Williams

E1 - Solid State Topics General Session

Dielectric Science and Technology, Electronics and Photonics, Energy Technology

- 1810 AlGaAs/InGaAs Pseudomorphic High-Electron-Mobility Transistor with a Liquid Phase Deposited SiO₂ as Gate Dielectric
K. Lee, H. Lin, F. Lee, and Y. Wang
- 1811 Reduction of Greenhouse Gas Emissions by Metal Interconnect Etch Process Optimization
P. Frankwicz, L. Gardner, and T. Moutinho
- 1812 Clustering of Antimony Implanted in Silicon
S. Koffel, P. Pichler, M. Reading, J. Van den Berg, H. Kheyrandish, S. Hamm, W. Lerch, A. Pakfar, and C. Tavernier
- 1813 Evaluation of Optical Waveguide by Solid Phase Epitaxial Growth of Amorphous Silicon
K. Kim, W. Yoo, B. Kuh, S. Yang, J. Lim, C. Cho, J. Shin, Y. Yoo, H. Choi, S. Kim, K. Na, E. Lee, J. Won, and Y. Kim
- 1814 Characteristic of Self-Aligned Plug Type PRAM with Low RESET Current
G. Oh, D. Park, D. Im, B. Bae, K. Jung, Y. Chung, D. Kim, J. Kim, D. Ahn, S. Nam, and H. Kang
- 1815 Characteristics of Annealed Bi₂Te₃ for Thin-Film Thermoelectric Application
H. Hsu, C. Cheng, C. Yeh, Y. Chou, Y. Lin, Y. Chen, and C. Yang
- 1816 Effect of Substrate Heating on the Optical Properties and Chemical Composition of Sputter Deposited BCN Thin Films
V. Todi and K. Sundaram
- 1817 Optical and Dielectric Studies on Multiferroic BFO Thin Films Prepared by PLD
A. Singh, R. Katiyar, and R. Katiyar
- 1818 High Performance and Stability of Amorphous Hf-In-Zn-O Thin Film Transistors under Illumination
H. Kim, J. Park, K. Son, T. Kim, J. Seon, M. Ryu, and S. Lee
- 1819 Oxidation of Single Crystal Silicon Nanowires
R. G. Mertens and K. Sundaram
- 1820 Low Temperature Growth of Silicon Nanowires Supported by Cu-Based Catalyst Suitable for Microelectronic Applications
C. Girardot, C. Pernel, V. Ivanova, E. Martinez, P. Gergaud, and V. Jousseume
- 1821 Li₄SiO₄-Li₃PO₄ Solid Solutions as Ceramic Electrolytes in Li Metal Cells
L. Zhang, L. Cheng, J. Cabana, G. Chen, M. M. Doeff, and T. Richardson

- 1822 Optimization of the Electrochemical Cell with an Adsorption Layer for NO_x Removal
J. Shao and K. Hansen
- 1823 Electrochemical Oxidation of Propene by Use of LSM/CGO and LSF/CGO Porous Electrochemical Reactor
D. Ippolito and K. Hansen
- 1824 High Conductivity Solid Oxide Electrolyte Composite-Laminates Utilizing Scandia/Ceria Co-Doped Zirconia Core with Yttria Stabilized Zirconia Outer Skins
J. Neutzler, X. Huang, J. Sightler, Y. Chen, and N. Orlovskaya
- 1825 Ab Initio Calculations of Structural, Electronic, Optical and Elastic Properties of CsXBr₃ (X =Ca, Ge, Sn)
M. G. Brik
- 1826 Irreversible Electrostatic Deposition of Prussian Blue from Colloidal Solutions
E. C. Muñoz, R. Cisternas, R. Córdova, R. Henríquez, H. Kahlert, U. Hasse, and F. Scholz
- 1827 Electrochemical and Photoelectrochemical Behaviour of Prussian Blue Deposited on α -Fe₂O₃ Semiconductor Electrodes
E. C. Muñoz, A. Burgos, R. Córdova, R. Henríquez, and R. Schrebler
- 1828 Photoelectrochemical Reduction of Nitrate Ions onto Porous Silicon and Different Silicon Modified Electrodes
E. C. Muñoz, C. Heyser, R. Schrebler, R. Henríquez, and R. Marotti
- 1829 Photoluminescence Characterization of the Interface Properties of Si Nanolayers and Nanowires
Y. Sakurai, K. Ohmori, K. Yamada, K. Shiraishi, K. Kakushima, H. Iwai, and S. Nomura
- 1830 Temperature Dependence of N-H Local Vibration Modes in GaAsN
K. Ikeda, T. Tanaka, S. Wada, M. Inagaki, N. Kojima, Y. Ohshita, and M. Yamaguchi
- 1831 Improvement of Crystallinity and Pattern Utilizing Surface Modification for Printed OTFT
K. Kim, N. Kwon, and I. Chung
- 1832 Synthesis of TiO₂ Nanotubes and Photoelectrochemical Analysis of TiO₂/Prussian Blue Interface
E. C. Muñoz, D. Oyarzún, R. Córdova, R. Henríquez, R. Schrebler, and R. Marotti
- 1833 Synthesis and Characterization of Partially Stabilized Zirconia by doping with CaO
E. Nieto and P. Nandakumar
- 1834 Electrical and Optical Properties of a New Polymorph of the Tetrathiafulvalene-Chloranil (TTF-CA) Charge Transfer Salt
A. Wixtrom, J. Buhler, S. Pagola, and T. Abdel-Fattah

- 1835 Fabrication and Characterization of Flexible OTFTs Based on Graphene Electrodes Using Ink Jet Combined with Imprint Process
N. Kwon, K. Kim, S. Bae, B. Hong, and I. Chung

E2 - Atomic Layer Deposition Applications 7

Dielectric Science and Technology, Electronics and Photonics

- 1836 Current and Future Applications of ALD
I. J. Raaijmakers
- 1837 Enabling High Performance Instruments for Astronomy and Space Exploration with ALD
F. Greer
- 1838 Low Temperature Atomic Layer Deposition of Ru Thin Films with Enhanced Nucleations Using Various Ru(0) Metallorganic Precursors and Molecular O₂
S. Kim
- 1839 ALD Barrier Deposition on Porous Low-k Dielectric Materials for Interconnects
S. Van Elshocht, A. Delabie, S. Dewilde, J. Meersschaut, J. Swerts, H. Tielens, P. Verdonck, T. Witters, and E. Vancoille
- 1840 Thermally Robust Ohmic Layer Formation and Stable Electrical Properties in TiCl₄-Ti/TiN Process Using Cyclic Plasma Method
S. Cheong, E. Lee, H. Park, M. Kang, G. Choi, J. Kim, S. Nam, and H. Kang
- 1841 Copper-ALD Seed Layer as an Enabler for Device Scaling
J. Mao, E. Eisenbraun, V. Omarjee, A. Korolev, and C. Dussarrat
- 1842 Plasma Enhanced Atomic Layer Deposited Ru for MIMCAP Applications
J. Swerts, M. Salimullah, M. Popovici, M. Kim, M. Pawlak, A. Delabie, M. Schaekers, K. Tomida, B. Kaczer, K. Opsomer, C. Vrancken, I. Debusschere, L. Altimime, J. Kittl, and S. Van Elshocht
- 1843 Tailor-Made, Magnetic Nanotubes by Template-Directed Atomic Layer Deposition
K. Nielsch and R. Zierold
- 1844 ALD Applied To Conformal Coating Of Nanoporous γ -Alumina: Spinel Formation And Luminescence Induced By Europium Doping
E. Rauwel, O. Nilsen, A. Galeckas, J. Walmsley, E. Rytter, and H. Fjellvåg
- 1845 Replication of Nanoporous Gyroid Polymer Films Using Atomic Layer Deposition for Use in Dye-Sensitised Solar Cells
P. Cunha, M. Scherer, and U. Steiner
- 1846 Metalcone and Metalcone/Metal Oxide Alloys Grown Using Atomic & Molecular Layer Deposition Techniques
B. Lee, V. Anderson, and S. George

- 1847 Atomic Layer Deposited Yttria Stabilized Zirconia Barrier Layer for Proton Conducting Oxide
J. Park, T. M. Gür, and F. Prinz
- 1848 Remote Plasma ALD of Electrochemically Active LiCoO₂ for Application in All-Solid-State μ Batteries
M. E. Donders, H. C. Knoops, W. Kessels, and P. H. Notten
- 1849 ALD of Thin Films for Lithium-Ion Batteries
T. Aaltonen, V. Miikkulainen, K. Gandrud, A. Pettersen, O. Nilsen, and H. Fjellvåg
- 1850 Synthesis and Integration of Solid Electrolyte by Atomic Layer Deposition for 3-D Micro-Batteries
J. P. Chang
- 1851 Indium Oxide Atomic Layer Deposition Facilitated by the Synergy between Oxygen and Water
J. A. Libera, J. N. Hryn, and J. W. Elam
- 1852 In Situ Gas-Phase Diagnostics for Titanium Nitride Atomic Layer Deposition
J. E. Maslar, W. Kimes, and B. Sperling
- 1853 Diffusion-Reaction Model of ALD in Nanostructured Substrates: Analytic Approximations to Dose Times as a Function of the Surface Reaction Probability
A. Yanguas-Gil and J. W. Elam
- 1854 Reaction Mechanisms in ALD of Ternary Oxides
S. D. Elliott, T. Blomberg, and O. Nilsen
- 1855 ALD and AVD Grown Perovskite-type Dielectrics for Metal-Insulator-Metal Applications
C. Wenger, M. Lukosius, T. Blomberg, A. Abrutis, P. Baumann, and G. Ruhl
- 1856 Plasma-Assisted ALD of SrTiO₃: Study of Composition and Crystallization Behavior by Spectroscopic Ellipsometry
V. Longo, N. Leick, F. Roozeboom, and W. Kessels
- 1857 Low Equivalent Oxide Thickness TiO₂ Based Capacitors for DRAM Application
K. Fröhlich, B. Hudec, K. Husekova, J. Aarik, A. Tarre, A. Kasikov, and A. Vincze
- 1858 Optimizing ALD HfO₂ for Advanced Gate Stacks with Interspersed UV and Thermal Treatments- DADA and MDMA Variations, Combinations, and Optimization
R. D. Clark, S. Consiglio, G. Nakamura, Y. Trickett, and G. J. Leusink
- 1859 Structural Characteristics of Electrically Scaled ALD HfO₂ from Cyclical Deposition and Annealing Scheme
S. Consiglio, R. D. Clark, E. Bersch, J. LaRose, I. Wells, K. Tapily, G. J. Leusink, and A. Diebold

- 1860 Picosun SUNALE ALD Systems for High Quality Nanocoatings - Bridging the Gap between R&D and Industrial Production
M. Toivola, P. J. Soininen, T. Lehto, and T. Pilvi
- 1861 High throughput Atomic Layer Deposition for Encapsulation of Large Area Electronics
J. Kools
- 1862 ALD for Sustainable Future - Paving the Way to Cleaner World from Sub-Nanometer Level
M. Toivola and T. Pilvi
- 1863 Deposition and Characterization of Atomic Layer Deposited ZnS Thin Films on p-type GaSb(100) Using Diethylzinc Precursor and Hydrogen Sulfide
R. Xu, J. Huang, S. Ghosh, and C. Takoudis
- 1864 Atomic Layer Deposition of AlN with Tris(Dimethylamido)Aluminum and NH₃
G. Liu, E. Deguns, M. Sowa, R. Bhatia, A. Bertuch, M. Dalberth, L. Lecordier, G. Sundaram, and J. Becker
- 1865 Atomic Layer Deposition of Thin Superconducting Films and Multilayer for High Energy Particle Accelerator
T. Proslie, J. Klug, N. C. Becker, J. W. Elam, H. Claus, J. Norem, J. Zasadzinski, and M. Pellin
- 1866 New Ni Amidinate Source for ALD/CVD of Ni Containing Films
H. Li, T. Perera, D. Shenai, Z. Li, and R. Gordon
- 1867 Development of Novel Silicon Precursors for Low-Temperature CVD/ALD Processes
K. Iwanaga, K. Tada, H. Chiba, T. Yamamoto, A. Maniwa, T. Yotsuya, and N. Oshima
- 1868 Development of New Alkylgermyl Telluride Molecules and their Use for Room Temperature GST Depositions
H. Ishii, J. Yokota, M. Minoura, and J. Gatineau
- 1869 Development and Application of Novel Precursors for Atomic Layer Deposition
T. Chung, C. G. Kim, K. An, S. Lee, and B. Park
- 1870 Study of Atomic Layer Deposition of ZnO on Polar Oxide Substrate by In Situ Quartz Crystal Microbalance
K. Pradhan and P. F. Lyman
- 1871 Atomic Layer Deposition of Antimony Telluride and Bismuth Telluride using (Me₃Si)₂Te with SbCl₃ and Trimethylbismuth as Precursors
D. Gu, D. Nminibapiel, H. Baumgart, H. Robinson, and V. Kochergin
- 1872 Nanocomposites of ALD Hafnia Tubes Surface Functionalized with Gold Nanoparticles
T. Abdel-Fattah, D. Gu, and H. Baumgart

- 1873 Molecular Layer Deposition of Flexible, Transparent and Conductive Hybrid Organic-Inorganic Thin Films
B. Yoon, B. Lee, and S. George
- 1874 Novel Hybrid Organic/Inorganic Photovoltaic Device Configuration Utilizing ALD Technology and Template Based Nanoelectrode Arrays
D. Gu, H. Baumgart, and G. Namkoong
- 1875 Atomic Layer Deposited Oxides for Passivation of Silicon Photoelectrodes for Solar Photoelectrochemical Cells
B. Kalanyan and G. Parsons
- 1876 Unique Properties of ALD Al₂O₃ for Si Photovoltaics
G. Dingemans and W. Kessels
- 1877 High Performance Dye-Sensitized Photovoltaic Cells with Micro-Fiber-Based Photoanodes Using Conformal ALD TiO₂ Coatings
D. Kim and G. Parsons
- 1878 ALD for Next Generation Nanostructured Dye-Sensitized Solar Cells
N. Tétreault, P. Labouchere, A. Chandiran, and M. Gratzel

E4 - High Dielectric Constant and Other Dielectric Materials for Nanoelectronics and Photonics 9

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- 1880 Interaction of Aluminium Oxide with Germanium upon Annealing in Different Atmospheres
C. Radtke, N. Molina Bom, G. Vieira Soares, C. Krug, and I. Jacob Rabin Baumvol
- 1881 Fabrication of High- κ /Ge Stacks with High Quality GeO₂ Interlayer
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- 1882 Theoretical Study of Ge Dangling Bonds in GeO₂ and Correlation with ESR Results at Ge/GeO₂ Interfaces
M. Houssa, G. Pourtois, V. Afanas'ev, and A. Stesmans
- 1883 Defects and Impurities in Ge-Based Electronic Devices
L. Tsetseris
- 1884 Theoretical and Experimental Demonstration of Electronic State of GeO₂
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- 1887 Gate Stack Technologies for SiC Power MOSFETs
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- 1890 Enhanced Electrical Properties of Carbon Doped Epitaxial Gd₂O₃ Thin Films on Si Substrates
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- 1893 Epitaxial HfO₂ Thin Films on Si Substrates; Strategy for Sub-1 nm EOT Technology
S. Migita and H. Ota
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C. Adamo, R. Misra, N. Benedek, S. Denev, A. Sengupta, J. Mundy, J. Lee, D. Muller, V. Gopalan, C. Fennie, P. Schiffer, and D. Schlom
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E5 - Processing Materials of 3D Interconnects, Damascene and Electronics Packaging

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- 1938 Detection of Electrochemically Active By-Products and Contaminants in Plating Baths Used in Semiconductor Wafer Level Packaging
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- 1939 Resistivity Reduction for Very Narrow Cu Wiring
J. Onuki, Y. Sasajima, and K. Tamahashi
- 1940 Predictive Analytical Fill Model of Interconnect Metallization Providing Optimal Additives Concentrations
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- 1943 Simulation of Shape Evolution in Through-Mask Electrochemical Deposition
P. R. McHugh, G. Wilson, and T. Ritzdorf
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A. Joi and U. Landau
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- 1947 Tailored Design of Suppressor Ensembles for Damascene and 3D-TSV Copper Plating
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- 1958 Versatile Low-Cost Air-Gap Structures for MEMS Packaging
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- 1969 Polycarbonates as Temporary Wafer-Wafer Adhesives
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- 1970 Design and Verification of BCB Templates for Chip-to-Wafer Alignment in 3D Integration
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M. Raeis-Zadeh and P. Kohl

E6 - Photovoltaics for the 21st Century 7

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K. Shenai, K. Shah, R. Raju, and A. Vijn

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A. Roan, J. Xu, U. B. Pal, and S. Basu

- 1992 Characterization of Cu₂O Hybrid Diode with Structural Controlled C₆₀
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J. Radich, R. Dwyer, and P. Kamat
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P. Nair, R. González Lua, M. Calixto Rodríguez, J. Capistrán Martínez, O. GomezDaza, and M. Nair
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M. Pac and M. Tao
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B. S. Pujari, S. Gusarov, M. Brett, and A. Kovalenko
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C. Lee, Y. Shin, and B. Ahn
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H. Ishizaki and S. Ito
- 2012 Electrochemically Generated Fluorescent Fullerene[60] Nanoparticles
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M. D. Reyes Tolosa, J. Orozco Messana, M. Hernández Fenollosa, R. Camaratta, A. Niedersberg, H. Bolink, A. Soriano, and H. Brine
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A. Karoui, A. S. Ethiraj, and F. Karoui Sahtout
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R. Salazar, S. Sanchez, A. Delamoreanu, C. Lévy-Clément, and V. Ivanova

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B. Zhou and M. Tao
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N. Subbaiyan, E. Maligaspe, and F. D'Souza
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C. M. Hangarter, B. Hamadani, J. Guyer, S. Jung, C. Beauchamp, and D. Josell
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M. Nair, A. García, M. Aragón-Silva, E. Barrios-Salgado, J. Campos, and P. Nair
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- 2026 Synthesis of Cu₂ZnSnS₄ (CZTS) Absorber Layer and Metal Doped ZnS Buffer Layer for Heterojunction Solar Cell Applications
A. I. Inamdar, K. Jeon, H. Woo, W. Jung, H. Im, and H. Kim
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P. R. Kharangarh, D. Misra, G. Georgiou, and K. Chin
- 2028 CdTe Thin Film Solar Cells - Materials Science Challenges of Advanced Physical Concepts
W. Jaegermann
- 2029 Electroplated Diffusion Barriers for Flexible Photovoltaics
L. Guo, M. Mason, H. Deligianni, and L. Romankiw
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Z. Li, E. Cho, and S. Kwon

E7 - Semiconductor Cleaning Science and Technology 12 (SCST 12)

Electronics and Photonics

- 2031 Cleaning Challenges and Solutions for Advanced Technology Nodes
P. W. Mertens
- 2032 Investigations of Galvanic Corrosion Characteristics between Tantalum Nitride and Poly Silicon in Dilute HF Solutions
R. Govindarajan, M. Keswani, and S. Raghavan
- 2033 Interactions between Developable Bottom Anti Reflective Materials and Surface Preparations
P. Garnier, G. Briend, D. Jeanjean, L. Babaud, and M. May
- 2034 Water Motion over a Wafer Surface Rotating in a Single-Water Wet Cleaner
H. Habuka, S. Ohashi, T. Tsuchimochi, T. Kanai, and T. Kinoshita
- 2035 De-Oxification of Liquids for Advanced Semiconductors Processing
C. Gottschalk, U. Brammer, and Y. Le Tiec
- 2036 Observation of Removal Process of Thin Metal Film on Glass Surface by Steam-Water Mixed Spray; Application to Au Film Removal in LED Manufacturing
T. Sanada, K. Hashimoto, A. Hayashida, and M. Watanabe
- 2037 Surface Contamination Removal from Si PV Substrates Using A Biodegradable Chelating Agent and Detection of Cleaning Endpoints Using UV/VIS Fluorescence Spectroscopy
M. George, D. Bohling, H. Treichel, A. Goldstein, H. Litvak, S. Ostrowski, I. Mowat, and W. Kern
- 2038 High-Speed Droplet Impact as an Elementary Process of Physical Cleaning
T. Fujikawa, Y. Tatekura, K. Kobayashi, T. Sanada, A. Hayashida, and M. Watanabe
- 2039 Characterization of Semiconductor Surfaces during Surface Conditioning and Functionalization
Y. J. Chabal, O. Seitz, D. Aureau, P. Thissen, and T. Peixoto
- 2040 Characterization of Post Etch Residues on Patterned Porous Low-k Using Multiple Internal Reflection Infrared Spectroscopy
S. Rimal, N. Ross, K. S. Pillai, K. Singh, and O. Chyan
- 2041 Electrochemical Impedance Spectroscopy (EIS) Analysis of BTA Removal by TMAH during Post Cu CMP Cleaning Process
R. Venkatesh, H. Kim, S. Ramanathan, and J. Park
- 2042 Silicon Nano-Pillar Test Structures for Quantitative Evaluation of Wafer Drying Induced Pattern Collapse
I. Vos, D. Hellin, J. Vertommen, and W. Boullart

- 2043 Drying Performance of Single IPA Dryer to Prevent Pattern Collapse and Watermark
D. Eom, K. Kim, and Y. Shin
- 2044 Novel Damage-Less Cleaning Technology for Small-Sized Particle Removal
K. Miya, A. Izumi, N. Fujiwara, and M. Kato
- 2045 Effect of Pump Pulsation on Particle Contamination to Wafer Surface in Wet Cleaning System
J. Lim, R. Venkatesh, and J. Park
- 2046 Nano Gas Cluster Dry Cleaning for Damage Free Particle Removal
M. Kim, B. Kang, D. Yoon, H. Choi, H. Kim, T. Kim, and J. Park
- 2047 Analysis on Threshold Energy of Particle Removal in Spray Cleaning Technology
M. Sato, K. Sotoku, K. Yamaguchi, T. Tanaka, M. Kobayashi, and S. Nadahara
- 2048 Optimization of CO₂ Gas Cluster Generation for Cleaning Application
H. Choi, H. Kim, D. Yoon, J. Lee, B. Kang, M. Kim, J. Park, and T. Kim
- 2049 Metal Electrode Contact Cleaning in Small Dimension Phase Change Memory
J. Bae, W. Lee, D. Chung, I. Hwang, D. Ahn, and S. Nam
- 2050 Challenges of Wafer Surface Preparation in Advanced Technologies
S. Ku, M. Yeh, K. Huang, C. Yang, J. Chuang, and D. Huang
- 2051 Process and Environmental Challenges Facing BEOL Semiconductor Cleans Beyond the 32-nm Node
K. Singh
- 2052 Galvanic Corrosion of PN Junctions during the Dielectric Removal with HF for RMG Transistors
A. Pacco, F. Sebaai, S. Suhard, H. Struyf, S. De Gendt, R. Vos, A. Veloso, and P. W. Mertens
- 2053 Determining the Fundamental Kinetic Parameters for Rinsing and Cleaning of Hafnium Based High-k Materials
D. Zamani, M. Keswani, J. Yan, S. Raghavan, and F. Shadman
- 2054 Development of a Wet Silicon Removal Process for Replacement Metal Gate and Sacrificial Fin
S. Suhard, F. Sebaai, A. Pacco, A. Veloso, L. Carbonell, M. Claes, H. Struyf, P. W. Mertens, and S. De Gendt
- 2055 Plasma Strip of Cold Implant Photoresist
S. Luo, C. Waldfried, I. Berry, and D. Roh
- 2056 SiARC Stack Removal in Dry Strip
D. T. Mattson, J. DeLuca, S. Luo, J. Tracy, and D. Roh

- 2057 PR and BARC Wet Strip in BEOL Patterning Using a UV-Enabled Aqueous Process
E. Kesters, Q. Le, M. Lux, G. Vereecke, and H. Struyf
- 2058 Integrated Experimental and Numerical Study of Thermomechanical Resist Removal-Cleaning Performance Using Cryogenic Micro-Solid Nitrogen Spray
J. Ishimoto, D. Tan, U. Oh, T. Kubota, and S. Samukawa
- 2059 Investigation on the Drying Dynamics of Millimetric Water Droplets: Source of Watermarks on Silicon Wafers
N. Belmiloud, P. W. Mertens, A. Tamaddon, and H. Struyf
- 2060 Processing of Mechanically Polished Surfaces of Bulk GaN Substrates
G. Nowak, G. Kamler, J. Weyher, and I. Grzegory
- 2061 Processing and Characterization of GaSb/High-k Dielectric Interfaces
E. Hwang, C. Eaton, S. Mujumdar, A. Ali, D. Bhatia, S. Datta, and J. Ruzyllo
- 2062 Wet Cleaning and Surface Preparation for Ge
H. Takahashi, M. Wada, J. Snow, R. Vos, P. W. Mertens, H. Shirakawa, and S. Nadahara
- 2063 Catalytic Behavior of Metallic Particles in Pit Formation of Ge(100) Surfaces in Water
K. Arima, T. Kawase, K. Nishitani, A. Mura, K. Kawai, J. Uchikoshi, and M. Morita
- 2064 SiGe Alloys Sensitivity to Front-End Surface Preparation
G. Briand, P. Garnier, D. Jeanjean, D. Tanon-Pellissier, Y. Campidelli, N. Breil, O. Gourhant, G. Bidal, and D. Levy
- 2065 Effect of Dissolved CO₂ in DI Water in Reducing Wafer Damage during Megasonic Cleaning
S. Kumari, M. Keswani, S. Singh, M. Beck, P. Deymier, and S. Raghavan
- 2066 Improving Megasonic Exposure Uniformity for EUV Mask Substrate Cleaning
M. House, A. Rastegar, D. Dussault, and E. Liebscher
- 2067 The Study of Effective Carbon Contaminant Cleaning Condition by Using DIO₃ and Megasonic for Ru Capped EUVL Mask
S. Lee, B. Kang, M. Kim, J. Lim, J. Jeong, and J. Park
- 2068 Effect of Acoustic Cavitation on Dissolved Gases and their Characterization during Megasonic Cleaning
B. Kang, M. Kim, S. Lee, H. Sohn, and J. Park
- 2069 Effects of Varying Surface Film Thickness on Particle Adhesion in Semiconductor Material-Based Systems
K. M. Smith, J. Butterbaugh, and S. Beaudoin

- 2070 Lattice Boltzmann Simulation of Cavitation and Particle Behavior Induced by Sonication Transducer
H. Kim and T. Kim
- 2071 Cleaning Challenges of EUV Mask Substrates, Blanks, and Patterned Mask
A. Rastegar, M. House, and A. John Kadaksham
- 2072 Design, Fabrication and Performance Test of a Quartz Horn Megasonic Waveguide for Semiconductors Cleaning
H. Kim, Y. Lee, and E. Lim
- 2073 Electrochemical Degradation of Oxytetracycline on Modified Electrode of Ti/TiO₂ and ITO/TiO₂
C. Berríos, D. Quezada, and M. Ureta-Zañartu

E8 - State-of-the-Art Program on Compound Semiconductors 53 (SOTAPOCS 53)

Electronics and Photonics, Luminescence and Display Materials

- 2074 Nitride Semiconductors: Why They Work in Optoelectronic Devices?
T. D. Moustakas
- 2075 MBE Growth of AlInN and AlInN/GaN Heterostructures for Intersubband Device Applications
M. Manfra
- 2076 The Thermal Response of Gallium Nitride HFET Devices Grown on Silicon and SiC Substrates
F. N. Donmezer and S. Graham
- 2077 Space Charge Limited Current in GaN Heterostructure Nanowires
M. Mastro
- 2078 Controlled Growth of III-V Nanowires for Energy Applications
S. Gradecak, S. Lim, S. Crawford, M. Brewster, S. Ren, and M. Tambe
- 2079 Fabrication of AlGa_N/Ga_N/AlGa_N Double Heterostructure HEMT on Diamond
E. L. Piner
- 2080 Effect of Source Field Plate on the Characteristics of Off-State, Step-Stressed AlGa_N/Ga_N High Electron Mobility Transistors
L. Liu, T. Kang, D. Cullen, L. Zhou, J. Kim, C. Chang, E. Douglas, S. Jang, D. Smith, S. Pearton, W. Johnson, and F. Ren
- 2081 Reliability Issues in AlGa_N/Ga_N High Electron Mobility Transistors
E. Douglas, L. Liu, C. Lo, B. Gila, F. Ren, and S. Pearton

- 2082 Improved Off-State Stress Critical Voltage on AlGaIn/GaN High Electron Mobility Transistors Utilizing Pt/Ti/Au Gate Structure
C. Lo, L. Liu, T. Kang, R. Davies, B. Gila, S. Pearton, I. Kravchenko, O. Laboutin, Y. Cao, W. Johnson, and F. Ren
- 2083 Advancements in GaN-on-Diamond HEMT and MMIC Fabrication
M. Tyhach, S. Bernstein, P. Saledas, F. Ejeckam, D. Babic, F. Faili, and D. Francis
- 2084 Plasmon-Enhanced Near-Green Light Emission from InGaIn/GaN Quantum Wells
R. Paiella, J. Henson, J. DiMaria, E. Dimakis, R. Li, S. Minissale, L. Dal Negro, and T. D. Moustakas
- 2085 Effect of Interface Polarization Charge on GaN/SiC Separate Absorption and Multiplication Avalanche Photodiodes
P. H. Shen, A. Sampath, M. Wraback, Q. Zhou, and J. Campbell
- 2086 Electric Field Driven Degradation in OFF-State, Step-Stressed AlGaIn/GaN High Electron Mobility Transistors
C. Chang, E. Douglas, J. Kim, L. Liu, C. Lo, B. Chu, D. Cheney, B. Gila, F. Ren, G. Via, D. Cullen, L. Zhou, D. Smith, S. Jang, and S. Pearton
- 2087 Laser Lift-Off AlGaIn/GaN High Electron Mobility Transistors
F. Ren, C. Lo, X. Wang, R. Finch, D. Zeenberg, L. Liu, T. Kang, S. Pearton, I. Kravchenko, S. Hung, and C. Chang
- 2088 Electrical Performance of Chlorine-Treated AlGaIn MOS Diodes with i-ZnO Insulator
Y. Chiou and C. Lee
- 2089 Drilling of via Holes in AlGaIn/GaN Transistors on SiC using ArF based UV Excimer Laser
L. Liu, C. Chang, W. Wu, S. Pearton, and F. Ren
- 2090 Fabrication and Characterization of InAlAs/InGaAsSb/InGaAs Double Heterojunction Bipolar Transistors
C. Lo, C. Chang, S. Chen, C. Chang, S. Wang, J. Chyi, I. Kravchenko, S. Pearton, and F. Ren
- 2091 Thermal Simulation of Laser Lift-off AlGaIn/GaN High Electron Mobility Transistors Mounted on AlN substrates
T. Kang, C. Lo, X. Wang, L. Liu, R. Finch, E. Douglas, S. Pearton, S. Hung, C. Chang, and F. Ren
- 2092 Lattice-Matched and Strain-Compensated Materials for Mid- and Long-Wavelength Quantum Cascade Lasers
C. A. Wang
- 2093 GaN HEMT Reliability
K. V. Smith

- 2094 Probing the Radiative Limits of III-V Quantum Wells
R. E. Welser, O. Laboutin, and W. Johnson
- 2095 Heterogeneous Integration of III-V Devices and Si CMOS on a Silicon Substrate
T. E. Kazior
- 2096 Evaluation of the High Temperatures Influence on High Frequency C-V Curves of MOS Capacitor
M. Bellodi and A. Borges Ziliotto
- 2097 Three-Dimensional Numerical Simulation of Thermosolutal Marangoni Convection in a Liquid Bridge Under Zero Gravity
H. Minakuchi, Y. Takagi, Y. Okano, S. Gima, and S. Dost
- 2098 The Reliability Study and Device Modeling for p-HEMT Microwave Power Transistors
S. Liu, T. Chang, T. Chang, H. Kao, C. Cheng, and A. Chin
- 2099 Investigation of Electrodeposited and Solution Grown ZnO Nanorod Based UV Photo Detector
S. Dalui
- 2100 Forster Resonance Energy Transfer between Colloidal CdSe/ZnS Core/Shell QDs and Non-Polar a-plane GaN LEDs
M. Park, J. Kwak, J. Kim, K. Choi, and J. Xu
- 2101 Plasmon Resonant Enhancement of Photocatalytic Solar Fuel Production
Z. Liu, W. Hou, W. Hsuan, P. Pavaskar, and S. B. Cronin
- 2102 Cation Exchange Approach to $\text{Cd}_{1-x}\text{Zn}_x\text{Se}$ Nanorods with Enhanced Photocatalytic Activity
A. T. Nguyen, Y. Chiou, and Y. Hsu
- 2103 Enhanced Photoelectrochemical Properties of CdS/ZnO Supported on Carbon Nanotube Films
L. Dong and J. Malone
- 2104 Plasmonic Nanoantenna-Induced SERS Spectra at Atomically Defined Catalytic Pt-Group Metal Surfaces
K. Ikeda and K. Uosaki
- 2105 Enhancement of Electrochromic Switching Performance in a Subwavelength Nanoplasmonic Slit
E. C. Walter, A. Agrawal, H. Lezec, and A. Talin
- 2106 Combination of the Opposing Effects of Silver Nanoparticles and Peptide Nucleic Acids on Dye-Sensitized Solar Cells to Enhance their Respective Positive Influence
N. Loew, S. Ikenouchi, and M. Ihara
- 2107 Indium Tin Oxide Nanofibers and their Applications for Dye-Sensitized Solar Cells
S. Chuangchote, T. Sagawa, and S. Yoshikawa

- 2108 Adding New Capabilities to Silicon CMOS Integrated Circuits via Deterministic Programmed Assembly
T. S. Mayer, J. Kim, T. Morrow, B. Won, M. Li, W. Hu, X. Zhong, S. Dean, K. Sun, J. Mayer, and C. Keating
- 2109 Graphene Formation on 4H-SiC(0001) Surface Flattened by Catalyst-Assisted Chemical Etching in HF Solution
H. Sakane, K. Nishitani, A. Hattori, T. Okamoto, K. Kawai, J. Uchikoshi, Y. Sano, M. Morita, K. Yamauchi, and K. Arima
- 2110 Graphene/SiC/Si FETs with SiCN Gate Stack
T. Suemitsu, M. Kubo, H. Handa, R. Takahashi, H. Fukidome, M. Suemitsu, and T. Otsuji
- 2111 Hydrogen Detection by CVD-Graphene Coated with Pt Film
B. Chu, J. Nicolosi, C. Lo, W. Strupinski, S. Pearton, and F. Ren
- 2112 Effects of Post-Deposition Annealing Atmosphere and Duration on Sol-gel Derived Amorphous Indium-Zinc-Oxide Thin-Film Transistors
W. Chung, T. Chang, H. Li, T. Tseng, and Y. Tai
- 2113 The Impact of Active Layer Pre-Treatment on Bias Stress Stability of Sol-gel Derived Amorphous Indium-Gallium-Zinc-Oxide Thin Film Transistors
W. Chung, T. Chang, H. Li, Y. Chen, I. Li, T. Tseng, and Y. Tai

E9 - ULSI Process Integration 7 *Electronics and Photonics*

- 2114 Monolithic Photonic Integration on the Silicon Platform
L. C. Kimerling
- 2115 Efficient Guiding Principle of Highly Scalable MONOS-Type Memories
K. Shiraishi, K. Yamaguchi, K. Kamiya, A. Otake, and Y. Shigeta
- 2116 Vertical Structured Cells and Vertical Stacked Cells for Nano-Generation High Density Memory
T. Endoh
- 2117 High-K Dielectrics / High-Mobility Channel MOSFETs
J. Lee, F. Xue, Y. Chen, Y. Wang, and F. Zhou
- 2118 Device and Integration Technologies of III-V/Ge Channel CMOS
S. Takagi, M. Yokoyama, S. Kim, R. Zhang, and M. Takenaka
- 2119 Issues and Challenges of High- κ Dielectrics on High-Mobility Substrates
D. Misra

- 2120 Electrical Properties of Rare-Earth Oxides and La_2O_3 Stacked Gate Dielectrics
M. Kouda, K. Kakushima, P. Ahmet, K. Tsutsui, A. Nishiyama, N. Sugii, K. Natori, T. Hattori, and H. Iwai
- 2121 Opportunities for Phase-Controlled Higher-k HfO_2
A. Toriumi, Y. Nakajima, and K. Kita
- 2122 XPS Study on Chemical Bonding States of high- κ /high- μ Gate Stacks for Advanced CMOS
H. Nohira, A. Komatsu, K. Yamashita, K. Kakushima, H. Iwai, Y. Hoshi, K. Sawano, and Y. Shiraki
- 2123 Gate SiO_2 Film Integrity on Ultra-Pure Argon Anneal (100) Silicon Surface
A. Teramoto, X. Li, R. Kuroda, T. Suwa, S. Sugawa, and T. Ohmi
- 2124 Influence of Flash Lamp Annealing on Electrical Characteristics of MOS Device with $\text{Si}/\text{La}_2\text{O}_3/\text{n-Si}$ Structure
T. Kaneda, M. Kouda, K. Kakushima, P. Ahmet, K. Tsutsui, A. Nishiyama, N. Sugii, K. Natori, T. Hattori, and H. Iwai
- 2125 Vertical 3D NAND Flash Memory Technology
A. Nitayama and H. Aochi
- 2126 In Situ Transmission Electron Microscopy Analysis of Conductive Filament in Resistance Random Access Memories
Y. Takahashi, T. Fujii, M. Arita, and I. Fujiwara
- 2127 Strained Nanowire MOSFETs
J. Hoyt, P. Hashemi, and W. Chern
- 2128 Enhancement of a Channel Strain via Dry Oxidation of Recessed Source/Drain $\text{Si}_{1-x}\text{Ge}_x$ Structures
S. Kim, J. Yoo, S. Koo, and D. Ko
- 2129 Elastic Relaxation Evaluation in SiGe/Si Hetero-Epitaxial Structures
M. B. Gonzalez, N. Naka, A. Hikavy, G. Eneman, R. Loo, E. Simoen, and C. Claeys
- 2130 III-V Tunnel Field-Effect Transistors
A. Seabaugh, S. Chae, P. Fay, W. Hwang, T. Kosel, R. Li, Q. Liu, Y. Lu, T. Vasen, M. Wistey, G. Xing, G. Zhou, and Q. Zhang
- 2131 On-Chip Power Supply - Technologies and Challenges
K. Shenai
- 2132 GeSn Technology: Impact of Sn on Ge CMOS Applications
S. Zaima, O. Nakatsuka, Y. Shimura, S. Takeuchi, B. Vincent, F. Gencarelli, T. Clarysse, J. Demeulemeester, K. Temst, A. Vantomme, M. Caymax, and R. Loo

- 2133 Biaxial and Uniaxial Compressive Stress Implemented in Ge(Sn) pMOSFET Channels by Advanced Reduced Pressure Chemical Vapor Deposition Developments
B. Vincent, F. Gencarelli, D. Lin, L. Nyns, O. Richard, H. Bender, C. Merckling, L. Witters, W. Vandervorst, R. Loo, M. Caymax, and M. Heyns
- 2134 Selective Area Growth of InP on On-Axis Si(001) Substrates with Suppressed Antiphase Boundary Formation
R. Loo, G. Wang, T. Orzali, N. Waldron, C. Merckling, M. Leys, O. Richard, H. Bender, P. Eyben, W. Vandervorst, and M. Caymax
- 2135 Integration and Scalability of ALD-Based Mixed Phase Nanolayers for Extendable Metal Interconnects
E. Eisenbraun
- 2136 Low-Frequency Noise Assessment of CMOS Transistors with a Through-Silicon Via
E. Simoen, A. Mercha, G. Van der Plas, and C. Claeys
- 2137 The Effects of Mechanical and Tribological Properties of Coatings on Scratch Generation in CMP
S. Kim, N. Saka, and J. Chun
- 2138 Moisture Uptake Impact on Damage Layer of Porous Low-k Film in 80nm-Pitched Cu Interconnects
M. Tagami, A. Ogino, H. Miyajima, H. Shobha, F. Baumann, F. Ito, and T. Spooner
- 2139 Effect of Polymeric Additive Molecular Weight on Polishing Performance of Silicon Wafer during Final Touch Polishing Process
H. Hwang, H. Cui, J. Lim, J. Cho, J. Park, E. Choi, J. Ahn, and J. Park
- 2140 Extension of Moore's Law via Strained Technologies- The Strategies and Challenges
S. Chung
- 2141 MEMS Module Integration into SiGe BiCMOS Technology for Embedded System Applications
B. Tillack, M. Kaynak, M. Wietstruck, and W. Zhang
- 2142 CMOS Integration Using Low Thermal Budget Dopant-Segregated Metallic S/D Junctions on Thin-Body SOI
G. Larrieu, E. Dubois, and D. Ducatteau
- 2143 Optimization of Resist Ash Processes on Si_{0.45}Ge_{0.55} Substrates for Post Extension-Halo Ion Implantation
G. Mannaert, R. Vos, D. Tsvetanova, E. Altamirano, L. Witters, M. Demand, and R. Sonnemans
- 2144 Dependence of Interface State Density on Three Dimensional Silicon Structure Measured by Charge Pumping Method
K. Nakajima, S. Sato, K. Kakushima, P. Ahmet, K. Tsutsui, A. Nishiyama, N. Sugii, K. Natori, T. Hattori, and H. Iwai

- 2145 A Deep-Level Transient Spectroscopy Study of Implanted Ge p^+n and n^+p Junctions by Pt-Induced Crystallization
E. Simoen, J. Lauwaert, H. Vrielinck, V. Ioannou-Sougleridis, and A. Dimoulas
- 2146 Effect of O Implantation in Crystalline Ge
S. Mirabella, G. Scapellato, S. Boninelli, E. Napolitani, E. Bruno, A. Smith, M. Mastromatteo, D. De Salvador, R. Gwilliam, C. Spinella, A. Carnera, and F. Priolo
- 2147 Atomically Controlled Formation of Strained $Si_{1-x}Ge_x/Si$ Quantum Heterostructure for Room-Temperature Resonant Tunneling Diode
M. Sakuraba and J. Murota
- 2148 Pulsed UV-Laser Processing of Amorphous and Crystalline Group IV Semiconductors
S. Chiussi, S. Stefanov, F. Gontad, J. Conde, C. Serra, A. Benedetti, J. Serra, and P. González
- 2149 Direct Observation of Electronic States in Gate Stack Structures: XPS under Device Operation
Y. Yamashita, H. Yoshikawa, T. Chikyo, and K. Kobayashi
- 2150 Effect of $Al_2O_3/InGaAs$ Interface on Channel Mobility
E. A. Fitzgerald and L. Yang
- 2151 pH Characteristics of Ruthenium CMP Using Periodate as Oxidizer
H. Cui, H. Hwang, J. Lim, J. Cho, J. Park, and J. Park
- 2152 Atomically Controlled Plasma Processing for Quantum Heterointegration of Group IV Semiconductors
M. Sakuraba and J. Murota
- 2153 In Situ HCl Etching of InP in Shallow-Trench-Isolated Structures
T. Orzali, G. Wang, N. Waldron, C. Merckling, O. Richard, H. Bender, and M. Caymax
- 2154 The Annealing Kinetic Study on Germanium Surface Blistering by Hydrogen Implantation
F. Yang, X. Zhang, T. Ye, and S. Zhuang
- 2155 High Mobility Epitaxial Graphene for Graphene Nanoelectronics
C. Berger, M. Ruan, J. Palmer, J. Hankinson, Y. Hu, E. H. Conrad, and W. de Heer
- 2156 A Hysteresis-Free High-k Dielectric for Graphene Field Effect Transistors
S. Vaziri, M. Östling, and M. C. Lemme
- 2157 Formation and Characterization of Silicon-Quantum-Dots/Metal-Silicide-Nanodots Hybrid Stack and its Application to Floating Gate Functional Devices
S. Miyazaki

- 2158 Challenges of Si Photonics for Photonics Integration on Si LSIs
K. Wada and Y. Ishikawa
- 2159 Different Properties of Erbium Silicides on Si(100) and Si(551) Orientation Surfaces
H. Tanaka, A. Teramoto, R. Kuroda, Y. Nakao, T. Suwa, S. Sugawa, and T. Ohmi

E10 - GaN and SiC Power Technologies

Dielectric Science and Technology, Electronics and Photonics

- 2160 SiC Power Devices for Next Generation Energy Efficiency
J. W. Palmour, M. Das, S. Ryu, B. Hull, Q. Zhang, R. Callanan, and A. Agarwal
- 2161 Reliability-Driven SiC Power Device Development for Army Applications
C. J. Scozzie
- 2162 State of the Art Gallium Nitride and Silicon based Power Devices : A Comparative Study
M. A. Briere
- 2163 Impact of Defects on Semiconductor Devices Made from GaN/Si and SiC Epitaxial Wafers
M. Loboda
- 2164 High Power Semiconductor Devices for FACTS
M. J. Marinella, S. Atcitty, S. DasGupta, R. J. Kaplar, and M. A. Smith
- 2165 Supercapacitor/Battery Hybrids for Energy Harvesting Applications
M. Peckerar, W. Zhou, Z. Dilli, and M. Dornajafi
- 2166 An Update on High Voltage SiC Power Devices
A. K. Agarwal and J. Palmour
- 2167 Operation and Performance of state-of-the-art High Temperature SiC Switches
R. Singh, S. Sundaresan, and E. Lieser
- 2168 High Power Nitride Field Effect Transistor
M. Shur, G. Simin, and R. Gaska
- 2169 GaN-HEMTs for High-Voltage Switching Applications
W. Saito
- 2170 GaN Power Electron Devices
N. Otsuka, S. Nagai, H. Ishida, Y. Uemoto, T. Ueda, T. Tanaka, and D. Ueda
- 2171 III-Nitride Heterojunction Field-Effect Transistors and Heterojunction Bipolar Transistors for Next-Generation Power Electronics
R. D. Dupuis, S. Shen, Z. Lochner, H. Kim, Y. Lee, Y. Zhang, and J. Ryou
- 2172 High Power Normally-Off GaN MOSFET on Si Substrate
H. Kambayashi, Y. Satoh, T. Kokawa, N. Ikeda, T. Nomura, S. Kato, A. Teramoto, S. Sugawa, and T. Ohmi

- 2173 GaN-on-Si for High-Voltage Applications
D. Visalli, M. Van Hove, P. Srivastava, D. Marcon, K. Geens, X. Kang, E. Vandenplas, J. Viaene, M. Leys, K. Cheng, B. Sijmus, S. Decoutere, and G. Borghs
- 2174 Merits of Buried Grid Technology for Advanced SiC Device Concepts
M. Bakowski
- 2175 Assessment of Durable SiC JFET Technology for +600 °C to -125 °C Integrated Circuit Operation
P. Neudeck, M. Krasowski, and N. Prokop
- 2176 A Critique of Silicon Carbide (SiC) and Gallium Nitride (GaN) Technologies for High-Power Electronics Switching
K. Shenai, P. Neudeck, M. Dudley, and R. Davis
- 2177 Modeling and Simulation of Silicon Carbide Power Systems
N. Goldsman, S. Potbhare, A. Akturk, and A. Lelis
- 2178 Packaging and Modeling of SiC Power Modules
H. A. Mantooth and S. S. Ang
- 2179 Mobility Degradation in 4H-SiC MOSFETs: Comparison of Electrical and Structural Investigations
V. Mortet, A. Beltran, E. Bedel, F. Cristiano, S. Schamm-Chardon, C. Strenger, V. Haeublein, and A. Bauer
- 2180 Characteristics of 4H-SiC MOSFETs Using Low-Temperature Oxide
T. Wu, C. Cheng, and C. Huang
- 2181 Effect of Threshold-Voltage Instability on SiC Power MOSFET High-Temperature Reliability
A. Lelis, R. Green, and D. Habersat
- 2182 Implications for Robust Reliability Testing of Power SiC MOSFETs
R. Green, A. Lelis, and D. Habersat
- 2183 Degradation of SiC Bipolar Devices: A Review of Likely Causes and Recent Advances in its Understanding
P. Pirouz
- 2184 Reliability of GaN HEMTs: Thermal and Electrical Challenges
M. Kuball, J. Pomeroy, M. Tapajna, N. Killat, A. Manoi, M. Uren, and M. Faqir
- 2185 Electric-field and Thermally-activated Failure Mechanisms of AlGaIn/GaN High Electron Mobility Transistors
E. Zanoni, G. Meneghesso, M. Meneghini, A. Stocco, F. Rampazzo, R. Silvestri, I. Rossetto, and N. Ronchi

- 2186 Extended Defects and I-V Characteristics of 4H-SiC p-n Junctions
R. Berechman, S. Chung, Y. Picard, and M. Skowronski
- 2187 Toward the Reduction of Performance-Limiting Defects in SiC Epitaxial Substrates
N. Ohtani
- 2188 Mitigating Issues that Impact 4H-SiC Epitaxy for Reliable Power Electronics
D. K. Gaskill, R. Myers-Ward, V. Wheeler, R. Stahlbush, and N. Mahadik
- 2189 Mitigating Defects within Silicon Carbide Epitaxy
J. D. Caldwell
- 2190 Growth Modeling and Design of SiC CVD Reactors
A. N. Bhoj, K. Shah, and K. Shenai
- 2191 High Quality 3C-SiC for MOS Applications
A. Severino, C. Locke, F. La Via, and S. E. Saddow
- 2192 Numerical Simulation of the GaN Growth Process in a MOCVD Process
J. Meng and Y. Jaluria
- 2193 MOCVD Growth and Characterization of GaN HEMT Material
S. Guo, X. Gao, D. Gorka, M. Pan, and M. Oliver
- 2194 The Resurgence of III-N Materials Development: InAlN and GaN-on-Si
W. Johnson, O. Laboutin, and Y. Cao
- 2195 Integrated On-Chip Inductors Using Magnetic Materials
D. Gardner, G. Schrom, F. Paillet, T. Karnik, and S. Borkar
- 2196 Passive Component Technologies for Advanced Power Conversion Enabled by Wide-Band-Gap Power Devices
C. R. Sullivan, D. Yao, G. Gamache, A. Latham, and J. Qiu
- 2197 Technologies and Challenges for Integrated Power Inductors
J. Wu
- 2198 Integrated Power Passives
C. D. Meyer, S. Bedair, and B. Morgan
- 2199 Thermal Constraints in Integrated Power Inductors
K. Shenai, J. Wu, H. Cui, and K. Shah
- 2200 Integrated Microinductors on Semiconductor Substrates for Power Supply on Chip
J. Rohan, D. Casey, J. O'Brien, M. Hegarty, A. Kelleher, N. Wang, B. Jamieson, F. Waldron, S. Kulkarni, S. Roy, and S. O'Mathuna
- 2201 Atomic-layer-deposited High-k/SiC Integration
P. Ye

- 2202 eGaN FETs Compared With Silicon MOSFETs in High Performance Power Conversion Systems
A. Lidow, J. Strydom, M. de Rooij, A. Ferencz, and R. White
- 2203 Performance Evaluation of GaN Power HEMTs in Buck and Boost Converters
K. Shenai and K. Shah
- 2204 InAlN/AlN/GaN Based Switches
P. Saunier and A. Ketterson
- 2205 High Voltage Normally-Off Transistors and Efficient Schottky Diodes based on GaN Technology
J. Wuerfl, J. Wuerfl, E. Bahat-Treidel, F. Brunner, E. Cho, O. Hilt, A. Knauer, P. Kotara, M. Weyers, and R. Zhytnytska
- 2206 GaN Power Electronics: Novel Materials, Technologies and Devices
T. Palacios
- 2207 GaN HEMTs with Low Ron for Power Conversion
G. Xing and D. Jena
- 2208 A Simple and Accurate Circuit Simulation Model for GaN Power HEMTs
K. Shah and K. Shenai
- 2209 GaN High Power Electronics
K. Jones, R. Tomkins, T. Walsh, M. Derenge, G. Mulholland, P. Suvarna, M. Tungare, N. Tripathi, and S. Shahedipour-Sandvik
- 2210 Perspectives on SiC and III-N based Devices for Power Electronics
C. O. Brylinski
- 2211 Silicon Carbide Bipolar Power Devices
M. Östling, R. Ghandi, G. Malm, B. Buono, and C. Zetterling

F1 - Current Trends in Electrodeposition - An Invited Symposium

Electrodeposition

- 2212 (2011 Electrodeposition Research Award) Ultra Thin Magnetic Films: Why Choosing the Electrochemical Route
P. Allongue
- 2213 Electrodeposition from Chlorozincate Ionic Liquids
I. Sun
- 2214 Origins and Evolution of Stress in Electrodeposited Films
E. Chason
- 2215 Superconformal Film Growth: Challenges and Opportunitites
T. Moffat, L. Ou Yang, Y. Liu, C. Lee, and D. Josell

F2 - Electrodeposition of Nanoengineered Materials and Devices 4

Electrodeposition, Sensor

- 2216 Deposition of Palladium Open Shell Nanoparticles onto Ordered Titania Nanotube Arrays for Electrocatalysis
A. Lavacchi, Y. Chen, C. Bianchini, L. Derogatis, F. Vizza, and M. Innocenti
- 2217 Platinum Alloy Nanotubes for Methanol Fuel Cells
N. E. Holubowitch, L. Nagle, and J. Rohan
- 2218 Large-Scale Synthesis in Bimetallic Core-Shell Structured Nanoparticles Using the Kinetically-Controlled Autocatalytic Chemical Process
F. Taufany, C. Pan, J. Rick, H. Chou, M. Tsai, B. Hwang, D. Liu, J. Lee, M. Tang, Y. Lee, and C. Chen
- 2219 Direct Electrodeposition of AuZn Nanowires in Zinc Chloride-1-Ethyl-3-Methylimidazolium Chloride Ionic Liquids
Y. Hsieh and I. Sun
- 2220 Cu₂O and Fe₂O₃ modified TiO₂ nanotubes for Photoelectrochemical Solar Cell Applications
L. Tsui, L. Wu, N. Swami, and G. Zangari
- 2221 Facile Synthesis of Platinum Nanoflower Monolayer on Single-Walled Carbon Nanotube Membrane
L. Su, W. Jia, and Y. Lei
- 2222 The Effect of MPSA on the Metallization of Electrochemically Patterned Nano Templates
K. A. Nelson and J. N. Harb
- 2223 Conducting Polymer Nanopore Arrays. Selective Filling of TiO₂ Nanotubes with Polypyrrole
D. Kowalski and P. Schmuki
- 2224 Observation of Electrodeposition and Dissolution Dynamic Processes Using In-Situ LCM-DIM with Atomic Scale
Y. Kim, R. Wen, A. Lahiri, M. Azhagurajan, K. Sashikata, and K. Itaya
- 2225 Magnetoresistance of Electrodeposited Nanocontacts
J. George, R. Sharma, S. Elhalawaty, R. Carpenter, D. Litvinov, and S. Brankovic
- 2226 Electrodeposition of Metal-Oxide-Metal Nanowire Heterostructures for ReRAM Applications
D. Perego, F. Amiri, L. Cattaneo, S. Franz, M. Bestetti, G. Tallarida, S. Brivio, and S. Spiga
- 2227 Synthesis and Magnetic Properties of Ordered, Vertically-Aligned Au Nanowires Embedded in Ferromagnetic Matrices
I. S. Chi, K. Bussmann, J. D. Caldwell, and R. C. Cammarata

- 2228 Growth of Nanostructured Layers of CoW/Cu Electrodeposits and Their Tribological Behavior
N. Tintaru, H. Cesiulis, A. Dikusar, and J. Celis
- 2229 Electrodeposition of SmCo Nanostructures in Deep Eutectic Solvent
E. Gomez, E. Valles, P. Cojocar, A. Raygani, and L. Magagnin
- 2230 Fabrication of Hierarchical Nanostructured Nickel Foams on Non-Conducting Substrate
W. Choi, J. Lee, and H. Shin
- 2231 Electrochemical Formation and Properties of CdTe Nano- and Microstructures and Their Hybrids with Polyindole for Solar Cell Application
M. Osial, J. Widera, and K. Jackowska
- 2232 Electrochemical Synthesis of CuS Thin Films in Ionic Liquid Media for Microbattery Applications
Y. Chen, J. Tarascon, and C. Guéry
- 2233 Two-Dimensional Metallo-Semiconductor Networks for Electronic and Photonic Applications
I. Tiginyanu, E. Monaico, and V. Ursaki
- 2234 Simultaneous Surface Chemical Processes in the (Photo)Electrodeposition of Noble Metals onto Silicon Single Crystal Surfaces: Solar Applications
H. Lewerenz
- 2235 Molecular Dynamics Simulation of Grain Growth of Cu Film
Y. Sasajima and J. Onuki
- 2236 Transmission Line Analysis of Copper Electroless Deposition on Self Assembled Monolayer Modified GaAs Interfaces
F. A. Camacho-Alanis, N. Swami, and H. Castaneda-Lopez
- 2237 Various Approaches to Electrochemical Formation of Polymer-Metal Nanocomposites
M. Donten, M. Gniadek, S. Malinowska, and Z. J. Stojek
- 2238 Electrodeposition of Hierarchical Nanostructured Coatings as Facile Route for Fabrication of Superhydrophobic Surfaces
L. Magagnin, P. Cojocar, S. Torabi Tabatabaei, B. Demir, M. Wu, M. Sansotera, and W. Navarrini
- 2239 Electrodeposition and Characterization of Thin-Film Platinum-Iridium Alloys for Biological Interfaces
A. Petrossians, J. Whalen, J. Weiland, and F. Mansfeld
- 2240 Electrodeposition of Cerium Oxide on Porous Silicon
M. Mizuhata and Y. Kubo
- 2241 Morphological Instability Leading to Formation of Porous Anodic Oxide Films
K. R. Hebert, S. Albu, I. Parasivam, and P. Schmuki

- 2242 Electrodeposition of Nickel Composite Coating from a New Type of Acetamide-DMSO₂-NiCl₂ Ternary Electrolyte
G. Murugan, D. Soccol, K. Binnemans, and J. Fransaer
- 2243 A Study on the Mechanism of Electrodeposition of Ni/SiC Composite Coatings using Impedance Technique
A. Sohrabi and A. Dolati
- 2244 Orchestrated Structure Evolution: Co-deposition of Ni-Cu alloy
S. Kitayaporn, S. Abbasi, K. Böhringer, and D. Schwartz
- 2245 Investigation of Ni and Co Deposition into Porous Silicon and the Influence of the Electrochemical Parameters on the Physical Properties
K. Rumpf, P. Granitzer, K. Ali, M. Reissner, G. Hilscher, P. Poelt, and M. Albu
- 2246 Electrochemical Co-Deposition of Ag-Ni Alloys
D. Liang, Z. Liu, R. Hilty, and G. Zangari
- 2247 Electrochemically Deposition of High Mo Content Amorphous/Nanocrystalline Ni-Mo Using Ionic Liquids as Additive
M. Allahyarzadeh, B. Roozbehani, A. Ashrafi, and E. Kheradmand
- 2248 Effect of Surface Preparation on Corrosion Resistance of Electrochemically Deposited Ni-Mo Alloys in the Presence 1-Methyl-Imidazolium Chloride Ionic Liquid
M. Allahyarzadeh, B. Roozbehani, and A. Ashrafi
- 2249 Freestanding Gold Nanowire Substrate with Surface Enhanced Raman Scattering Activity
B. Z. Akinci, S. Donatan, and M. Urgan
- 2250 Electrophoretic Deposition of Phosphors for UV-emitting LEDs
J. Choi, E. Sluzky, K. C. Mishra, J. Mckittrick, and J. Talbot
- 2251 Pulse Electrodeposited ZnSeTe Films
K. R. Murali, S. Florence, and R. John
- 2252 Photoelectrochemical and Photoluminescent Properties of Brush Plated ZnSSe Films
C. Dhanmozhi, R. John, and K. R. Murali
- 2253 Pulse Electrodeposited CdZnS Films
K. Sanjeevi, E. Elango, and K. R. Murali
- 2254 Thermoelectric Performance of Lead-Tellurium Alloy Powders with Sliver Surface Coating by Spark Plasma Sintering
T. Wu, C. Kuo, C. Hwang, H. Hsu, and Y. Chou
- 2255 Influence of Boric Acid on the Morphology of Nickel Coating
D. A. Galindez, A. Méndez, G. Trejo, R. Ortega, and Y. Meas
- 2256 Properties of Pulse Electrodeposited CuInSe₂ Films
S. Shanmugavel, S. Srinivas, and K. R. Murali

- 2257 Photoelectrochemical Properties of Brush Plated CdSTe Films
M. Matheline, R. John, and K. R. Murali
- 2258 Pulse Electrodeposited CuInTe₂ Films
V. Chandran, S. Srinivas, and K. R. Murali
- 2259 Pulse Electrodeposited CuGaSe₂ Films and Their Properties
C. Chitra, V. Sampathkumar, and K. R. Murali

F3 - Fundamentals of Electrochemical Growth: From UPD to Microstructures 2 *Electrodeposition*

- 2260 Next-Generation Methods for Integration of Experiments, Theory and Modeling for Electrochemical Phase Formation
R. C. Alkire
- 2261 First Principles Studies of Trends in Metal Electrodeposition
J. Greeley
- 2262 Giant Electric Field Effects on Magnetism of Ultra Thin Films: An All Electrochemical Approach
P. Allongue, F. Maroun, N. Tournier, A. Engelhardt, and R. Novak
- 2263 On the Electrochemical Phase Formation in Ionic Liquids
A. Ispas and A. Bund
- 2264 Room-Temperature Electrochemical Reduction of Epitaxial Magnetite Films to Epitaxial Iron Films
J. A. Switzer, Z. He, R. Gudavarthy, and J. A. Koza
- 2265 Underpotential Deposition on Submonolayer Modified Single Crystal Surfaces
Q. Yuan and S. Brankovic
- 2266 New Technologic Substrates by Electrodeposition for Energy Devices
M. Innocenti, L. Becucci, S. Bellandi, I. Bencistà, F. Di Benedetto, F. Loglio, M. Muniz Miranda, M. Romanelli, and M. Foresti
- 2267 Electrodeposition of Metals in Catalysts Syntheses: A Case of Platinum Monolayer Electrocatalysts
M. Vukmirovic, S. Bliznakov, K. Sasaki, J. Wang, and R. R. Adzic
- 2268 Pt Deposition by Surface Limited Redox Replacement of H-UPD
N. Vasiljevic, J. Nutariya, M. Fayette, and N. Dimitrov
- 2269 Layer-by-Layer Formation of Pt Ultrathin Films on Au(111) Surface Studied by in situ Resonance Surface X-ray Scattering
T. Kondo, M. Shibata, T. Masuda, and K. Uosaki

- 2270 Underpotential Deposition on Metal Nanoparticles: Theoretical Considerations and Computer Simulations
O. Oviedo, C. Negre, M. Mariscal, C. Sanchez, and E. P. Leiva
- 2271 Toward a Method of Discovery of Dynamic Stability of Electrodeposition via Phase-Field Modeling
J. A. Drake and A. Powell IV
- 2272 Fractal Ordering of Copper Particles Electrodeposited on Glassy Carbon under Galvanostatic Conditions
T. A. Arzhanova and I. Mashkin
- 2273 New Experimental Proofs of Validity of the Phenomenon of Electrochemical Phase Formation of Metallic Materials through a Stage of Liquid State
O. B. Girin
- 2274 Preparation and Activity of Gold Nanoparticles on HOPG and Diamond Surfaces
T. Brülle, W. Ju, P. Niedermayr, and U. Stimming
- 2275 Localized Surface Plasmon Resonance (LSPR) Spectroscopy as a Tool For Studying Metal Deposition on the Nanoscale
A. Vaskevich, A. Tesler, and I. Rubinstein
- 2276 Electrodeposition of Ag Nanoparticles on Carbon Coated TEM Grids: New Insights on the Early Stages of Electrochemical Nucleation and Growth
J. Ustarroz, X. Ke, A. Hubin, S. Bals, and H. Terryn
- 2277 Nucleation of Metals Electrodeposited on Substrates Treated with OH⁻
T. Rapecki, M. Donten, A. Nowicka, and Z. J. Stojek
- 2278 Geometry and Nanoporous Metals
J. Erlebacher
- 2279 Palladium Nanofilms Grown Via Surface Limited Redox Replacement (SLRR) Reactions
L. Sheridan, J. Czerniawski, and J. Stickney
- 2280 Complete Electrochemical Fabrication of a Platinized Nanoporous Au Catalyst for Formic Acid Oxidation
N. Dimitrov, D. McCurry, M. Kamundi, M. Fayette, and F. Wafula
- 2281 Development of Secondary Rechargeable Batteries based Aluminum as Anode Material Electrodeposited from Ionic liquids
N. Ingale, J. Gallaway, D. Steingart, S. Banerjee, and A. Couzis
- 2282 Electrodeposition of Zn in Ethyl-N-methylmorpholinium bis(trifluoromethanesulfonyl)imide Ionic Liquid: Growth Morphology and in situ Surface Stress Monitoring
E. L. Engstrom, T. Heaton, and C. Friesen

- 2283 Interfacial Voids at the Under Bump Metallurgy and Solder Interface
C. L. Arvin, E. Perfecto, R. Davis, B. St. Lawrence, K. Miller, and A. Keigler
- 2284 Effect of the Additives in the Electrolyte on the Physical Property of the Electrodeposited Copper and QCM Analysis of the Deposition Process in the Presence of the Additives.
S. Yoshihara
- 2285 In-Situ Study of Additives on Zinc Deposition Morphology
A. Gaikwad, B. Anantharaman, J. W. Gallaway, and D. Steingart
- 2286 Modelling and Simulation; Optimizing Metal Deposition
W. Plieth
- 2287 Study of the Electrodeposition Kinetics of Pt and Pt-Ni Alloy by Electrochemical Quartz Crystal Microbalance
Y. Liu, U. Bertocci, C. M. Hangarter, and T. Moffat
- 2288 Electrochemical Co-Deposition of Au-Ni Alloys
D. Liang and G. Zangari
- 2289 Effect of Carbon Inclusion on Properties of Electrodeposited Au-Ni-C Alloy Films
K. Sato, T. Yokoshima, T. Hachisu, A. Sugiyama, Y. Okinaka, and T. Osaka
- 2290 Electrochemical co-deposition of Cu-In alloys
D. Liang and G. Zangari
- 2291 Growth Stress in Electrodeposited Thin Films
G. Stafford, J. Shin, and U. Bertocci
- 2292 Electrochemical Growth of Cobalt-tungsten Coatings and Their Thermal Behavior
H. Cesiulis, N. Tintaru, and J. Celis
- 2293 Phase-field Modeling of Dendritic Zinc Deposition in Zinc-Nickel Flow Batteries
D. Desai, A. Lamorgese, Y. Ito, D. Patil, S. Banerjee, and D. Steingart
- 2294 Electrodeposition of Separated Metallic Structures in Superimposed Magnetic Gradient Fields
K. Tschulik, M. Uhlemann, A. Gebert, and L. Schultz
- 2295 Structured Electrodeposition of Magnetic Layers in High Magnetic Gradient Fields
F. Karnbach, K. Tschulik, M. Uhlemann, A. Gebert, and L. Schultz

F4 - Semiconductors, Metal Oxides, and Composites: Metallization and Electrodeposition of Thin Films and Nanostructures 2

Electrodeposition

- 2296 Electrodeposition of VO₂ Thin Films for Memory Applications
J. A. Koza, Z. He, A. Miller, and J. A. Switzer
- 2297 Electrodeposition of Semiconductors in the Magnetic Field
R. Kowalik, K. Mech, and P. Zabinski
- 2298 Electrodeposition of CIS Films on the Mo Back Electrodes with Different Crystallinities
H. Huang, H. Kang, and C. Lin
- 2299 Synthesis and Characterization of Electrodeposited SbxTey Thin Films
J. Lim, I. Yoo, M. Park, D. Lim, N. Myung, and K. Lee
- 2300 Thin Silicon Film Deposition by Unilateral Electroreduction at the Surface of Nanosilicon Ballistic Electron Emitter
T. Ohta, H. Yoshimura, B. Gelloz, and N. Koshida
- 2301 Molecular Control Over Bare and TBBT Covered n-GaAs(110)/DMSO Electrified Interface
V. Lazarescu, L. Preda, M. Anastasescu, G. Dobrescu, C. Negrila, and M. Lazarescu
- 2302 Gold Metallization of Silicon by Galvanic Displacement for MEMS and Electrochemical Sensors
A. Raygani and L. Magagnin
- 2303 Mechanism Study of Ag Catalyzed Directional Etch of Silicon for Nanowire Formation
I. Shao and L. Gignac
- 2304 Modification of Vertically-Aligned Multi-Walled Carbon Nanotube Arrays with Nanoparticles using Electrodeposition and Applications in Sensing
J. Yang, W. Zhang, and S. Gunasekaran
- 2305 Surface Characterizations and Activity Studies of SnO_x/Pt for Ethanol Oxidation Reaction
S. Axnanda, W. Zhou, M. G. White, J. Hrbek, and R. R. Adzic
- 2306 Super Dense TiO₂ Films on Glass, FTO and Silicone Substrates Made by Dip Coating
J. Prochazka, L. Kavan, M. Zikalova, and A. Poruba
- 2307 Preparation of Metallic and Polymeric Nano-Plates in Lamella Liquid Crystal Systems by Electrochemical Method
T. Liu
- 2308 Surface States- and Field Effects at Au-MPC-modified GaAs(100) Electrodes
L. Preda, M. Enache, M. Anastasescu, C. Negrila, F. Vasiliu, M. Lazarescu, and V. Lazarescu

- 2309 Investigation on the Structural and Electrical Properties of $\text{Bi}_2\text{O}_3\text{-Nb}_2\text{O}_5$ Thin Films Grown at Low Temperatures by PLD Method
J. Sun, L. Kang, S. Kweon, J. Kim, and S. Nahm
- 2310 Electrochemical Behavior of Surfactant/Manganese Oxide Layered Nanocomposites
M. Shamoto, K. Tomono, and M. Nakayama
- 2311 Photoelectric Characteristics of Nanoporous Silicon
A. Luchenko, M. Melnichenko, and O. Shmyryeva
- 2312 Electrochemical Synthesis of CdSe Thin Films from Elemental Se in DMSO Solution
R. Henriquez, E. Muñoz, P. Grez, A. Bandán, E. Dalchiele, R. Marotti, and H. Gómez
- 2313 Electrochemical Synthesis of In_2Se_3 Thin Films from SeCl_4 in DMSO Solution
R. Henriquez, E. Muñoz, M. Jiron, E. Dalchiele, R. Marotti, and H. Gómez
- 2314 Electrochemical Formation of Polyaniline on Ti and Electrochemically Oxidized Ti Electrodes
B. Rakovska, A. Malinauskas, A. Valiuniene, and H. Cesiulis
- 2315 Electrodeposition of Nanostructured ZnO Films for Dye-Sensitized Solar Cells
F. I. Lizama Tzec and G. Oskam
- 2316 Electroformation and Characterization of Cu_2O Nanowires
P. Grez, F. Herrera, A. Ramírez, G. Riveros, E. Dalchiele, and R. Schrebler
- 2317 Electrochemical Characterization of n-type Semiconductor Properties of Copper(I) Oxide Thin Films
P. Grez, F. Herrera, A. Ramírez, G. Riveros, E. Dalchiele, and R. Schrebler
- 2318 New Developments in CMP Pad Conditioner Technology
R. K. Singh, J. Smith, A. Galpin, and C. Wargo
- 2319 Electrochemical Deposition of Bi-Te-Se and Bi-Sb-Te Ternary Films for Thermoelectric Applications
X. Cheng, Q. Lin, J. Zhou, and L. Qiu
- 2320 Preparation of Magnesium Hydroxide Film by Electrochemical Reaction
H. Ishizaki and S. Ito
- 2321 Electrochemical Deposition of Ni into Mesoporous Silicon
A. Dolgyi, H. Bandarenka, S. Prischepa, V. Bondarenko, K. Yanushkevich, P. Nenzi, and M. Balucani
- 2322 Sol Gel Dip Coated Indium Oxide Films and Their Properties
G. Ramanathan, R. Xavier, and K. R. Murali
- 2323 Sol Gel Dip Coated Aluminum Doped Zinc Oxide Films and Their Properties
K. R. Murali, A. Kalaivanan, K. Sivaramamurthy, and S. Perumal

- 2324 Electrodeposition of Purified Aluminum Coatings from AlCl₃-dimethylsulfone Electrolyte with an Additive
H. Motonami, S. Shiomi, M. Miyake, and T. Hirato
- 2325 Electrochemical Oscillations in Imidazolium Ionic Liquids
S. Schaltin, K. Binnemans, and J. Fransaer
- 2326 Deep Eutectic Mixtures of Acetamide and SbCl₃ for Sb Electrodeposition
H. P. Nguyen, X. Peng, G. Murugan, J. Su, Z. Wang, R. Vullers, P. Vereecken, and J. Fransaer
- 2327 Liquid Metal Salts: Ionic Liquids for High Current Density Electroplating of Copper and Silver
S. Schaltin, N. Brooks, K. Binnemans, and J. Fransaer
- 2328 Study of Bath Properties and Deposition Parameters in the Copper Electrodeposition from Deep Eutectic Solvent
C. Zanella and F. Deflorian
- 2329 Nucleation and Growth of Copper on Ru-Based Substrates: I. The Effect of the Inorganic Components
M. Nagar, P. Vereecken, K. Strubbe, and A. Radisic
- 2330 Ultra-low Copper Baths for sub-30nm Copper Interconnects
T. A. Atanasova, R. Caluwaerts, L. Carbonell, K. Strubbe, and P. Vereecken
- 2331 Nucleation and Growth of Copper on Ru-Based Substrates: II. The Effect of the Suppressor Additive
M. Nagar, A. Radisic, K. Strubbe, and P. Vereecken
- 2332 Electrochemical Synthesis and Mechanical Behavior of Thin Film Nanocomposites
R. C. Cammarata
- 2333 New Developments in Functional Dispersants for Electrophoretic Deposition of Nanoparticle Coatings and Composites
I. Zhitomirsky
- 2334 Porous Silicon/Iron Oxide Nanocomposites with Deposition Dependent Magnetic Properties
P. Granitzer, K. Rumpf, K. Ali, M. Reissner, G. Hilscher, P. Morales, P. Poelt, T. Uusimaeki, and M. Albu
- 2335 Manufacturing of Hierarchical Composite Structures via Controlled Ceramic Nanoparticle Incorporation in Electrodeposited Thin Films
S. L. Farias, A. Young, T. Lan, P. Breysse, C. Chien, and R. C. Cammarata
- 2336 Conductive Polymer - Metal Nanoparticle Composites for Electrocatalytic Reduction Reactions
D. N. Abram, M. Vezie, and T. F. Jaramillo

- 2337 Fabrication and Properties of Metal/Diamond Composite Plating Films
S. Arai, Y. Tashiro, M. Vu Hoang, and Y. Suzuki

G1 - Industrial Electrochemistry and Electrochemical Engineering General Session

Industrial Electrochemistry and Electrochemical Engineering

- 2338 Comments on the Parasitic Copper Deposition during Cathodic Reduction in Copper Chloride Thermo-Chemical Cycle
M. Reda
- 2339 Functional Hard Chrome Plating from a Trivalent Bath
M. Inman, T. Hall, and E. Taylor
- 2340 Surface Finishing of Passive Materials in Low Viscosity Aqueous Electrolytes
E. Taylor, H. McCrabb, H. Garich, T. Hall, and M. Inman
- 2341 Sensitivity Analysis of Design Variables of an All-Vanadium Redox-Flow Battery
M. Moore, R. M. Counce, J. Watson, and T. A. Zawodzinski Jr.
- 2342 Experimental Study of Desulfurization of Crude Fraction by In Situ Generated Hydrogen-The Role of Hydrogen Atoms
A. D. Hammad, Z. Yusuf, and N. Rasheedi
- 2343 Ta Compound Film as New Anode Material for Polymer Electrolyte Water Electrolysis
K. Yamauchi, K. Matsuzawa, K. Ota, and S. Mitsushima
- 2344 Investigation of the Mass Transport Processes in the Electro-oxidation of Organic Compounds for Wastewater Treatment
Q. Ni, D. W. Kirk, and S. Thorpe
- 2345 Electrochemical Disinfection in Chloride-Free Electrolyte using Boron-Doped Diamond Anode in the Presence of Organic Matters
H. Li, X. Zhu, and J. Ni
- 2346 Novel Electrode for Water Purification based on Nanodiamonds
J. Lee, K. Jaeun, K. Jaeyoung, and K. Hyorang
- 2347 An Attempt to Improve Mn-Mo-Sn Oxide Anodes for Oxygen Evolution in Seawater Electrolysis for Hydrogen Production
Z. Kato, K. Koizumi, K. Izumiya, N. Kumagai, and K. Hashimoto
- 2348 Electrochemically Regenerable Filter for Pb Removal from Water with Selectivity
H. Kim, C. Kim, J. Lee, H. Yang, and H. Kang
- 2349 Development of an Electroactive Membrane for Lithium Recovery by Electrochemical Means
C. Locati and E. Kelder

- 2350 Modeling of Platinum Extraction from Used Reforming Catalyst in Iodine Solutions
H. Rashidi Moghaddam and M. Baghalha
- 2351 Kinetic Study of Hydrogen Evolution on Nickel Electrodes in Alkaline Aqueous Solutions
D. S. Hall, C. Bock, and B. MacDougall
- 2352 Electrochemical Technology for Tannins Degradation
F. Cardoso and P. Olivi
- 2353 Micro-Tubular SOFCs with Nickelate Cathode Support
H. Luebbe, A. Larrañaga, J. Schuler, S. Diethelm, and J. Van Herle
- 2354 Electrochemical Conversion of Glycerol in Proton Exchange Membrane System Running on Pt-supported Transition Metal Carbides
K. Okada and L. Thompson
- 2355 Gold Extraction from an Oxide Ore in iodine-Iodide Solutions
M. Baghalha
- 2356 Increase in Efficiency of Electrolytic Process of Zirconium Production
V. Bezumov, A. Kabanov, N. Matyushkin, and A. Dunaev
- 2357 Growth Behavior and Magnetic Property of Electroless NiCoFeP films
W. Liu, S. Hsieh, H. Yan, and W. Chen
- 2358 Electrolytic Production of $(CF_3)_3N$ from Room-Temperature Molten Fluoride of $(CH_3)_3NF \cdot 3HF$ using $LaNiO_3$ Coated Ni Sheet Anode
N. Osawa, M. Saito, M. Inaba, and A. Tasaka
- 2359 Effect of Addition of Alkali Metal Fluoride on Current Efficiency for NF_3 Formation and Nickel Anode Consumption in a Molten NH_4F -HF System
T. Shiono, Y. Iida, H. Omori, M. Saito, M. Inaba, and A. Tasaka
- 2360 Pseudo-Reference System for Complex Electrochemical Apparatus
A. Beati, R. Rocha, R. Bertazzoli, and M. R. Lanza
- 2361 Degradation of Formaldehyde by using Optical Fibers with Nitrogen Doped TiO_2
T. Sung, G. Kim, D. Jung, M. Kim, and B. Kim
- 2362 Phenol Oxidation in Different Support Electrolytes
R. Souza and L. M. Ruotolo
- 2363 Electrosynthesis of Methanol using Gas Diffusion Electrodes (GDE) of Thermal Oxides.
R. D. Rocha, R. M. Reis, M. R. V. Lanza, and R. Bertazzoli
- 2364 Electroless Nickel Plating on Porous Carbon Substrate for High Surface Area Electrode Fabrication
S. Cheon, S. Park, and J. Lee

- 2365 Polyethylene Oxide Design for Lithium Transference
S. O'Neill, R. Tu, and D. Steingart

G2 - Nanostructured Materials: Chemistry & High-Temperature Applications

High Temperature Materials

- 2366 A Facile Antisolvent Approach to Au-Decorated ZnO Nanocrystals with Improved Photocatalytic Activity
W. Lin and Y. Hsu
- 2367 Ag₂O-Sensitized GaOOH Nanorods Exhibiting Charge Carrier Separation under Visible Light Illumination
Y. Hsu and Y. Hsu
- 2368 High Temperature Oxygen Sensors Based on Metal Oxide Nanofibers
Y. Liu, Y. Ding, H. Gao, P. Gao, and Y. Lei
- 2369 Low Temperature Method for Large Scale Growth of ZnO Nanotetraopods
J. Hooda, S. Mann, A. Mann, and V. Parkash
- 2370 High-Performance Composite Cathode with Tailored Microstructure and Mixed Conductivity for Application in Intermediate Temperature Solid Oxide Fuel Cells Based on Proton Conducting Electrolytes
E. Fabbri, L. Bi, D. Pergolesi, and E. Traversa
- 2371 Pulsed Laser Deposition of Superlattices Based on Ceria and Zirconia
D. Pergolesi, A. Tebano, F. Fabbri, G. Balestrino, and E. Traversa
- 2372 Charge Carrier Dynamics for ZnO-decorated ZnSe Nanorods Prepare from Cation Exchange Process
M. Chen and Y. Hsu
- 2373 In Situ Signal Analysis Studies of Electrical Properties of Porous Anodic Alumina Oxide during Anodizing
J. Iuliucci and D. Barkey
- 2374 A Model of Anodic Pore Growth in Alumina Using the Smoothed Boundary Method
S. DeWitt, H. Yu, and K. Thornton
- 2375 Development of Ultra Highly Porous Solid Oxide Electrolysis Cell
K. Hamamoto, M. Fukushima, Y. Yoshizawa, T. Suzuki, Y. Fujishiro, and M. Awano
- 2376 Microstructural Evolution and High Temperature Stability of Pd:TCO Thermoelectric Nanocomposites
M. Amani, O. Gregory, and G. Fralick

- 2377 Transferring Porous Silicon Layer onto a Desirable Substrate
K. Chen, J. Hsu, B. Song, W. Lee, Y. Lin, X. Zhou, C. Hsu, C. Huang, C. Ho, and T. Lee
- 2378 Fabrication of Composite Nanoporous Si Films with Gold Nanoparticles to Enhance the Efficiency of Silicon Solar Cells
H. Hachimura, K. Nam, Y. Tanaka, and M. Ihara
- 2379 Characterization of Copper Nanostructures Grown on Porous Silicon by Displacement Deposition
H. Bandarenka, V. Petrovich, O. Komar, P. Nenzi, and M. Balucani

H1 - Carbon Nanotubes and Nanostructures: From Fundamental Properties and Processes to Applications and Devices

Fullerenes, Nanotubes, and Carbon Nanostructures, Dielectric Science and Technology, Sensor, Energy Technology

- 2380 Relative Populations for the Mixed $X_2S@C_{82}$ Endohedrals
Z. Slanina, T. Akasaka, and S. Nagase
- 2381 Influence of on Pair Formation Processes on the Redox Properties of Fullerenes
K. Winkler, E. Grądzka, and A. Picón Marín
- 2382 Redox and Optical Properties of Corannulene Species and Their Electrochemically Generated Graphene-like Films
G. Valenti, J. Quimby, C. Fontanesi, L. Scott, F. Paolucci, and M. Marcaccio
- 2383 Control of Electronic Structure of Graphene by Various Dopants and Their Effects on a Nanogenerator
H. Shin, W. Choi, D. Choi, G. Han, S. Yoon, H. Park, S. Kim, J. Choi, and Y. Lee
- 2384 CO_2 Laser-Induced Growth of Epitaxial Graphene on SiC (0001)
S. N. Yannopoulos, A. Siokou, A. Nasikas, V. Dracopoulos, F. Ravani, and G. Papatheodorou
- 2385 In-Situ CCVD Grown Bilayer Graphene Transistor
P. Wessely, F. Wessely, E. Birinci, and U. Schwalke
- 2386 Fabrication of Nanopillar Light Emitting Diodes using Homogeneous Multilayer Graphene Electrodes
W. Choi, H. Shin, S. Yoon, and J. Choi
- 2387 Landau Levels of Dirac Fermions without External Magnetic Field Observed for Potassium or Nitrogen Doped HOPG
J. Nakamura, D. Guo, T. Machida, T. Suzuki, K. Iwatake, T. Shikano, S. Okada, and T. Kondo
- 2388 Cu_2O -Decorated Nanographenes as Promising Photocatalysts
H. Chou and Y. Hsu

- 2389 Graphite Oxide with Different Oxygen Contents as Photocatalysts for Hydrogen And Oxygen Evolution From Water
T. Yeh and H. Teng
- 2390 Fabrication and Characterization of Graphene Coated Carbon Microstructures for Cholesterol Detection
V. Penmatsa, T. Kim, and C. Wang
- 2391 Highly Stable and Transparent Graphene Electrode Prepared by Electron Withdrawing Group
S. Yoon, W. Choi, H. Shin, and J. Choi
- 2392 Synthesis of Carbon Nanotubes Using Coal Extracts
A. Valenzuela-Muñiz, S. Vijapur, and G. Botte
- 2393 Conformal MnO₂-Carbon Electrodes for High Power Density Capacitors
I. Perez, B. L. Corso, and P. Collins
- 2394 Novel Concept Toward the Recognition of Single-Walled Carbon Nanotubes with a Specific Chirality
H. Ozawa, T. Fujigaya, Y. Niidome, M. Fujiki, and N. Nakashima
- 2395 Fabrication of Mechanically Stable Solution-processed Ag nanoparticle/MWCNT Composite Films for Flexible Electronics via Oxygen Pressure Controlled Annealing
J. Lee, N. Kim, B. Kim, and Y. Joo
- 2396 Cross-Linking Carbon Nanotubes for Improved Bending and Linear Bucky Gel Actuators
M. Biso, A. Ansaldo, L. Ceseracciu, D. Futaba, K. Hata, A. Barone, and D. Ricci
- 2397 Functionalization of Single-Walled Carbon Nanotubes with a Redox Active and Acid/Base Responsive TTFV Polymer
Y. Zhao, S. Liang, and G. Chen
- 2398 Effects of Single Walled Carbon Nanotubes on Arabidopsis Mesophyll Cells
D. Cui, H. Ruan, X. Zhang, S. Hu, P. Huang, H. Song, K. Wang, and J. Ruan
- 2399 Enzymatic Biofuel Cell Based on Arylated Single-Walled Carbon Nanotubes
R. Bilewicz, K. Stolarczyk, E. Nazaruk, K. Zelechowska, J. Biernat, and J. Rogalski
- 2400 Electrochemical and Electrophysiological Performance of Carbon Nanotube based Coatings on Neural Probes
E. Castagnola, A. Ansaldo, E. Maggiolini, A. Vato, L. Fadiga, and D. Ricci
- 2401 Design and Fabrication of a Carbon Nanotube-based Electrocatalyst for Alkaline Polymer Electrolyte Fuel Cells with High Performance
K. Matsumoto, T. Fujigaya, H. Yanagi, and N. Nakashima

- 2402 Functionalization of Single-Walled Carbon Nanotubes Films by Electrochemical Reduction of Aryl Diazonium Salts
L. N. Pilan, M. Raicopol, and M. Ionita
- 2403 Gold Nanoparticles Decorating Carbon Nanotubes toward Organic Solar Cells
T. Abdel-Fattah
- 2404 Modified Electrodes with Nanocomposite Films Based on Conducting Polymers and Functionalized Carbon Nanotubes
V. Branzoi, F. Branzoi, and A. Musina
- 2405 Spray Layer-by-Layer (LbL) Carbon Nanotube (CNT) Assembly for Energy Applications
S. Kim, Y. Shao-Horn, and P. Hammond
- 2406 Optically Stimulated Luminescence Properties of Beta-Irradiated Nanodiamond Powders
M. Barboza-Flores, V. Chernov, M. Acosta-Eliás, R. Meléndrez, R. García, and M. Pedroza-Montero
- 2407 Electrochemical Characterization of Streptavidin-HRP Immobilized on Gold Labelled Multiwall Carbon Nanotubes for Biosensor Applications
I. Hafaiedh, M. Temani, Z. M. Baccar, T. Ktari, and A. Abdelghani
- 2408 Electrochemical property of Catalyst Supported by Oxygen Functionalized CNTs
H. Dupuis, C. Wang, H. Hsu, S. Chang, S. Yen, L. Chen, and K. Chen
- 2409 A Luminescent Host-Guest Hybrid of a Eu(III) Complex and MWCNTs
J. Mohanraj, N. Armaroli, L. Maggini, H. Traboulsi, A. Parisini, G. Accorsi, and D. Bonifazi
- 2410 Enhancing Performance of Carbon Nanotubes for Sensor Applications
R. Brimecombe, S. Flanagan, and J. Limson
- 2411 Micro/Nanostructured Carbon Composite Applied in Second and Third Generation Biosensors
S. I. Cordoba de Torresi, V. Romero, L. T. Silveira, E. Matsubara, and J. Rosolen
- 2412 Growth Dynamics of Nanocrystalline Diamond Thin Films Deposited by Hot Filament Chemical Vapor Deposition: Influence of Low Sticking and Re-nucleation Processes
I. Buijnsters, J. Celis, and L. Vazquez
- 2413 Effects of Point Defects in Nanotube-based Nano-Electromechanical Systems
L. Tsetseris and S. Pantelides
- 2414 Purification and Modification of Nanodiamond and Carbon Onions for Electrochemical Applications
V. Mochalin, J. K. McDonough, V. Presser, and Y. Gogotsi

- 2415 Engineering of Electrode Material for Supercapacitors and Lithium-Ion Batteries using Carbon Nanowalls Grown in Plasma of DC Glow Discharge
V. Krivchenko, D. Itkis, S. Evlashin, D. Semenenko, E. Goodilin, A. Rakhimov, and A. Pilevsky
- 2416 Surface Growth of Tree-like Si Nanowire Structures on Micro-gap Electrodes and Their Application in Bio-sensing Applications
C. Ahn, A. Kulkarni, and T. Kim
- 2417 Silicon-based Molecular Devices made by Flip Chip Lamination
C. A. Hacker, M. Walsh, S. Pookpanratana, and C. Richter
- 2418 Cu²⁺-doped ZnO Nanocrystals: Visible-Light-Driven Photoactivity and Room-Temperature Ferromagnetism
Y. Lu and Y. Hsu

II - Physical and Analytical Electrochemistry General Session

Physical and Analytical Electrochemistry

- 2419 Potentiometric Analyte Detection at the ppb and ppt Level Using Fluorous Sensing Membranes
P. Bühlmann, C. Lai, and L. Chen
- 2420 Trace Metal Electroanalysis in Cotton Films
S. Shariki, S. Dale, and F. Marken
- 2421 Functionalized Nanoporous Membrane Electrodes for ASV Analysis of Water
T. L. Wade, H. Bessbousse, and M. Clochard
- 2422 Sensing of Oligopeptides using Anisotropic Metal Nanoparticles
Y. Niidome, Y. Nakamura, A. Kiya, Y. Taga, M. Fujii, and N. Nakashima
- 2423 Square Wave Voltammetry for the Detection of Electroactive Products Resulting from Nitrate Reduction at a Copper-Tin Alloy Electrode
F. M. Cuibus, S. Dorneanu, A. Ispas, A. Bund, and P. Ilea
- 2424 Application of Carbon Modified Materials in the Detection of Cr(VI)
L. Garry, B. Alcock-Earley, and C. Breslin
- 2425 High-Sensitive and Locally Resolved Hydrogen Detection in Metals by Scanning Kelvin Probe Technique
M. Rohwerder, S. Borodin, and S. Evers
- 2426 Monitoring of Redox Potential of Blood Serum in Patients with Kidney Transplants
M. Khubutiya, M. Goldin, A. Evseev, A. Pinchuk, I. Alexandrova, and V. Kolesnikov

- 2427 Electrocatalytic Oxidation of NADH using Alizarin Immobilized Carbon Nanotube Modified Electrode
S. Puchakayala and S. Annamalai
- 2428 Electrochemical Sensing of Dopamine using a Dodecylsulfate Doped Polypyrrole Film
P. Moorhead, D. Rooney, and C. Breslin
- 2429 Catalytic Deactivation of Gold Surface as a Consequence of Prussian Blue Electrodeposition and Removal
P. Esakki Karthik, C. Jeyabharathi, and K. Phani
- 2430 Synthesis of Highly Efficient Pt based Trimetallic Nanocatalyst for Methanol Oxidation
T. Hussain and R. Jamil
- 2431 The Characteristics of Nano Scaled Polishing Induced Defect on the Silicon Surface
J. Kim, W. Lee, D. Hwang, and H. Kang
- 2432 Graphene as an Electrode for Electrochemistry
K. Furukawa and H. Hibino
- 2433 Effects of Local Structure on Electrocatalytic Properties of Nanocrystalline $\text{Ru}_{(1-x)}\text{M}_x\text{O}_2$ (M=Ni and Zn) Materials
V. Petrykin, K. Macounova, M. Okube, S. Mukerjee, and P. Krtil
- 2434 Non-linear Correlation Between Catalytic Activity and Cu(II)/(I) Redox Potential of Surface-Confined Copper Phenanthrolines for the Reduction of O
B. Sepulveda, J. Silva, and J. H. Zagal
- 2435 Enhanced Catalytic Activity of Metallo-Phthalocyanines for the Reduction of O_2 when Linked to Au(111) Modified with Self-Assembled Aromatic Thiols
I. Ponce, R. Oñate, J. Pavez, M. A. Páez, J. Silva, and J. H. Zagal
- 2436 From Step by Step to One Pot Film Buildup by Morphogen Driven Assembly
P. Schaaf, F. Boulmedais, L. Jierry, and G. Rydzek
- 2437 Electrochemistry of Thin Film Ferroelectrics
L. Small, C. Aplett, J. Ihlefeld, and D. Duquette
- 2438 Photopatterning of Ultrathin Electrochemiluminescent Redox Hydrogel Films
M. Milutinovic, E. Suraniti, V. Studer, N. Mano, D. Manojlovic, and N. Sojic
- 2439 Surface Segregation of the Au_4Pd Nanoparticulate Alloys Triggered by Electrocatalytic Reactions
M. Okube, J. Mueller, V. Petrykin, S. Venkatachalam, T. Jacob, and P. Krtil
- 2440 The GOI Characteristics of Crystal Defects with Several Poly-Si Electrodes Anneal Condition
W. Lee, J. Kim, J. Kim, D. Hwang, and H. Kang

- 2441 The Model of Platinum Agglomeration in PAFC Electrodes
S. F. Burlatsky, M. Gummalla, V. Atrazhev, D. Dmitriev, N. Erikhman, E. Timokhina, and E. Ugolkova
- 2442 Kinetic and Mechanistic Aspects of Redox Catalysis for Dehydrogenation Reactions
P. F. Driscoll and J. B. Kerr
- 2443 Effect of Chain Length of Linear Alkanethiols on the Inhibition of Electrode Processes on Iron in Alkaline Medium
B. Yang, S. Malkhandi, A. Manohar, G. Prakash, and S. Narayanan
- 2444 Tunable ECL Active tris(2,2'-bipyridine)ruthenium(II) Derivatives
G. J. Barbante, C. Hogan, D. Wilson, N. Lewcenko, F. Pfeffer, N. Barnett, and P. Francis
- 2445 An Application of Artificial Neural Networks Based on an Electrochemical Deposition Technique
I. Becerik
- 2446 Electrochemical Geolocalization of Microbeads Positioned by Optical Tweezers on Ultramicroelectrode
N. Sojic, E. Suraniti, B. Pouligny, C. Gosse, F. Kanoufi, and R. Dimova
- 2447 EQCM Study of Displacement Reaction during Pulse Deposition of PtRu
I. Lu, Y. Hsieh, P. Wu, and J. Lee
- 2448 EQCM Investigation of Metal Deposition on Ru and Ru Oxide Surfaces
K. Yu, P. Lin, J. Abdelghani, S. Venkataraman, and O. Chyan
- 2449 Magnetohydrodynamic Impedance Spectroscopy: Determination of MHD Transfer Functions
R. Peipmann, M. Niemann, G. Mutschke, A. Bund, and J. Fröhlich
- 2450 Synchrotron Radiation for in-situ FTIR Spectroelectrochemistry
S. M. Rosendahl, F. Borondics, T. May, T. Pedersen, and I. Burgess
- 2451 Time Dependent Operando X-ray Absorption and Infrared Fuel Cell Spectroscopy
E. Smotkin, I. Kendrick, E. Lewis, Q. Jia, C. Grice, and C. Segre
- 2452 Coupling of *ac*-electrogravimetric Measurements with Contact Angle Measurements: Characterization of Modified Polypyrrole Films
T. Ho, C. Gabrielli, H. Korri-Youssoufi, H. Perrot, H. Sauriat-Dorizon, and M. Turmine
- 2453 Inelastic Neutron Scattering by Quinone-Functionalized Carbon: The Role of Adsorption in Proton-Coupled Electron Transfer Kinetics
D. M. Anjos, A. Kolesnikov, Y. Cai, M. Neurock, Z. Wu, J. K. McDonough, Y. Gogotsi, G. Brown, and S. Overbury

- 2454 The Oxidation of Hydroxylamine on Gold in Neutral Media: RRDE and in-situ FT-IRAS Measurements
A. Jacob Jebaraj and D. Scherson
- 2455 Simultaneous Determination of Cr(VI) and Fe(II) in Waste Waters by Differential Alternative Pulses Voltammetry
R. Zlatev, M. Stoytcheva, B. Valdez, and M. Ovalle
- 2456 Interesting Electronic Interaction Between Polyaniline and Chloranil
J. Yano, K. Okamoto, K. Komaguchi, Y. Harima, and A. Kitani
- 2457 Thermodynamic Studies of PEG (Mw 20,000) Adsorption onto a Polycrystalline Gold Electrode
A. Méndez, L. Ortiz, Y. Meas, R. Ortega, and G. Trejo
- 2458 Treatment and Recovery Off Sludge Containing Heavy Metals
Y. Addi and A. Khouider
- 2459 Functionalized Nanoporous Membrane Electrodes for ASV Analysis of Water
H. Bessbousse, T. L. Wade, and M. Clochard
- 2460 Dynamic Response of Charge Transport and Back Reactions in Dye-Sensitized Solar Cell using Intensity- Modulated Photocurrent and Photovoltage Spectroscopy
K. Ryu and G. Kim
- 2461 Measurement of Calcium Activity in Liquid Calcium-Magnesium Alloys by EMF Method
J. M. Newhouse, H. Kim, D. Boysen, and D. Sadoway
- 2462 Direct Determination of Oleic Acid in Soybean Edible Oil through Capillary Electrophoresis
J. Bockel, T. Campos, C. Mendonça, and C. M. Piatnicki
- 2463 Field-Deployable Sensor to Assess Heavy Metal Toxicity
A. A. Argun, L. Tempelman, A. Banks, J. Forchione, G. Merlen, S. O'Toole, and B. Dweik
- 2464 Analytical Characterization of Silicon-Based CVD Precursor Compounds and Reactive Gases
P. L. Clancy, D. Cowles, P. Chitrathorn, L. Milstein, and H. Gotts
- 2465 Bandgap Narrowing of Zinc Oxide (ZnO) by Nitrogen Incorporation for Solar Driven Hydrogen Production
S. Shet, K. Ahn, Y. Yan, and M. Al-Jassim
- 2466 Detection of Dopamine in Cerebrospinal Fluid using a Portable Electrochemical Sensor
E. Bustos, G. Armendariz, A. Galvez, Y. Meas, L. Godinez, T. Lopez, L. Ramirez, and J. Manriquez
- 2467 Double Layer Effects in the Electro-oxidation of Ferrocene in N,N-dimethylacetamide
R. Fawcett, A. Gaál, and D. Misticak

- 2468 Examining the Correlation between Ionic Conductivity and Diffusion Coefficients in Organic Liquid Electrolytes Using the Compensated Arrhenius Formalism
M. Petrowsky, A. M. Fleshman, and R. Frech
- 2469 Radical Grafting of Carbon Surfaces by Electrooxidation of 5-nitroindol Anions
M. González-Fuentes, B. Díaz-Sánchez, and F. González
- 2470 Electrochemical Noise Reduction at Electrode-Electrolyte Interfaces
C. Gupta, R. Howe, and M. Shannon
- 2471 Electrogenerated Chemiluminescence of TATP with $\text{Ru}(\text{bpy})_3^{2+}$
A. Shaw and R. Calhoun
- 2472 Redox Potential Evolution of Nitric Species and Plutonium in $\text{HNO}_3\text{-HNO}_2$ System
N. Larabi-gruet, E. Buravand, B. Gwinner, and G. Longatte
- 2473 Molecular Theory of Boundary Conditions of Electrolytic Flow at Nanostructured Surfaces and in Nanoporous Materials
A. Kobryn and A. Kovalenko
- 2474 Simulating the Electrode-Solution Interface using Cell-by-Cell Automation
Y. Zhang and D. Quesnel
- 2475 The Effect of Potential on the Adsorption of Certain Toxicants on Thermally Expanded Graphite Covered with Polypyrrole
M. Khubutiya, M. Goldin, G. Garayeva, A. Stepanov, M. M. Goldin, A. Davydov, and L. Reznikova
- 2476 Investigation of Electroreduction Kinetics of the Hexaamminecobalt(III) Cations on the Electrochemically Polished Bi Planes by the Electrochemical Impedance Spectroscopy Method
E. Härk and E. Lust
- 2477 Solvation and Phase Behavior of Lithium Trifluoromethanesulfonate in γ -Butyrolactone
M. P. Foley, T. Afroz, D. M. Seo, W. Henderson, H. De Long, and P. Trulove
- 2478 Transient Measurements in a 4-electrode System: What Does that Mean for SECM Experiments?
D. Trinh, E. Maisonhaute, and V. Vivier
- 2479 Characterization of the Autocatalytic Reduction of Nitrate in High Concentrated Nitric Acid Solutions using SECM
R. Lange, R. Robin, B. Tribollet, and V. Vivier
- 2480 Eliminating the Influence of Systematic Error in the Estimation of Electrochemical Parameters in LSV/RDE
L. Fernandez Macia, E. Tourwé, R. Pintelon, and A. Hubin
- 2481 Applying the Compensated Arrhenius Equation to Concentrated Alcohol Electrolytes
A. M. Fleshman, M. Petrowsky, and R. Frech

- 2482 Identification of Surface-Confined Electron Transfer Mechanisms Using Cyclic Square Wave Voltammetry
M. A. Damm and L. Bottomley
- 2483 Electrochemical Polymerization of o-PDA with and without the Presence of Fe^{III}
S. A. Gharaibeh, E. El Sawy, and V. Birss
- 2484 Changes of the Physical Properties of Water near the Surface of a Bare and of a Functionalized Gold Contacting Electrode
D. M. Soares, W. Gomes, M. Tenan, and E. do Nascimento

I3 - Bioelectroanalysis

Physical and Analytical Electrochemistry, Sensor

- 2485 Biofunctionalization of Carbon Nanotube Electrodes for the Fabrication of Biosensors and Biofuel Cells
S. Cosnier
- 2486 Electrochemical Microfluidic Paper-based Analytical Devices using a Glucometer for Point-of-care Detection of Multiple Analytes
F. Deiss, Z. Nie, X. Liu, O. Akbulut, and G. Whitesides
- 2487 Microelectrochemical Investigation of Chemical Potential of Cholesterol in Lipid Monolayers
D. Jiang and J. Burgess
- 2488 Electrochemical Study of Enzyme Kinetics in Nanofluidic Thin Layer Cell
L. Rassaei, E. Goluch, P. S. Singh, K. Mathwig, S. Kang, and S. Lemay
- 2489 Detection of Acetone on Human Breath using Cyclic Voltammetry
P. Motsegood and J. Leddy
- 2490 A Bifunctional Trehalose Anode Incorporating Two Covalently Linked Enzymes Acting in Series
M. Rasmussen, R. West, J. Burgess, I. Lee, and D. Scherson
- 2491 Electrochemical Sensor for Detection of Volatiles Released by Plants
T. Konduru, N. Parimi, G. Rains, and R. P. Ramasamy
- 2492 Carbon Nanotube Microelectrode Immunosensor for Bone Biomarkers
P. N. Kumta, M. Ramanathan, Y. Yun, V. Shanov, M. Schulz, and W. Heineman
- 2493 Development of Biosensors for the Detection of Organophosphates in Waterways
J. Crumbley, E. Cho, and A. H. Suroviec
- 2494 A Phospholipid Polymer based Biocompatible Amperometric Glucose Biosensor
J. Merotra

- 2495 Anatomical Variations in Dopamine Transporter Functionality in Rat Brain: Electrochemical Investigations of Dopamine Release and Uptake
P. A. Lukus and J. Schenk
- 2496 Investigation of Nitric Oxide Synthase (NOS) Redox and Catalytic Activity in Electrospun Fibers
B. Gunasekera, T. Lubysheva, T. Bose, T. Kantz, M. Russo, H. Kalil, G. Wnek, and M. Bayachou
- 2497 Carbon Nanotube Nanoelectrode Array Immunosensor for Bone Biomarkers
M. Ramanathan, Y. Yun, V. Shanov, M. Schulz, W. Heinemann, and P. N. Kumta
- 2498 Label Free DNA Sensors Using PNA Probe Sequence and Electroactive Self-Assembled Monolayer Application to PCR Fragments of Mycobacterium Tuberculosis
B. Piro, Q. Zhang, G. March, V. Noel, S. Reisberg, L. Tran, L. Hai, E. Abadia, P. Nielsen, C. Sola, and M. C. Pham
- 2499 Immuno - (Aptamers) Nano-Modified Multi - Arrays Biosensors
H. E. Braustein
- 2500 Voltammetry of 4-hydroxybiphenyl
I. U. Haque, A. Rashid, M. Tariq, and A. Khan
- 2501 Determination of Antioxidants Activity of some Biologically Important Samples through Cyclic Voltammetry
H. Muhammad, I. Ahmad, M. Versiani, O. Khaliq, and F. Hasan
- 2502 Bio-Electrocatalysis of Acetobacter aceti Interfaced with a Yemplate Deposited Nickel as an Efficient Anode for Microbial Fuel Cells
K. Rengasamy, V. Ganesh, and S. Berchmans
- 2503 A Miniature Glucose/Oxygen Biofuel Cell based on C-MEMS Interdigitated Electrode Arrays
Y. Song and C. Wang
- 2504 Carbon Nanotube Based Sensors for the Determination of Steroids in Biological Fluids
R. N. Goyal, S. Chatterjee, and A. Kumar
- 2505 Electrochemical Synthesis of Reduced Graphene Sheet-AuPd Alloy Nanoparticle Nanocomposites for Oxygen Reduction and Oxidase-based Biosensors
J. Yang, H. Ju, and S. Gunasekaran
- 2506 Molecularly Imprinted Polypyrrole Modified Glassy Carbon Electrode: Determination of Polyphenols
P. A. Jara-Ulloa and J. Squella Serrano
- 2507 Flow Injection Analysis of Nitrofurantoin Based on Carbon Nanofiber Screen Printed Electrodes
P. J. Salgado, A. Alvarez-Lueje, and J. Squella Serrano

I4 - Electrochemistry at Nanoscale Dimensions 2

Physical and Analytical Electrochemistry

- 2508 Surface Patterning of Aluminum in H₃PO₄ and H₂SO₄ Mixtures and Using Them as Templates for Fabrication of Free Standing Nanowires
B. D. Polat, F. Bayata, O. Keles, and M. Urgan
- 2509 Porphyrin Adsorption on a Cu(111) Electrode Surface: Potential Dependent In-Situ STM Studies
T. H. Phan and K. Wandelt
- 2510 Studies of the Adsorption Behavior, Surface Dynamics, and Adsorbate-Adsorbate Interactions of Dimethyl Disulfide on Cu(100) Electrodes by In-Situ Video-STM
Y. Yang, A. Taranovskyy, and O. Magnussen
- 2511 XAS Investigation of Galvanic Displacement Reaction of Pt Ions on Ru Nanoparticles
Y. Hsieh, L. Chang, P. Wu, and J. Lee
- 2512 Nickel Particles with High Catalytic Activity for Hydrogen Evolution Reaction
A. Cally, R. Wuthrich, and E. A. Baranova
- 2513 Enhanced Electrocatalytic Activity of Cubic Pd Nanoparticles for the Oxygen Reduction Reaction
H. Erikson, A. Sarapuu, K. Tammeveski, J. Solla-Gullón, and J. Feliu
- 2514 Synthesis of Pure Tungsten Carbide and Catalytic Activity of Platinum on a Tungsten Carbide Support for Oxygen Reduction Reaction
M. Nie, Z. Zeng, and L. Zhang
- 2515 Nanoscale Effects on the Electrocatalytic Activity of TiO₂ Supported Gold Nanoparticles
B. N. Reinecke, H. Ogasawara, A. Nilsson, and T. F. Jaramillo
- 2516 Nanoparticles-Shape Effect on the ORR Activity of Pt_{ML} Electrocatalysts
Y. Cai, K. Gong, C. Ma, and R. R. Adzic
- 2517 Observation of Surface-charge-induced Overlimiting Current in Porous Materials
D. Deng, V. Dydek, A. Mani, S. Schlumpberger, and M. Z. Bazant
- 2518 Conductance and Flux Measurements within Microcapillary-Incorporated Nanoporous Monoliths Derived from Cylinder-Forming Polystyrene-Poly(Methylmethacrylate) Diblock Copolymers
T. Ito, S. Ibrahim, S. Nagasaka, and D. Higgins
- 2519 High-Performance Electroanalysis Using AC Voltammetry Based on Functionalized Redox Molecules on Embedded Carbon Nanofiber Nanoelectrode Arrays
L. Syed, J. Liu, A. Prior, D. Hua, and J. Li
- 2520 Scanning Electrochemical Microscopy with Nanoprobe Arrays - Towards Stamp Electrochemical Lithography
N. Sojic, F. Kanoufi, F. Deiss, M. Etienne, and C. Combella

- 2521 Building and Electrochemical Characterization of 8 nm Radius Nanoelectrodes Arrays Obtained by Sol-Gel Chemistry: Geometrical Impact in Mass Transport
O. Fontaine, C. Robert-Laberty, and C. Sanchez
- 2522 Fabrication of Nano-Scale Lithium Batteries for In Situ Observations by Analytical Electron Microscopy
D. Zeng, T. McGilvray, M. Yang, D. Gostovic, F. Wang, N. Dadney, Y. Zhu, Y. Meng, and J. Graetz
- 2523 Measuring Nanoscale Nature of Electrochemically Active States in Fuel Cell Cathodes
A. Kumar, M. Biegalski, A. Mozrovska, E. Eliseev, F. Ciucci, A. Borisevich, S. Jesse, and S. Kalinin
- 2524 Irreversible Conduction of Lithium-Ions in Lithium-Ion Conducting Glass Ceramic on the Nanoscale by Electrochemical Strain Microscopy
T. M. Arruda, A. Kumar, S. Jesse, and S. Kalinin
- 2525 In Situ Electrochemical Lithiation and Size-Scale Observation of Individual Si and SiCu Nanorods
H. Ghassemi, R. Shabazian Yassar, and M. Au
- 2526 Electrochemistry in Nano-Space of Structurally Controlled Carbon Materials
A. Hayashi, I. Yagi, and K. Sasaki
- 2527 Mapping Thermodynamics and Kinetics of Oxygen Vacancies in Fuel Cell Electrolytes on the Nanoscale
A. Kumar, M. Biegalski, A. Morozovska, E. Eliseev, F. Ciucci, S. Jesse, and S. Kalinin
- 2528 Stochastic Single Molecule Detection in Fluidic Nanoelectrochemical Devices
P. S. Singh, M. Zevenbergen, and S. Lemay
- 2529 Electronic Transfer Rates into Wired Monolayer Protected Nanoparticles
D. Cliffl, B. Turner, and G. Chen
- 2530 Discussion of Electronic Structure effects in Oriented Platinum/Valve-Metal Thin Film Alloys that Exhibit Enhanced Oxygen Reduction Reaction Rates
C. C. Hays
- 2531 Effects of Surface Modification on The Adsorption Behavior and Electronic Properties of Poly(3-hexylthiophene) Adlayer Self-Assembled onto Au(111) Surfaces
Y. Liu and Y. Lee
- 2532 Influences of Bulk Conductivity and Double Layer Thickness on IonCurrent Rectification in Nanopores
C. Kubeil and A. Bund

I7 - Physical and Analytical Electrochemistry in Ionic Liquids 2

Physical and Analytical Electrochemistry

- 2533 The Electrolytic Dissociation of 1,2-Cyclobutanedicarboxylic Acids
E. Kvaratskhelia and R. Kvaratskhelia
- 2534 Evaluation of NaTFSI-TEATFSI Ionic Liquid as an Electrolytic Melt for Na Electrorefining
M. Ueda, K. Honda, and T. Ohtsuka
- 2535 Analysis of the Ionic Conduction Behavior in Some Room Temperature Molten Fluorides
H. Inoue, T. Isogai, T. Nakai, M. Saito, M. Inaba, and A. Tasaka
- 2536 Novel Approach for Fabrication of 3D Micro/nano-Structures by Combining Focused Ion Beam Technique with Room-Temperature Ionic Liquid
H. Minamimoto, K. Inoue, T. Tsuda, A. Imanishi, S. Seki, and S. Kuwabata
- 2537 Electrochemical Behavior of Ferrocene in Various Ionic Liquids
T. Ho, C. Gabrielli, H. Perrot, and M. Turmine
- 2538 Study of Ionic Collective Coulomb Forces in the Microfluidic Channel
K. Ho, M. Lee, and C. Kuan
- 2539 Heterogeneous Electron Transfer Kinetics and Diffusion of Ferrocene/Ferrocenium in Ionic Liquids
Y. Pan and C. L. Hussey
- 2540 Inhomogeneous Layered Structure of Ionic Liquid Molecules at IL / Graphite Electrode Interfaces Observed by Electrochemical FM-AFM
K. Fukui, T. Harada, A. Imanishi, and Y. Yokota
- 2541 Studies of the Double Layer Capacity at Single Crystal Gold Electrodes in Room Temperature Ionic Liquids
R. Fawcett, D. Misicak, and A. Gaál
- 2542 Platinum Electrochemistry in an Ionic Liquid with Aqueous Additions
H. S. Isaacs, S. Bliiznakov, J. Wishart, R. R. Adzic, H. Luo, and S. Dai
- 2543 Collective Dynamics and Charge Transfer in Room-Temperature Ionic Liquids
M. Kobrač
- 2544 Electrochemical windows of Room-temperature Ionic Liquids from Molecular Dynamics and Density Functional Theory Calculations
S. Ong, O. Andreussi, Y. Wu, N. Marzari, and G. Ceder
- 2545 Effect of Fluoroalkyl Chain Length of Anion on Oxygen Reduction Reaction in Ionic Liquids
M. Haibara, H. Munakata, and K. Kanamura

- 2546 Behavior of Metal Ions at Interface of Ionic Liquids Studied by X-ray Photoelectron Spectroscopy
A. Imanishi, N. Takayuki, Y. Yokota, T. Tsuda, S. Kuwabata, and K. Fukui
- 2547 XPS Analysis of Electrochemical Processes at the Ionic Liquid/Electrode and the Ionic Liquid/Ultra High Vacuum Interface
A. Foelske-Schmitz, D. Weingarh, A. Wokaun, and R. Kötz
- 2548 Electronic Absorption and Voltammetric Analysis of Ni(II) Coordination in the Room Temperature Ionic Liquid: 1-Ethyl-3-Methylimidazolium Chloride/Aluminum Chloride
J. F. Parker, G. T. Cheek, D. Roeper, and W. O'Grady
- 2549 Voltammetric Investigations of the Fries Rearrangement in an Ionic Liquid
G. T. Cheek
- 2550 Passivation and Corrosion of Transition Metals in Ionic Liquid
E. Billy, E. Chainet, and F. Tedjar
- 2551 OLED Aluminum Barrier Deposition from Ionic Liquid Solution
P. Bressers, A. Branca, and H. Rendering
- 2552 Electrode Reaction Mechanism in Anodic Electrolyte Ionic Liquids for Vanadium Redox Flow Battery
X. Xie, C. Yang, J. Wang, S. Wang, Y. Shang, Z. Mao, and V. Mathur
- 2553 Modifying Transport Properties of Ionic Liquids Adding SO₂ or an Ether Bond on the Organic Cation
M. Monteiro, R. Ando, L. Siqueira, F. Camilo, P. Santos, M. Ribeiro, and R. M. Torresi

J1 - Sensors, Actuators, and Microsystems General Session

Sensor

- 2554 Use of Mobile Cell Phone for the Generation and Detection of Electrogenenerated Chemiluminescence in Low Cost Sensors
J. L. Delaney, E. H. Doeven, and C. Hogan
- 2555 Metal-Semiconductor-Metal Direct Expose Electron Detector and Secondary Electron Detector with Metal Nano-rod Array and Trench Structure to Enhance the Performance
M. Lee, K. Ho, and C. Kuan
- 2556 An Algorithm for Low Pressure Particle Monitoring Sensor using Light Scattering Phenomenon
J. Mun, J. Yoon, H. Jung, Y. Gwon, S. Kang, J. Yoon, Y. Shin, and T. Kim
- 2557 Fabrication of Electromagnetically Actuated Actuators in Polymer based Microfluidic Devices
M. Rahbar, A. Khosla, B. Gray, and L. Shannon

- 2558 Nanocomposite Thin Film Strain Gauges for Use in Harsh Environments
M. Amani and O. Gregory
- 2559 Micromachined Nickel Floating Element Shear Stress Sensor Array
Z. Zhao, J. Gallman, and R. White
- 2560 Ultra Violet Irradiation of Metal Oxide Semiconductor Gas Sensors
R. Smith and R. Binions
- 2561 Donor-Acceptor Heterojunction of *Meso*-Tritolylcorrole/Single Walled Carbon Nanotubes for Ultra-Sensitive NO₂ Detection
Y. Wang, J. Akhigbe, Y. Ding, C. Brückner, and Y. Lei
- 2562 Performance and Stability of High-Temperature Nano-Derived Hydrogen Sensors
E. M. Sabolsky, C. Wildfire, E. Ciftiyurek, and K. Sabolsky
- 2563 Synthesis of Porous SnO₂ Foam by Electrochemical Deposition and its Gas Sensing Properties
J. Jeun, D. Kim, and S. Hong
- 2564 Advanced Electrochemical Gas Sensors Employing Novel Designs and Electrolytes
M. Carter, J. Stetter, M. Findlay, and V. Patel
- 2565 Electrical Characterization of a Mixed Potential NO_x Sensor
P. Sekhar, M. Rangachary, E. Brosha, and F. Garzón
- 2566 Mesophase Modified Electrodes: A New Immobilisation Technique for Electrochemiluminescence based Detection
E. H. Doeven, C. Hogan, B. Muir, and A. Polyzos
- 2567 Micro and Nano Smart Sensor Systems for Aerospace and Biomedical Applications
G. W. Hunter, J. Xu, A. Biaggi-Labiosa, L. Evans, P. Dutta, C. Chang, G. Berger, B. Ward, R. Dweik, and C. Liu
- 2568 Formation of a Polypyrrole/Copper Nano-Composite for Nitrate Detection
C. McCarthy, B. Alcock-Earley, and C. Breslin
- 2569 Simple Preparation of Cu_xS Thin Films by a Chemical Bath for Ammonia Sensing
Y. Nien, Y. Chang, and I. Chen
- 2570 Ultra-Fast Room Temperature NO_x Nanosensor
M. Zhang, H. Su, Y. Rheem, and N. Myung
- 2571 Growth of Epitaxial TiO₂ Thin Films on Various YSZ Substrates for Gas Sensing Applications
D. Kim, S. Kim, and S. Hong
- 2572 In-Situ Analysis of the Impact of Perfluorosulfonate Ionomer Membrane Morphology on Mass Transport for Chemo-Sensory Applications
S. Ayyadurai, A. Worrall, and A. P. Angelopoulos

- 2573 Development of Voltammetric Microsensor for Flavin Detection
H. D. Nguyen, J. Babauta, B. Ahmed, and H. Beyenal
- 2574 Time of Wetness: Sensing Accuracy and Comparability
E. Schindelholz, R. Kelly, I. Cole, and T. Muster
- 2575 Combined Sensing - Towards Increased Reliability of Cantilever-based Sensors
A. Boisen
- 2576 Measuring Multiple Physical Parameters from Single Cells: Size, Growth Rate and Stiffness
S. Manalis
- 2577 Nanoplasmonic Sensing for (Nano)Materials Science - Complementation with QCM-D and Quantification
M. Schwind, C. Langhammer, B. Kasemo, and I. Zoric
- 2578 Quantitative Nanomechanical Diagnostics
M. Hegner
- 2579 Miniaturisation and Integration of a Cantilever Based Photoacoustic Sensor into Micro Micromachined Device
M. Bain, N. Mitchell, B. Armstrong, J. Uotila, I. Kauppinen, E. Terray, F. Sonnichsen, and B. Ward
- 2580 Phage-Immobilized Magnetoelastic Biosensors Enableing Rapid Detection of Salmonella Typhimurium on Fresh Spinach Leaves
S. Horikawa, M. Park, K. Vaglenov, J. Barbaree, and B. A. Chin
- 2581 Characterization of Piezoresistive Microcantilever Sensors with Metal Organic Frameworks for the Detection of Volatile Organic Compounds
I. Ellern, A. Venkatasubramanian, J. Lee, P. Hesketh, and M. D. Allendorf
- 2582 Photocatalytic Silver-Reduction Reaction for Mass-Based Immunosensors
W. Ko, J. Joo, N. Jung, and S. Jeon
- 2583 New Electrochemical Sensors for Biomedical Investigations
R. I. van Staden
- 2584 Bio-Sensing Using Needle Based Electrodes
S. Anastasova, A. Spehar-Délèze, D. Bickham, and P. Vadgama
- 2585 Single-Step Bio-Friendly Synthesis of Surface Modifiable, Near-Spherical Gold Nanoparticles for Applications in Biological Detection and Catalysis
V. D. Badwaik, J. J. Bartonojo, J. Evans, C. B. Willis, and R. Dakshinamurthy
- 2586 Direct, Selective and Sensitive Detection of Organic Pollutants by a Novel Electrochemical Immunosensor
H. Tran, S. Reisberg, B. Piro, V. Noel, R. Yougnia, C. Dong, and M. C. Pham

- 2587 Basic Mechanisms of Biological Sensing and Actuation in the Venus Flytrap and Mimosa Pudica
A. G. Volkov, M. Volkova, and V. Markin
- 2588 Preparation of Nanoparticles for Biomedical Applications
Z. P. Aguilar
- 2589 Electrical Cell Lysis Technique to Collect mRNA from Single-Cells
H. Shiku, K. Ino Dr, and T. Matsue
- 2590 Metallic Nanowires based Glucose Biosensor
Y. Zhang, L. Su, W. Jia, D. Manuzzi, C. Hou, D. Huo, and Y. Lei
- 2591 High Surface Area Chemiresistive Biosensor Application of -OH Functionalized Conductive Copolymer Synthesized by Oxidative Chemical Vapor Deposition
D. Bhattacharyya and K. Gleason
- 2592 Aptamer-based Homogeneous Electrochemical Protein Assay with Background Minimization
T. Wang, J. Hu, C. Easley, and C. Shannon
- 2593 Point-of-Care Immunoassay Kit for Serodiagnosis of Mycobacterial Infections
X. Liu, K. Yang, A. Wadhwa, S. Li, S. Eda, and J. Wu
- 2594 Improvement of Conductivity by Incorporation of Boron Atoms in Hydrogenated Amorphous Carbon Film Fabricated by Plasma CVD methods and Electrochemical Properties of the Film
K. Honda, H. Naragino, K. Yoshinaga, and S. Tatsuta
- 2595 Investigations of Anisotropic Chemical Etching of Silicon (100) for Precise Forming a 3D Monolithic Tensoframe in an Pressure Sensor Silicon-On-Insulator Heterostructure
L. Sokolov
- 2596 Effects of SAW Propagation with Ge Electrochemical Deposition Film on LiNbO₃ Substrate
C. Kaneshiro and R. Gushiken
- 2597 Improvement of Gas Sensing Properties in Nanostructured Gd_{0.9}Sr_{0.1}CoO₃
C. R. Michel, N. Lopez-Contreras, and E. López-Mena
- 2598 Electrocatalytic Reactions of Nitric Oxide by using Rotation Disk Electrodes
W. Chen, N. Tsai, and A. Lin
- 2599 The Nanorod Pd/WO₃/SiC (PIN) Diode on Silicon Substrate for High Sensing Carbon Monoxide Gas Applications
F. Juang, Y. Fang, and J. Ke
- 2600 Immobilization of Urease on poly(3,4-ethylenedioxythiophene) for Urea Biosensor
C. Hsu, Y. Hsu, Y. Weng, W. Yuan, and C. Chang

- 2601 Epitaxially-Grown Thin Films in Electrochemical Sensing Applications
J. Yang, H. Xiang, L. Shuai, and S. Gunasekaran
- 2602 Formation of Molecularly Imprinted Polymer Thin Films on Gold Electrodes using a 'Clickable' Self-Assembled Monolayer/Monomer System
T. Wang and C. Shannon
- 2603 Controlled Ex-Situ Doping of Electrochemically Polymerized 5,10,15,20-teraphenylporphyrin (THPP) for Hybrid Switching Circuits
S. Koiry, S. Krishnan, R. Ratnadurai, and S. Bhansali
- 2604 The Impacts of Back-Surface Passivation Using Shallow Ion Implantation and Pulsed Laser Thermal Annealing on Back-Illuminated CMOS Image Sensors Performances: Physical and Electrical Characterizations
Z. Ait Fqir Ali-Guerry, M. Marty, D. Dutartre, R. Beneyton, P. Normandon, and G. Lu
- J2 - Impedance Techniques: Diagnostics and Sensing Applications**
Sensor, Industrial Electrochemistry and Electrochemical Engineering, Corrosion
- 2605 Optimization of Passivity Models on Experimental Electrochemical Impedance Data
M. Urquidi-Macdonald, M. Taylor, S. Sharifi, A. Almarzooqi, and D. D. Macdonald
- 2606 Single-Frequency LCR Databridge Impedance Measurements as Surrogate Measures for the Integrity of Human Skin
E. White, M. Orazem, and A. Bunge
- 2607 The Application of Odd Random Phase Electrochemical Impedance Spectroscopy (ORP EIS) in Biological Sensing Applications
S. Verguts, O. Olarte, Y. Van Ingelgem, K. Barbé, W. Van Moer, E. Lauwers, B. Landuyt, and A. Hubin
- 2608 Time Dependent Impedance Determined by Wavelet Transformation
M. Itagaki, I. Shitanda, T. Saitou, and K. Watanabe
- 2609 Two Common Electroanalytical Techniques - Cyclic Voltammetry and Impedance. How to Get One from the Other.
P. Vanysek
- 2610 Numerical Simulations of Nonlinear Electrochemical Impedance Spectra of Unstable Systems
K. Pushpavanam, V. Ramani, and S. Ramanathan
- 2611 The Distribution of Relaxation Times as Beneficial Tool for Equivalent Circuit Modelling of Batteries and Fuel Cells
D. Klotz, J. Schmidt, A. Weber, and E. Ivers-Tiffée

- 2612 Characterization of Adsorbates using Scanning Electrochemical Microscopy
D. Trinh, M. Keddam, X. Novoa, and V. Vivier
- 2613 New Strategy to Model PANI Film Behavior Through ac-electrogravimetry Measurements
J. Agrisuelas, C. Gabrielli, H. Perrot, and L. To Thi Kim
- 2614 Electrochemical Impedance Spectroscopy Characterization of Electrorheological Fluids
V. Lvovich and S. Samorezov
- 2615 AC Impedance Monitoring of Activated Carbon Filter Contamination
M. F. Smiechowski and W. Feaver
- 2616 The Effect of Carbon-Nanotubes on the Electrochemical Sensing Behavior of Aluminum Alloys
Y. Yoon, K. Lafdi, and M. Bouchard
- 2617 EIS Modeling of the Nitric Acid Reduction Process in High Concentrated Media at an Inert Electrode
D. Sicsic, B. Fanny, and T. Bernard
- 2618 Mechanistic Modeling and Systematic Fitting of Electrochemical Impedance Spectra for Solid Oxide Fuel Cells
J. Shi and X. Xue
- 2619 Direct Evaluation Method on the Effect of Additives in Copper Electroplating using FTEIS (Fourier Transform Electrochemical Impedance Spectroscopy)
J. Park
- 2620 A Nanohybrid Materials Based Biosensor to Determine L Carnitine by Amperometry
J. Chatterjee, N. Nash, and B. Wang
- 2621 Impedance Spectroscopy Measurements and Modeling of the Operation of Polymer Light-Emitting Electrochemical Cells
A. Munar, A. Sandström, P. Matyba, and L. Edman
- 2622 Monitoring Oxidation of Minerals in a Mixed Copper Mineral Concentrate using AC Impedance Spectrometry
Y. J. Ferdosi, I. Ametov, S. Harmer, and R. Alford
- 2623 Relationship between Constant Phase Element and Distribution of Time Constant
R. Asakura, I. Shitanda, M. Itagaki, and K. Watanabe
- 2624 Fabrication of Microelectrode by Screen-Printing and Its Diffusion Impedance
S. Kawakita, Y. Asano, I. Shitanda, M. Itagaki, and K. Watanabe
- 2625 Electrochemical Migration Evaluation System using 3-D Impedance Spectroscopy
I. Shitanda, K. Inoue, M. Itagaki, S. Aoyagi, and A. Fukuizumi

- 2626 Dielectrophoretic Response of DNA in PBS Buffer using Fluorescence and Impedimetric Measurements
S. Li, X. Liu, J. Wu, and C. Ke
- 2627 Synthesis of Equivalent Electrical Circuits Based on Electrochemical Impedance Data
E. A. Baranova and O. Kuznetsov
- 2628 Electrochemical Impedance Spectroscopy to Investigate Energy Devices with Wavelet Transformation
T. Saito, M. Itagaki, I. Shitanda, and K. Watanabe

J3 - Luminescence and Display Materials: Fundamentals and Applications

Luminescence and Display Materials

- 2629 Piezospectroscopy - Strain Induced Photoluminescence Changes
D. R. Clarke
- 2630 Synthesis, Crystal Structure and Luminescence of Rare Earth Ions in New Borate, $\text{KBaM}(\text{BO}_3)_2$ ($\text{M} = \text{Sc}^{3+}, \text{Lu}^{3+}, \text{Y}^{3+}, \text{Gd}^{3+}$)
A. Srivastava, S. Camardello, H. Comanzo, F. Garcia-Santamaria, and J. Collins
- 2631 Luminescence Quenching in Highly Doped YAG:Ce
U. Happek and A. Setlur
- 2632 An Investigation of Self-absorption and Corresponding Spectral Shift in Phosphors
A. Piquette, K. C. Mishra, and M. E. Hannah
- 2633 Searching for new Pr^{3+} -Doped Materials Showing Efficient 4d-5f Luminescence
M. Bettinelli
- 2634 Energy Level of Europium Ion in Strontium Aluminate Phosphor by Density Functional Calculation
H. Yamada, C. Xu, S. Matsushima, and M. Arai
- 2635 Remarkable Enhancement of Swift Heavy Ion Irradiation on $\text{SrAl}_2\text{O}_4: \text{Eu}^{2+}$ Afterglow
T. Zhan, C. Xu, H. Yamada, Y. Terasawa, L. Zhang, H. Iwase, and M. Kawai
- 2636 Development of New Elasticoluminescence Material $\text{SrMg}_2(\text{PO}_4)_2: \text{Eu}$
S. Kamimura, H. Yamada, and C. Xu
- 2637 Near Infra-Red Mechanoluminescence by the Energy Transfer from Eu^{2+} to Er^{3+} Ions
Y. Terasawa, C. Xu, and H. Yamada
- 2638 A Simple Model of the Energy of a Nanoparticle
C. Struck and O. Barbosa-Garcia
- 2639 Complex Aperiodic Nanoplasmonics Engineering Light-matter Interactions on Optical Chips
L. Dal Negro

- 2640 Photoluminescence Study of CaHfO₃ and SrHfO₃ Nanoparticles Synthesized Via Non-Aqueous Sol-Gel Process
E. Rauwel, A. Galeckas, M. Karmaoui, P. Rauwel, and H. Fjellvåg
- 2641 Photoluminescence Efficiency of Self-Assembled Germanium Dots on SiO₂ and TiO₂
D. Lockwood, N. Rowell, E. Barbagiovanni, L. Goncharova, P. Simpson, I. Berbezier, G. Amiard, L. Favre, A. Ronda, M. Faustini, and D. Grosso
- 2642 Photoluminescence Study and Precursor Dependence of ZnO Nanoparticles Synthesized via Non-Aqueous Sol-Gel Process
E. Rauwel, A. Galeckas, P. Rauwel, and H. Fjellvåg
- 2643 Ternary Quantum Dots with Tunable Emission Wavelength and their Use as Light Emitting Diodes
Y. Pu and Y. Hsu
- 2644 The Effect of Particle Size on the Luminescence of Cr-doped YAG Nanoparticles
B. Di Bartolo, G. Ozen, F. Picinelli, A. Speghini, M. Bettinelli, and J. Collins
- 2645 Energy Transfer of Two-Ion Doped Phosphors for LED Application
S. Im, T. Kim, and T. Kim
- 2646 Sensitizing Eu³⁺ for Potential LED Phosphors
A. Setlur, J. Murphy, F. Garcia-Santamaria, and U. Happek
- 2647 Luminescence Properties of Oxy-nitride Green Phosphors Synthesized with Silicate Phosphor as a Precursor
E. Kang, S. Choi, and S. Hong
- 2648 A Study of Blue Emitting Phosphors, ABPO₄:Eu²⁺ (A=K, Li, Na; B=Ca, Sr, Ba) for UV LEDs
M. E. Hannah, A. Piquette, M. Anc, J. McKittrick, J. Talbot, J. Han, and K. C. Mishra
- 2649 Development of Red Phosphors for Solid-State Lighting
L. Shea-Rohwer, M. Nyman, and J. Martin
- 2650 Near UV-to-Red Photon Conversion in Bi³⁺ and Pr³⁺-Codoped CaTiO₃
P. Boutinaud
- 2651 Preparation and Luminescence of SrScSi₄(O,N)₇ Phosphors
D. Porob, N. Karkada, P. K. Nammalwar, and A. Setlur
- 2652 High Quantum Efficiency of (Ba_{1-x}Eux)₂SiO₄ sub-micron sized Green Emitting Phosphors for Near UV-Emitting LEDs
J. Han, M. E. Hannah, J. Talbot, K. C. Mishra, and J. Mckittrick

- 2653 Cathodoluminescent Phosphors for General Lighting with Enhanced Efficacy, Lifetime, and Thermal Stability using CNT and CNT Coatings
C. E. Hunt, A. Traore, M. Sheehan, C. McLeod, Q. Huang, D. Gu, and H. Baumgart
- 2654 First-Principles Investigation of the Luminescence Mechanism of Eu^{2+} in M_2SiO_4 (M= Sr, Ba)
K. C. Mishra, M. E. Hannah, P. Schmidt, and K. Johnson
- 2655 Solution-based Protective Coatings for LED Phosphors
J. Murphy, M. Karadge, and A. Setlur
- 2656 Kinetic Studies of Luminescence from Pr^{3+} -doped Calcium Niobate
J. Collins, G. Ozen, B. Di Bartolo, and M. Bettinelli
- 2657 Blue and Red Luminescence Bands in Oxidized Porous Si and Effect of External Electric Field
B. Gelloz, K. Nishikawa, and N. Koshida
- 2658 The Self-Assembly of Quaternary Ammonium Salts for Cathode-Independent High Efficiency Polymer Light-Emitting Diodes
T. Wen, S. Hsieh, S. Hsiao, C. Wu, and T. Guo
- 2659 The Application of Tetraoctylammonium Bromide and Ammonium Bromide in Polymer Light-Emitting Diodes
K. Tsai, S. Hsieh, T. Guo, and T. Wen
- 2660 Tuning of Poly(3,4-ethylenedioxythiophene): Polystyrenesulphonate Work Function with N91 in Polymer Light-Emitting Diodes
Y. Chou, C. Li, S. Hsieh, T. Guo, and T. Wen
- 2661 The Phase-Change of Tetraoctylammonium Bromide on Device Performance in Polymer Light-Emitting Diodes
C. Wu, S. Hsieh, T. Guo, and T. Wen
- 2662 Ce^{3+} -doped Garnet Ceramic Phosphors for White LED
S. Tanabe
- 2663 Ceramic Converters in LEDs
M. E. Hannah, J. F. Kelso, M. Raukas, M. Stough, G. Wei, Y. Zheng, N. Zink, K. Bergenek, R. Wirth, D. Eisert, and A. Linkov
- 2664 Optical Property Control in Ceramic Converters for White LED Applications
J. F. Kelso, N. Zink, and A. Lenef
- 2665 Lumiramic Phosphor Technology for Solid State Lighting
H. Bechtel, P. Schmidt, A. Tuecks, and O. Shchekin

- 2666 Narrow Spectral Linewidth Trivalent Rare Earth Doped $\text{SrCaMo}_{1-x}\text{W}_x\text{O}_4$ Phosphors for High Efficacy White LEDs
P. S. Dutta and A. Khanna
- 2667 A New Ceramic Phosphor for LED Applications
Y. Zheng, M. E. Hannah, N. Zink, V. Perez, G. Wei, J. F. Kelso, and M. Raukas
- 2668 High Efficiency Sr-Ca-Ga-S:Eu²⁺ Alloyed Phosphors for Full Spectrum White LEDs
P. S. Dutta and A. Gennett
- 2669 $\text{BaY}_2\text{Si}_2\text{Al}_2\text{O}_2\text{N}_5:\text{Eu}^{2+}$: A Novel Green-Emitting Phosphor for White Light-Emitting Diodes
W. Liu, C. Yeh, C. Huang, C. Lin, Y. Chiu, Y. Yeh, and R. Liu
- 2670 Exciton Luminescence in ¹⁰B-doped ZnO:Ga and Its Application to Neutron Scintillator
H. Nanto, T. Kumakura, Y. Takei, T. Nakamura, and M. Katagiri
- 2671 Enhancing Color Gamut of White Displays by using High Efficiency Color Thin Films Incorporating Novel Organic Dye Materials
W. Liu, M. Jhang, W. Huang, C. Lin, and C. Cheng
- 2672 Sol-Gel Synthesis and Photoluminescent Properties of $\text{SrMoO}_4:\text{Eu}^{3+}$ Phosphors for Application to White LEDs
S. Park, K. Jang, H. Lee, S. Yi, and J. Jeong
- 2673 Synthesis, Visible Upconversion Luminescence of Yb^{3+} , Tm^{3+} Co-Doped LaGaO_3 Phosphors
H. Yang, B. Moon, B. Choi, K. Jang, H. Lee, S. Yi, and J. Jeong
- 2674 Elasticoluminescence Mechanism of $\text{SrMg}_2(\text{PO}_4)_2:\text{Eu}$
S. Kamimura, H. Yamada, and C. Xu
- 2675 The Evolution of the Optical Spectra of $(\text{M}, \text{M}')\text{TiO}_3:\text{Pr}^{3+}$ (M, M': Ca, Zn, Sr) Phosphors
G. Kim, S. Lee, and Y. Kim
- 2676 Photoluminescence Properties of un-doped and Sm^{3+} doped $\text{Ca}_3\text{Y}_2\text{Si}_3\text{O}_{12}$ Phosphors for NUV based WLEDs
V. Bandi, B. Grandhe, K. Jang, H. Lee, D. Shin, S. Yi, and J. Jeong
- 2677 The Enhancement of the Green Emission of $\text{Na}(\text{Y},\text{Al})\text{F}_4:\text{Yb}^{3+}/\text{Er}^{3+}$ up-conversion Phosphors
S. Kwon, J. Lee, and Y. Kim
- 2678 Deposition and Luminescent Characterizations of $\text{Sr}_2\text{SiO}_4:\text{Eu}^{2+}$ Thin Films Prepared by a Sputtering Method
S. Lee, J. Lee, G. Kim, and Y. Kim
- 2679 Characterizations of GaN-Based Light-Emitting Diodes Fabricated with Emission Wavelengths of 429-467 nm
E. Jung, S. Kim, and H. Kim

- 2680 Novel Beam Profile Indicator for Swift Heavy Ions
T. Zhan, C. Xu, H. Yamada, Y. Terasawa, L. Zhang, H. Iwase, and M. Kawai
- 2681 History Recording System of Fatigue Crack Growth based on Mechanoluminescent Microparticles
N. Terasaki and C. Xu
- 2682 Synthesis and Luminescence Properties of Full-Color (Ba, Ca, Sr)₃MgSi₂O₈:Eu²⁺, Mn²⁺ Phosphors for near UV-Emitting LEDs
G. Hirata, J. Han, M. E. Hannah, J. Talbot, K. C. Mishra, and J. Mckittrick
- 2683 Silicon-based Nitride Red Phosphors for White Light Emitting Diodes (LEDs)
J. Choi, G. Hirata, M. E. Hannah, A. Piquette, J. Talbot, K. C. Mishra, and J. Mckittrick

J6 - Sensors Based on Fluorescence, SERS, SPR, and Photoelectrochemistry *Sensor*

- 2684 Fluorescence Quenching Studies of Electric Field Induced DNA Orientation Dynamics at Glassy Carbon Electrode Surfaces
Q. Li, C. Cui, D. Higgions, and J. Li
- 2685 Quantum Dots for Multiplex In Vitro Diagnostics
Z. P. Aguilar, H. Xu, D. Chou, J. Dixon, and A. Wang
- 2686 Evidence of Long-Range Plasmonic Coupling: Interpillar Gap Dependence from Large-Area ALD Ag-Coated Si Nanopillar Arrays
J. D. Caldwell, O. Glembocki, F. Bezares, E. Robertson, M. Kariniemi, S. Prokes, E. Foos, J. Niinistö, T. Hatanpaa, M. Ritala, and M. Leskelä
- 2687 Tracking Motions of Plasmonic Nanoparticle Probes under Differential Interference Contrast Microscopy
W. Sun, A. Stender, Y. Gu, and N. Fang
- 2688 Fluorescence-Signaling Aptasensor for ATP and PDGF Detection on Functionalization Diamond Surfaces
A. Ruslinda, Y. Ishiyama, X. Wang, T. Kobayashi, and H. Kawarada
- 2689 Microchip Separation Based Sensors for Monitoring Biological Systems
S. M. Lunte
- 2690 Enabling Mercury Detection via Energy Transfer between Quantum Dots and Gold Nanoparticles
M. Li and N. Wu
- 2691 Development of High-Quality Near-Infrared Quantum Dots for Sensor Applications
H. Zhao, I. Ka, M. Chaker, M. El Khakani, and D. Ma

- 2692 A Novel Graphene Based SPR Biosensor Using Optical Fiber
J. Kim, A. Kulkarni, J. Kang, R. Amin, J. Choi, S. Park, and T. Kim
- 2693 Optimized Nanoparticle Cluster Arrays for SERS Biosensing
B. Reinhard
- 2694 Nano-Molding of Two-Dimensional Polymer-Based Photonics Crystals for Biosensing Applications
B. M. Hamza, L. Carroll, Y. Liu, and J. Dawson
- 2695 Plasmonic-based Imaging of Local Electrochemical Current and Interfacial Impedance
X. Shan, W. Wang, S. Wang, K. Foley, and N. Tao
- 2696 Microfluidic Human Blood Plasma Separation for Lab on Chip Based Heavy Metal Detections
R. Zhong, N. Wu, and Y. Liu
- 2697 Engineered SERS Substrate for Bacteria Pathogen Detection: Nanoparticle Cluster Arrays(NCAs)
B. Yan, L. Yang, S. Boriskina, and B. Reinhard
- 2698 A pH Sensor Based on Surface-Enhanced Raman Scattering
M. Li and N. Wu
- 2699 Remote Surface Enhanced Raman Imaging via a Nanostructured Optical Fiber Array
V. Guieu, D. Talaga, P. Garrigue, L. Servant, F. Lagugné-Labarthe, and N. Sojic
- 2700 Photoelectrochemistry of PdS Thin Films in Aqueous Media
I. Ferrer, D. Maciá, J. Clamagirand, J. Ares, and C. Sánchez